ENVIRONMENTAL PROTECTION COMMISSION[567]

Former Water, Air and Waste Management[900], renamed by 1986 Iowa Acts, chapter 1245, Environmental Protection Commission under the "umbrella" of the Department of Natural Resources.

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TITLE I
GENERAL

CHAPTER 1
OPERATION OF ENVIRONMENTAL PROTECTION COMMISSION

[Prior to 12/3/86, see Water, Air and Waste Management[900] Ch 2]

567—1.1(17A,455A) Scope. This chapter governs the conduct of business by the environmental protection commission. Rule-making proceedings held as part of commission meetings and contested case proceedings involving the commission are governed by other rules of the department.

567—1.2(17A,455A) Time of meetings. The commission meets at least quarterly, and usually meets monthly. The director, the chairperson, or a majority of the commission may establish meetings. Normally, the time of the next meeting will be determined in the current commission meeting.

567—1.3(17A,455A) Place of meetings. Meetings are generally held in the Henry A. Wallace Building, 900 East Grand Avenue, Des Moines, Iowa. The commission may meet at other locations from time to time; if so, the meeting place will be specified in the agenda.

567—1.4(17A,455A) Notification of meetings. The director of the department shall provide public notice of all meeting dates, locations, and tentative agenda.

1.4(1) *Form of notice.* Notice of meetings is given by posting the tentative agenda and by distribution upon request. The agenda lists the time, date, place, and topics to be discussed at the meeting. The agenda shall include a specific time for the public to address the commission on any issue related to the duties and responsibilities of the commission, except as otherwise provided in these rules.

1.4(2) *Posting of agenda.* The tentative agenda for each meeting will be posted at the department's offices on the fourth and fifth floors, Henry A. Wallace Building, normally at least seven days prior to the meeting. Agenda will be posted at least 24 hours prior to the meeting, unless for good cause such notice is impossible or impractical, in which case as much notice as is reasonably possible will be given.

1.4(3) *Distribution of agenda.* Agenda will be mailed to anyone who files a request with the director. The request should state whether the agenda for a particular meeting is desired, or whether the requester desires to be on the department's mailing list to receive the agenda for all meetings of the environmental protection commission.

1.4(4) *Amendment to agenda.* Any amendments to the agenda after posting and distribution under subrules 1.4(2) and 1.4(3) will be posted, but will not be mailed. The amended agenda will be posted at least 24 hours prior to the meeting, unless for good cause such notice is impossible or impractical, in which case as much notice as is reasonably possible will be given. The commission may adopt amendments to the agenda at the meeting only if good cause exists requiring expeditious discussion or action. The reasons and circumstances necessitating agenda amendments, or those given less than 24 hours' notice by posting, shall be stated in the minutes of the meeting.

1.4(5) *Supporting material.* Written materials provided to the commission with the agenda may be examined and copied as provided. Copies of the materials may be distributed at the discretion of the director to persons requesting the materials. The director may require a fee to cover the reasonable cost to the department to provide the copies, in accordance with rules of the department.

567—1.5(17A,455A) Attendance and participation by the public.

1.5(1) *Attendance.* All meetings are open to the public. The commission may exclude the public from portions of the meeting in accordance with Iowa Code section 21.5.

1.5(2) *Participation.*

a. Items on agenda. Presentations to the commission may be made at the discretion of the chairperson.

b. Items not on agenda. Because Iowa Code section 21.4 requires the commission to give notice of its agenda, the commission discourages persons from raising matters not on the agenda. Persons who

wish to address the commission on a matter not on the agenda should file a request with the director to place that matter on the agenda of the subsequent meeting.

c. *Meeting decorum.* The chairperson may limit participation as necessary for the orderly conduct of agency business.

1.5(3) *Use of cameras and recording devices.* Cameras and recording devices may be used during meetings provided they do not interfere with the orderly conduct of the meeting. The chairperson may order the use of these devices discontinued if they cause interference, and may exclude those persons who fail to comply with that order.

567—1.6(17A,455A) Quorum and voting requirements.

1.6(1) *Quorum.* Five or more commissioners present at a meeting constitute a quorum.

1.6(2) *Voting.*

a. *Voting requirements if eight or nine commissioners are currently appointed.* If eight or nine commissioners are currently appointed to the environmental protection commission by the governor, then the affirmative votes of five or more commissioners shall be required to act on any matter within the jurisdiction of the commission.

b. *Voting requirements if seven or fewer commissioners are currently appointed.* If seven or fewer commissioners are currently appointed to the environmental protection commission by the governor, then the affirmative votes of four or more commissioners shall be required to act on any matter within the jurisdiction of the commission.

c. *Voting requirements to close a meeting.* Notwithstanding paragraph 1.6(2)*"a"* or 1.6(2)*"b,"* a vote to close a meeting shall require the concurrence of six or more members of the commission, or the concurrence of all members present if less than six members are present.

567—1.7(17A,455A) Conduct of meeting.

1.7(1) *General.* Meetings will be conducted in accordance with Robert's Rules of Order unless otherwise provided in these rules. Voting shall be by voice or by roll call. Voting shall be by voice unless a voice vote is inconclusive, a member of the commission requests a roll call, or the vote is on a motion to close a portion of a meeting. The chairperson shall announce the result of the vote.

1.7(2) *Voice votes.* All commission members present should respond when a voice vote is taken. The response shall be aye, nay, or abstain.

a. All members present shall be recorded as voting aye on any motion when there are no nay votes or abstentions heard.

b. Any member who abstains shall state at the time of the vote the reason for abstaining. The abstention and the reason for it shall be recorded in the minutes.

1.7(3) *Provision of information.* The chairperson may recognize any agency staff member for the provision of information relative to an agenda item.

567—1.8(17A,455A) Minutes, transcripts, and recordings of meetings.

1.8(1) *Recordings.* The director shall record by mechanized means each meeting, and shall retain the recording for at least one year. Recordings of closed sessions shall be sealed and retained at least one year.

1.8(2) *Transcripts.* The department does not routinely prepare transcripts of meetings. The department will have transcripts of meetings, except for closed sessions, prepared upon receipt of a request for a transcript and payment of a fee to cover the cost to the department of preparing the transcript.

1.8(3) *Minutes.* The director shall keep minutes of each meeting. Minutes shall be reviewed and approved by the commission, and retained permanently by the director. The approved minutes shall be signed by the director and the chairperson and secretary of the commission.

567—1.9(17A,455A) Officers and duties.

1.9(1) *Officers.* The officers of the commission are the chairperson, the vice chairperson, and the secretary.

1.9(2) *Duties.* The chairperson shall preside at meetings, and shall exercise the powers conferred upon the chairperson. The vice chairperson shall perform the duties of the chairperson when the chairperson is absent or when directed by the chairperson. The secretary shall supervise the preparation of minutes, make recommendations to the commission on approval or revision of the minutes, and act as parliamentarian.

567—1.10(17A,455A) Election and succession of officers.

1.10(1) *Elections.* Officers shall be elected annually during May.

1.10(2) *Succession.*

a. If the chairperson does not serve out the elected term, the vice chairperson shall succeed the chairperson for the remainder of the term. A special election shall be held to elect a new vice chairperson to serve the remainder of the term.

b. If the vice chairperson does not serve out the elected term, a special election shall be held to elect a new vice chairperson to serve the remainder of the term.

c. If the secretary does not serve out the elected term, a special election shall be held to elect a new secretary to serve the remainder of the term.

567—1.11(68B) Sales of goods and services.

1.11(1) *Prohibition.* An official shall not sell, either directly or indirectly, any goods or services to individuals, associations, or corporations subject to the regulatory authority of the department unless the department consents as provided in this rule.

1.11(2) *Definitions.*

"Association" means any profit or nonprofit entity that is not a "corporation" or an "individual" as defined in this rule, but does not include any "unit of government" as defined in this rule.

"Commission" means the environmental protection commission.

"Corporation" means "corporation" and "foreign corporation" as defined in Iowa Code sections 490.140 and 504A.2, but does not include any "unit of government" as defined in this rule.

"Department" means the department of natural resources.

"Goods" means personal property, tangible and intangible.

"Individual" means a human being and includes any individual doing business as a sole proprietorship.

"Official" means a member of the environmental protection commission.

"Sale" or *"sell"* means the process in which goods or services are provided in exchange for money or other valuable consideration. The term does not include purchases of goods or services, nor outside employment activities that constitute an employer-employee relationship.

"Services" means action, conduct or performance which furthers some end or purpose or which assists or benefits someone or something.

"Unit of government" means "United States," "state" and "governmental subdivision" as defined in Iowa Code section 490.140.

1.11(3) *Application for consent.* An application for consent must be signed by the official requesting consent and submitted as specified in subrule 1.11(4). The application must provide a clear statement of all relevant facts concerning the sale, specify the amount of compensation and how compensation is to be determined, and indicate the time period or number of transactions for which consent is requested. The application must also explain why the sale would not create a conflict of interest or provide financial gain by virtue of the applicant's position within the department.

1.11(4) *Consent procedure.* Applications for consent must be submitted to the director who will schedule the matter as an informational item at a meeting of the commission. When the informational item is considered, the applicant may explain the application and entertain questions. The director shall schedule the matter to be decided at the second meeting following its consideration as an informational item, at which time the commission shall consider written comments which have been filed with the

director and entertain any oral comments. The commission shall approve or deny the application by voting in the same manner as it determines other matters, except that the applicant shall not vote.

1.11(5) *General conditions of consent.* Consent shall not be given to an official unless all of the following conditions are met:

a. This condition is satisfied if either of the following paragraphs is met:

(1) The duties or functions performed by the official are not related to the regulatory authority of the department over the individual, association or corporation; or

(2) The duties or functions performed by the official are not affected by the selling of goods or services to the individual, association or corporation.

b. The selling of the goods or services by the official does not include acting as an advocate to the department on behalf of the individual, association or corporation receiving the goods or services.

c. The selling of goods or services does not result in the official selling a good or service to the department on behalf of the individual, association or corporation.

1.11(6) *Class prohibitions and consent.*

a. The commission concludes that the sales of goods and services described in this paragraph, as a class, constitute the sale of a good or service which affects an official's functions. The department will not consent to sales which fall within the following categories unless there are unique facts surrounding a particular sale which clearly satisfy the conditions listed in subrule 1.11(5).

Sales which are prohibited by rule:

(1) Sales of department information or the sale of services necessary to gather department information, including but not limited to solicitation lists.

(2) Services utilized in the preparation of applications, reports, or other documents which may be approved or reviewed by the commission.

b. The commission concludes that sales of goods or services described in this paragraph do not, as a class, constitute the sale of a good or service which affects an official's functions. Application and department approval are not required for these sales unless there are unique facts surrounding a particular sale which would cause that sale to affect the official's duties or functions, would give the buyer an advantage in its dealings with the department, or otherwise present a conflict of interest.

Sales for which consent is granted by rule:

(1) Nonrecurring sales of goods and services if the official is not engaged for profit in the business of selling those goods or services.

(2) Sale of farm products at market prices to a buyer ordinarily engaged in the business of purchasing farm products.

(3) Sales of goods to general public at an established retail or consignment shop.

(4) Sale of legal, mechanical, or other services at market or customary prices. However, if an official's client or customer has a matter for decision before the commission, the official shall not participate in the discussion and voting on that matter unless consent has been obtained pursuant to subrules 1.11(3) and 1.11(4).

(5) Sale of goods at wholesale prices to a buyer ordinarily engaged in the business of purchasing wholesale goods for retail sale.

(6) Sale of creative works of art, including but not limited to sculpture and literary products, at market, auction, or negotiated prices. However, if an official's customer has a matter for decision before the commission directly or indirectly involving that good, the official shall not participate in the discussion and voting on that matter unless consent has been obtained pursuant to subrules 1.11(3) and 1.11(4).

(7) Sale of goods to general public at market or franchiser-established prices. However, if an official's customer has a matter for decision before the commission, the official shall not participate in the discussion and voting on that matter unless consent has been obtained pursuant to subrules 1.11(3) and 1.11(4).

1.11(7) *Effect of consent.* The consent must be in writing. The consent is valid only for the activities and period described in it and only to the extent that material facts have been disclosed and the actual

facts are consistent with those described in the application. Consent can be revoked at any time by written notice to the official.

1.11(8) *Public information.* The application and consent are public records, open for public examination, except to the extent that disclosure of details would constitute a clearly unwarranted invasion of personal privacy or trade secrets and the record is exempt from disclosure under Iowa law.

1.11(9) *Effect of other laws.* Neither this rule nor any consent provided under it constitutes consent for any activity which would constitute a conflict of interest at common law or which violates any applicable statute or rule. Despite department consent under these rules, a sale of goods or services to someone subject to the jurisdiction of the agency may violate the gift law, bribery and corruption laws. It is the responsibility of the official to ensure compliance with all applicable laws and to avoid both impropriety and the appearance of impropriety.

These rules are intended to implement Iowa Code sections 17A.3(1)*"a,"*68B.4 and 455A.6.

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CHAPTER 2
PUBLIC RECORDS AND FAIR INFORMATION PRACTICES

[Prior to 2/11/87, see Water, Air and Waste Management, 900—4.1 to 4.4]

567—2.1(17A,22) Adoption by reference. The commission adopts by reference 561—Chapter 2, Iowa Administrative Code, with the addition of the following new subrule.

2.4(7) Definitions. For purposes of this chapter:

a. "Emission data" means the following, with reference to any source of emission of any substance into the air:

(1) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics (to the extent related to air quality) of any emission which has been emitted by the source (or of any pollutant resulting from any emission by the source) or any combination of the foregoing;

(2) Information necessary to determine the identity, amount, frequency, concentration, or other characteristics (to the extent related to air quality) of the emissions which, under an applicable standard or limitation, the source was authorized to emit (including, to the extent necessary for such purposes, a description of the manner or rate of operation of the source); and

(3) A general description of the location and nature of the source to the extent necessary to identify the source and to distinguish it from other sources (including, to the extent necessary for such purposes, a description of the device, installation, or operation constituting the source).

b. "Effluent data" means the following, with reference to any source of discharge of any pollutant:

(1) Information necessary to determine the identity, amount, frequency, concentration, temperature, or other characteristics (to the extent related to water quality) of any pollutant which has been emitted by the source (or of any pollutant resulting from any discharge from the source) or any combination of the foregoing;

(2) Information necessary to determine the identity, amount, frequency, concentration, temperature, or other characteristics (to the extent related to water quality) of the pollutants which, under an applicable standard or limitation, the source was authorized to discharge (including, to the extent necessary for such purposes, a description of the manner or rate of operation of the source); and

(3) A general description of the location and nature of the source to the extent necessary to identify the source and to distinguish it from other sources (including, to the extent necessary for such purposes, a description of the device, installation, or operation constituting the source).

These rules are intended to implement Iowa Code sections 22.11, 455B.137 and 455B.179.

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CHAPTER 3
SUBMISSION OF INFORMATION AND COMPLAINTS—INVESTIGATIONS

[Prior to 2/11/87, see Water, Air and Waste Management, 900—4.5]

567—3.1(17A,455B) Adoption by reference. The commission adopts by reference 561—Chapter 3, Iowa Administrative Code.

This rule is intended to implement Iowa Code sections 17A.3(1) and 455B.105.

[Filed 1/23/87, Notice 11/19/86—published 2/11/87, effective 3/18/87]

CHAPTER 4
AGENCY PROCEDURE FOR RULE MAKING

567—4.1(17A) Adoption by reference. The commission adopts by reference 561—Chapter 4, Iowa Administrative Code.

This rule is intended to implement Iowa Code chapter 17A as amended by 1998 Iowa Acts, chapter 1202.

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CHAPTER 5
PETITIONS FOR RULE MAKING

567—5.1(17A) Adoption by reference. The commission adopts by reference 561—Chapter 5, Iowa Administrative Code.

This rule is intended to implement Iowa Code chapter 17A as amended by 1998 Iowa Acts, chapter 1202.

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CHAPTER 6
DECLARATORY ORDERS

567—6.1(17A) Adoption by reference. The commission adopts by reference 561—Chapter 6, Iowa Administrative Code.

This rule is intended to implement Iowa Code chapter 17A as amended by 1998 Iowa Acts, chapter 1202.

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CHAPTER 7
RULES OF PRACTICE IN CONTESTED CASES

[Prior to 9/7/88, see Water, Air and Waste Management[900] Ch 7]

567—7.1(17A) Adoption by reference. The commission adopts by reference 561—Chapter 7, Iowa Administrative Code.

This rule is intended to implement Iowa Code sections 17A.3 and 17A.12 to 17A.18.

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CHAPTER 8
CONTRACTS FOR PUBLIC IMPROVEMENTS AND PROFESSIONAL SERVICES

567—8.1(17A) Adoption by reference. The commission adopts by reference 561—Chapter 8, Iowa Administrative Code, as amended through June 19, 1991.

These rules are intended to implement Iowa Code sections 455A.6, 455B.105 and 573.12(3).

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CHAPTER 9
DELEGATION OF CONSTRUCTION PERMITTING AUTHORITY

[Prior subject matter DEQ Ch 24]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—9.1(455B) Scope. Iowa Code section 455B.183 delegates construction permitting authority over certain sewer and water main extensions to qualified local public works departments and rural water systems organized under Iowa Code chapter 357A or 504. This chapter describes the manner and criteria under which the department oversees this delegated authority.
[**ARC 5052C**, IAB 6/17/20, effective 7/22/20]

567—9.2(455B,17A) Forms. The following forms are to be used by the local public works department or rural water system implementing this authority:

542-1001: Application for delegating permitting authority to local public works departments
542-1002: Statement of engineer's qualifications
542-1003: Review checklist for water main extensions at local public works departments
542-1004: Review checklist for sewer extensions
542-1005: Quarterly report for permitting authority
542-1057: Application for delegating permitting authority to rural water systems
542-1058: Review checklist for water main extensions at rural water systems
[**ARC 5052C**, IAB 6/17/20, effective 7/22/20]

567—9.3(455B) Procedures. A local public works department or rural water system incorporated under Iowa Code chapter 357A or 504 exercising permitting authority for sewer or water supply distribution system extensions under Iowa Code section 455B.183 shall notify the director in writing prior to the first permit issuance, using Form 542-1001 or 542-1057, as applicable, and 542-1002. Additional information may be requested by the director.
[**ARC 5052C**, IAB 6/17/20, effective 7/22/20]

567—9.4(455B) Criteria for permitting authority at local public works departments. The requirements for permitting authority at local public works departments are as follows:

9.4(1) Permitting authority under this rule applies only to extensions which:

a. Primarily serve residential consumers and will not result in an increase greater than 5 percent of the capacity of the treatment works or system, or will serve fewer than 250 dwelling units.

b. In the case of sewer extensions, will not exceed the capacity of any treatment works which received a federal or state monetary grant after 1972.

c. In the case of water main extensions, will not exceed the production capacity of any system constructed after 1972.

9.4(2) The local public works department's standard specifications must be in conformance with the Iowa Standards for Sewer Systems cited in 567—paragraph 64.2(9)*"b,"* or the water supply construction standards in rule 567—43.3(455B), and must be filed with and approved by the department.

9.4(3) The reviewing engineer shall be licensed as a professional engineer in Iowa and shall be employed by the local public works department.

9.4(4) When reviewing applications for sewer and water supply distribution system extensions under its jurisdiction, the local public works department shall use the Iowa Standards for Sewer Systems, the water supply construction standards in rule 567—43.3(455B), and the local standard specifications approved by the department.

9.4(5) The local public works department shall use Form 542-1003 or Form 542-1004, as applicable, when reviewing plans. Upon issuance of each permit, the local public works department shall submit to the department a copy of the permit and a copy of the form used during the review.

9.4(6) The local public works department shall submit to the department a complete quarterly report using Form 542-1005 by the fifteenth day of the month following each quarter of the calendar year.

9.4(7) Plans for which a construction permit has been issued shall be retained on file by the local public works department for the life of the extension or until the extension has been platted.
[**ARC 5052C**, IAB 6/17/20, effective 7/22/20]

567—9.5(455B) Criteria for permitting authority at rural water systems. The requirements for permitting authority at rural water systems incorporated under Iowa Code chapter 357A or 504 are as follows:

9.5(1) Permitting authority under this rule applies only to extensions which:

a. Primarily serve residential consumers and will not result in an increase greater than 5 percent of the capacity of the treatment works or system, or will serve fewer than 250 dwelling units.

b. In the case of sewer extensions, will not exceed the capacity of any treatment works which received a federal or state monetary grant after 1972.

c. In the case of water main extensions, will not exceed the production capacity of any system constructed after 1972.

9.5(2) The rural water system's standard specifications must be in conformance with the Iowa Standards for Sewer Systems cited in 567—paragraph 64.2(9)*"b,"* or the water supply construction standards in 567—43.3(455B), and must be filed with and approved by the department. The system's hydraulic modeling must comply with the water supply distribution system standards pursuant to rule 567—43.3(455B).

9.5(3) The reviewing engineer shall be licensed as a professional engineer in Iowa and shall be employed or retained by the rural water system.

9.5(4) When reviewing applications for sewer and water supply distribution system extensions under its jurisdiction, the rural water system shall use the Iowa Standards for Sewer Systems, the water supply construction standards in rule 567—43.3(455B), and the local standard specifications approved by the department.

9.5(5) The rural water system shall use Form 542-1003 or Form 542-1058, as applicable, when reviewing plans. Upon issuance of each permit, the rural water system shall submit to the department a copy of the permit and a copy of the form used during the review.

9.5(6) The rural water system shall submit to the department a complete quarterly report using Form 542-1005 by the fifteenth day of the month following each quarter of the calendar year.

9.5(7) Plans for which a construction permit has been issued shall be retained on file by the rural water system for the life of the extension.
[**ARC 5052C**, IAB 6/17/20, effective 7/22/20]

567—9.6(455B) No variance allowed. No variance to the design standards is allowed under delegated permitting authority. If a variance to the design standards is needed, the local public works department or rural water system must apply to the department for an individual construction permit following the wastewater permit procedures in rule 567—60.4(455B) and rule 567—64.2(455B) and the water supply permit procedures in 567—subrule 40.4(1).
[**ARC 5052C**, IAB 6/17/20, effective 7/22/20]

567—9.7(455B) Criteria for rescission or revocation of delegated permitting authority.

9.7(1) The local public works department or rural water system may voluntarily request that its permitting authority be rescinded by submitting the request in writing to the director.

9.7(2) The director may suspend or revoke delegation of review and permit authority after notice and hearing as set forth in Iowa Code chapter 17A if the director determines that a public works department or rural water system with delegated permitting authority has approved extensions which do not comply with design criteria, which exceed the capacity of waste treatment plants or the production capacity of public water supply systems, or which otherwise violate state or federal requirements.
[**ARC 5052C**, IAB 6/17/20, effective 7/22/20]

These rules are intended to implement Iowa Code sections 17A.3, 455B.105 and 455B.171 to 455B.187.

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CHAPTER 10
ADMINISTRATIVE PENALTIES
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—10.1(455B) Scope. Iowa Code section 455B.109 authorizes the assessment of administrative penalties for violations of Iowa Code chapter 455B or rules, permits and orders promulgated or issued pursuant to 455B. This rule describes the policies and procedures for assessing such penalties.

567—10.2(455B) Criteria for screening and assessing administrative penalties. All formal enforcement actions are processed through the environmental protection division administrator of the department. The administrator shall screen each case to determine the most equitable and efficient means of redressing and abating the violation. In evaluating a violation for purposes of screening the violation to determine which cases may be appropriate for administrative assessment of penalties or for purposes of assessing administrative penalties, the department will consider among other relevant factors the following:

10.2(1) Costs saved or likely to be saved by noncompliance by the violator. Where the violator realizes an economic benefit through the violation or by not taking timely compliance or corrective measures, the department shall take enforcement action which includes penalties which at least offset the economic benefit. Reasonable estimates of economic benefit should be made where clear data are not available.

10.2(2) Gravity of the violation. Factors include but are not limited to:

a. The actual or threatened harm to the environment or the public health and safety.

b. Involvement of toxic or hazardous substances or potential long-term effects of the violation.

c. The degree to which ambient or source-specific standards are exceeded, where pertinent.

d. Federal program priorities, size of facility, or other pertinent factors.

e. Whether the violation is repeated and whether it violates an administrative or court order.

f. Whether the type of violation threatens the integrity of a regulatory program.

g. Expenses or efforts by the government in detecting, documenting, or responding to a violation.

10.2(3) Culpability. Factors include but are not limited to:

a. The degree of intent or negligence. The standard of care required by the laws of the state of Iowa will be considered.

b. Whether the case involves false reporting of required information, or tampering with monitoring devices.

c. Whether the violator has taken remedial measures or mitigated the harm caused by the violation.

10.2(4) The maximum penalty authorized for that violation under Iowa Code chapter 455B. The penalty provisions of chapter 455B establish different maximum penalties for different categories of violation, for example: $500 for flood plain and water rights (455B.279); $1,000 for hazardous condition notification (455B.386); $5,000 for solid waste (455B.306), wastewater and drinking water (455B.191), and underground tanks (455B.477); $10,000 for air pollution (455B.146) and hazardous waste (455B.417 and 455B.454); and more severe criminal sanctions for culpable water, hazardous waste, and underground tank violations. These penalty provisions also authorize penalties for each day of violation, which for an ongoing violation can be substantial. Thus, the department will consider not only the maximum daily penalty in the Code for that type of violation, but also the maximum penalty for cumulative violations under consideration.

10.2(5) Whether the assessment of administrative penalties appears to be the only or most appropriate way to deter future violations, either by the person involved or by others similarly situated.

10.2(6) Other relevant factors. The department will consider other relevant factors which arise from the circumstances of each case.

10.2(7) This screening procedure shall not limit the discretion of the department to refer any case to the attorney general for legal action, nor does this procedure require the commission or the director to pursue an administrative remedy before seeking a remedy in the courts of this state.

567—10.3(455B) Assessment of administrative penalties. Except for operator discipline, administrative penalties shall be assessed through issuance of an administrative order of the director which recites the facts and the legal requirements which have been violated, and a general rationale for the prescribed penalty. The order may include cumulative penalties up to $10,000 for multiple violations. The order also may be combined with any other order authorized by statute for mandatory or prohibitory injunctive conditions, and is subject to normal contested case and appellate review. Operator discipline is governed by 567—Chapter 81, Iowa Administrative Code.

10.3(1) *Minimum penalty.* No penalty may be assessed unless the cumulative amount is $50 or more.

10.3(2) *Determination of amount.* The amount of penalty for each day of violation shall be determined from evaluation of the factors outlined in 10.2(1) to 10.2(6). The actual or reasonably estimated economic benefit shall always be assessed. An additional amount up to $3,000 shall be assessed depending on the gravity factors, 10.2(2) and 10.2(4), and an additional amount of up to $3,000 shall be assessed depending on the culpability factor, 10.2(3). The penalty may be increased or discounted up to $1,000 due to aggravating or mitigating factors, respectively. Notwithstanding the foregoing statements, the statutory penalty level shall not be exceeded.

These rules are intended to implement Iowa Code section 455B.109.

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CHAPTER 11
TAX CERTIFICATION OF POLLUTION CONTROL OR RECYCLING PROPERTY

[Prior Rules on the subject, DEQ Chs 12 and 23]
[Prior to 12/3/86, Water, Air and Waste Management[900]]
[Prior to 10/19/88, Environmental Protection Commission 567—Ch 8]

567—11.1(427) Scope. This chapter applies to persons who request certification by the department pursuant to Iowa Code Supplement section 427.1(19) that property is air or water pollution control or recycling property.

567—11.2(427,17A) Form. A complete Form 54-064, which is available through the local county assessor, the department of revenue, or this department, must be submitted in order to request certification under this chapter. In completing the form, the applicant may adopt by reference any pertinent information contained in an application for a permit submitted to the department.

567—11.3(427) Time of submission. A request may be submitted at any time. Taxpayers are reminded that failure to dispatch a request sufficiently in advance of the February 1 deadline for filing with the assessing authority may cause the applicant to fail to qualify for the first possible annual exemption.

567—11.4(427) Notice. The department shall notify the taxpayer of the decision within ten days of receipt of a complete request. The notice shall include either the certificate if the decision is to certify the property as requested, or a concise statement of reasons for denial if the decision is to deny the request or to certify a lesser portion of the property than requested. The determination of the department to deny or grant only a portion of the request may be appealed to the commission pursuant to 567—Chapter 7.

567—11.5(427) Issuance. Upon the decision of the department or the commission on appeal to certify all or any portion of the property for which a request has been made, two copies of the certificate will be signed by the director or designee and mailed to the taxpayer. The certificate shall describe the property certified and state the date on which the department certified the property.

567—11.6(427) Criteria for determining eligibility.

11.6(1) *General.* Property which has been installed and is used primarily to meet an effluent standard, a water quality standard, an emission standard or to control hydrocarbons, fugitive dust, odors or other air contaminants in a reasonably adequate manner shall be considered to be used primarily to control or abate pollution of water or air of the state. Property which has been installed to meet a standard more stringent than an emission or water quality standard shall be considered to be used primarily to enhance the quality of the water or air of this state. Personal property or improvements to real property as defined by Iowa Code section 427A.1 or any portion of the property used primarily in the manufacturing process and resulting directly in the conversion of waste plastic, wastepaper products, waste paperboard, waste glass, or waste wood into new raw materials or products composed primarily of recycled material shall be considered recycling property. Each request will be considered in the context of its particular circumstances.

In the event that such property also serves other purposes or uses of productive benefit to the owner of the property, only such portion of the assessed valuation thereof as may reasonably be calculated to be necessary for and devoted to the control or abatement of pollution, to the enhancement of the quality of the air or water of this state, or for recycling shall be exempt from taxation.

11.6(2) *Denial.* Property may be denied certification if it is not being operated in compliance with the rules of the department so as to effectively control or abate pollution or enhance the quality of the air or water of the state, or recycle property into new raw materials or products composed primarily of recycled material. Property which was constructed or installed without permits required from the department will be denied certification unless and until such time as the property has received after-the-fact approval from the department.

11.6(3) *Examples.* The following examples are illustrative and not determinative:

a. Air - normally considered eligible.

(1) Inertial separators (cyclones, etc.).
(2) Wet collection devices (scrubbers).
(3) Electrostatic precipitators.
(4) Cloth filter collectors (baghouses).
(5) Direct fired afterburners.
(6) Catalytic afterburners.
(7) Gas adsorption equipment.
(8) Gas absorption equipment.
(9) Vapor condensers.
(10) Vapor recovery system.
(11) Floating roofs for storage tanks.
(12) Controlled flare stacks.
(13) Fugitive dust controls (such as enclosures or spray systems).
(14) Standby systems and spare parts such as cloth dust collector bags, nozzles and minor spare parts, required for the continuous operation of other pollution control property.
(15) Combinations of the above.
(16) Sampling or monitoring equipment for air contaminants for which there are standards where such equipment is owned and operated by the owner of the source of air contaminants, and the results from the use of such equipment are submitted to the department.

b. Air - normally considered ineligible.

(1) Land purchased or held as a site for pollution control property.
(2) Property which is constructed or installed in order to circumvent the rules of the department.
(3) Incinerators, provided that features added to or incorporated in incinerators for pollution control may be eligible.
(4) Solid waste compactors used in place of incinerators or open burning.
(5) Replacement boilers or changeovers in fuels unless made in compliance with an emissions reduction program approved by the department and unless in compliance with a schedule approved by the Environmental Protection Agency.
(6) Consumable or process materials (e.g., in low sulfur coal purchased to replace higher sulfur content coal, or chemicals used in treatment).
(7) Process changes even if the taxpayer utilizes a process known to be "cleaner" than the previous process (e.g., replacing a cupola with an electric induction furnace, since both methods are used primarily for the production of iron and not for air pollution control).
(8) Property installed for the protection of employees from air contaminants inside commercial and industrial plants, works or shops under the jurisdiction of Iowa Code chapters 88 and 91.

c. Water - normally considered eligible.

(1) Pretreatment facilities such as those which neutralize or stabilize sewage, industrial waste or other waste from a point immediately preceding the point of such treatment, including necessary pumping and transmitting facilities.
(2) Treatment facilities such as those which neutralize or stabilize sewage, industrial waste or other waste from a point immediately preceding the point of such treatment to a point of disposal, including the necessary pumping and transmitting facilities.
(3) Improvements to real property, e.g., ancillary devices and facilities such as lagoons, ponds and structures for the storage or treatment of sewage, industrial waste or other waste from a plant or other property.
(4) Standby systems or spare parts which are required for the continuous operation of other pollution control property.
(5) Property which exclusively conveys or transports accumulated sewage, industrial waste or other recovered materials as an integral part of the control operation.
(6) A building which performs no function other than housing or sheltering other pollution control property.

(7) Sampling or monitoring equipment for water pollutants for which there are standards where such equipment is owned and operated by the owner of the source of water pollutants, and the results from the use of such equipment are submitted to the department.

(8) Property which dissipates heat (e.g., cooling towers).

d. Water - normally considered ineligible.

(1) Land purchased or held as a site for pollution control property or for land disposal of waste material.

(2) Property which merely dilutes sewage, industrial waste, or other waste (including heat) unless required by the department.

(3) Consumable or process materials (e.g., chemicals used in treatment).

(4) Licensed motor vehicles used to transport accumulated sewage, industrial waste, other waste or recovered materials.

e. Recycling - normally considered eligible. Property used in the conversion of waste plastic, wastepaper products, waste paperboard, waste glass, or waste wood into a raw material meeting industry specifications for use by a manufacturer of a recycled product including, but not limited to:

(1) Property used to sort and prepare wastepaper products or waste paperboard to paper mill industry specifications.

(2) Property used to sort and prepare wastepaper products or waste paperboard to cellulose insulation industry specifications.

(3) Property used to sort and prepare wastepaper products or waste paperboard to animal bedding industry specifications.

(4) Property used to sort and prepare wastepaper products or waste paperboard to packaging industry specifications.

(5) Property used to sort and prepare waste plastic to plastic industry specifications (e.g., extrusion, injection, blow) without additional required changes to the size or shape of the plastic before the plastic enters the manufacturing process.

(6) Property used to sort and prepare waste wood to industry specifications for products such as oriented-strand board, medium-density fiberboard, finger-jointed lumber, furniture, animal bedding, mulch, bulking material for the composting process, or fuel.

(7) Property used to sort and prepare waste glass to glass industry end-market specifications (e.g., container manufacturing, fiberglass manufacturing, abrasives, aggregate) without additional required changes to the size or shape of the glass before the glass enters the manufacturing process.

f. Recycling - normally considered ineligible. Property used in the processing or conversion of recyclable material into a form that does not meet industry specifications for use by a manufacturer (e.g., raw material sent to another processor for additional refinement or processing such as sorting, baling, shredding, grinding, crushing, densifying, or pelletizing).

These rules are intended to implement Iowa Code section 427.1.

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CHAPTER 12
ENVIRONMENTAL SELF-AUDITS

567—12.1(455K) General.

12.1(1) *Scope.* This chapter sets forth rules governing voluntary disclosure of environmental noncompliance discovered as a result of an environmental self-audit conducted by or on behalf of a facility owner or operator under provisions of Iowa Code chapter 455K.

12.1(2) *Definitions.* As used in this chapter, the following terms shall have the following meanings:

"Act" means the environmental audit privilege and immunity Act, 1998 Iowa Acts, chapter 1109.

"Department" means the Iowa department of natural resources.

"Disclosure of violation" means the notice or disclosure made by a person to the department promptly upon discovery of a violation as a result of an environmental audit.

"Environmental audit" means a voluntary evaluation of a facility or operation, of an activity at a facility or operation, or of an environmental management system at a facility or operation, when the facility, operation, or activity is regulated under state or federal environmental laws, rules or permit conditions, conducted by an owner or operator, an employee of the owner or operator, or an independent contractor retained by an owner or operator that is designed to identify historical or current noncompliance with environmental laws, rules, ordinances, or permit conditions, discover environmental contamination or hazards, remedy noncompliance or improve compliance with environmental laws, or improve an environmental management system.

"Environmental audit report" means a document or set of documents generated and developed for the primary purpose and in the course of or as a result of conducting an environmental audit.

"Notice of audit" means the notice an owner or operator provides to the department before the owner or operator begins an environmental audit.

"Owner or operator" means the person or entity who caused the environmental audit to be undertaken.

"Request for extension" means a letter requesting an extension of the time period allowed for the completion of an environmental audit.

567—12.2(455K) Notice of audit. Owners or operators are not required to give the department notice of audit before beginning an environmental audit; however, they are encouraged to do so. Owners or operators may not be able to take advantage of immunity provisions under the Act if they fail to give notice to the department that they are planning to commence an environmental audit and the department initiates an inspection or investigation prior to the person's filing a disclosure of violation with the department. If notice of audit is given to the department, the audit must be completed within a reasonable time not to exceed six calendar months from the date the notice of audit is received by the department unless a request for extension has been filed with and granted by the department.

12.2(1) If a notice of audit is provided to the department, it must be submitted in writing by certified mail. A notice of audit should include the following information:

a. The name of the facility to be audited;

b. The location of the facility to be audited (address and city);

c. The description of the facility or portion of the facility, activity, operation or management system to be audited, including applicable department permit and registration numbers;

d. The date of anticipated initiation of audit (day, month, and year);

e. The general scope of audit, with sufficient detail to enable a determination of whether subsequently discovered violations are included. If the scope of the audit changes before it is completed, an amended notice shall be submitted promptly after this fact becomes known;

f. The names of the persons conducting the audit; and

g. The anticipated date of completion of the audit not to exceed six calendar months.

12.2(2) If, after providing notice of audit, an owner or operator determines the audit will not be completed by the initial anticipated completion date but within six calendar months from the date of the original notice of audit, the owner or operator should provide the department a written amendment to the

notice of audit with the revised anticipated completion date, not to exceed six calendar months from the date of the original notice of audit. Amendments to the anticipated date of completion should be filed with the department prior to the expiration of the original listed anticipated date of completion. If the anticipated date of completion will go beyond six calendar months from the date of the original notice of audit, the owner/operator must file a request for extension pursuant to rule 12.3(455K) of this chapter.

12.2(3) A notice of audit is not privileged information and is considered public information subject to provisions of state open records laws in Iowa Code chapter 22.

12.2(4) If a notice of audit is provided to the department, the department will provide written acknowledgment of receipt with an assigned identification number for reference and tracking purposes.

567—12.3(455K) Request for extension. If notice of audit is given to the department, the audit must be completed within a reasonable time not to exceed six calendar months from the date the notice of audit is received by the department unless a written request for extension has been filed with and granted by the department based on reasonable grounds. Owners or operators are cautioned that continuation of an audit after the initial six-month period without prior written approval from the department may limit the availability of immunity under the Act.

12.3(1) A request for extension must be filed in writing with the department at least 30 calendar days prior to expiration of the initial six-month period and provide sufficient information for the department to determine whether reasonable grounds exist to grant an extension. Written requests for extension must be sent by certified mail. Failure to provide sufficient information could result in delay of approval or denial of the extension, which could jeopardize availability of immunity under the Act.

12.3(2) The department will provide written determination either granting or denying the request for extension within 15 calendar days of receipt of the written request for extension.

12.3(3) Requests for extension will be considered as amendments to the notice of audit and as such will not be considered privileged information. Requests for extension will be considered public information subject to the provisions of state open records laws in Iowa Code chapter 22.

567—12.4(455K) Disclosure of violation. An owner or operator wishing to take advantage of the immunity provisions of the Act must make a prompt voluntary disclosure to the department regarding an environmental violation which is discovered through an environmental audit.

12.4(1) A disclosure will be deemed voluntary if the following conditions apply:

a. The disclosure arises out of an environmental audit and relates to information considered privileged under the Act;

b. The disclosure is not otherwise required by federal or state law, rule, permit condition, or an order issued by the department;

c. If no current notice of audit covering the facility, activity, operation or management system is on file with the department, the disclosure is made prior to a violation being independently detected by the department or the initiation of an inspection or investigation by the department;

d. The violation is identified and disclosed to the department before there is notice of a citizen suit or a legal complaint filed by a third party; or before it is reported to the department by any person not involved in conducting the environmental audit or to whom the environmental audit was disclosed;

e. The violation does not involve intentional violation of state or federal law, rule, or permit condition, or result in substantial actual injury or imminent and substantial risk of injury to persons, property, or the environment; and

f. The owner or operator making the disclosure uses reasonable efforts to pursue compliance and to correct the noncompliance within a reasonable period of time after completion of the audit in accordance with a remediation schedule submitted to and approved in writing by the department.

12.4(2) An owner or operator may not be able to take advantage of the immunities under the Act from administrative or civil penalties if:

a. Violations are intentional;

b. Violations resulted in substantial actual injury or imminent and substantial risk of injury to persons, property, or the environment;

c. Violations resulted in a substantial economic benefit which gives an owner or operator a clear advantage over business competitors; or

d. The owner or operator has been found to have committed serious violations that constitute a pattern of continuous or repeated violations or is classified as a habitual violator as set forth in Iowa Code section 455K.8(7).

12.4(3) A disclosure of violation must be sent to the department in writing by certified mail and include the following information:

a. Reference to the date of the relevant notice of audit and assigned reference number, if one was provided;

b. Time of initiation and completion of the audit, if applicable;

c. The names of the person or persons conducting the audit;

d. Affirmative assertion that a violation has been discovered;

e. Description of the violation discovered and reason for believing a violation exists;

f. Date of discovery of the violation and interim measures taken to abate the violation;

g. Duration of the violation if that can be determined; and

h. The status and schedule of proposed final corrective measures, if applicable.

12.4(4) A disclosure of violation is not an environmental audit report and is not privileged information under the Act. A disclosure of violation is public information subject to provisions of state open records laws in Iowa Code chapter 22. Owners or operators should not send copies of environmental audit reports to the department, unless specifically requested in writing by the department.

12.4(5) The department will acknowledge receipt of a disclosure of violation in writing which will include either concurrence or rejection of the proposed final corrective measures and schedule. This written acknowledgment will be sent to the owner or operator within 15 calendar days of receipt of the disclosure of violation.

[Filed 12/28/98, Notice 10/21/98—published 1/13/99, effective 2/17/99]

CHAPTER 13
WAIVERS OR VARIANCES FROM ADMINISTRATIVE RULES

567—13.1(17A) Adoption by reference. The commission adopts by reference 561—Chapter 10, Iowa Administrative Code, provided that the word "commission" is substituted for "department" throughout.

567—13.2(17A) Report to commission. The director shall submit reports of decisions regarding requests for waivers or variances to the commission at its regular meetings.

These rules are intended to implement Iowa Code chapter 17A.9A and Executive Order Number 11.

[Filed 9/27/01, Notice 3/21/01—published 10/17/01, effective 11/21/01]

CHAPTER 14
ENVIRONMENTAL COVENANTS

567—14.1(455B,455H) Definitions. The definitions in 2005 Iowa Code Supplement section 455I.2 are incorporated by reference. In addition, as used in this chapter:

"Department" means the Iowa department of natural resources.

"Director" means the director of the Iowa department of natural resources.

"Source site" means the property(ies) on which the source(s) of contamination exists and which extends to or has a causal relationship to the area of concern subject to the terms and conditions of the environmental covenant.

567—14.2(455B,455H) Environmental covenants. A person requesting department approval of an environmental covenant is responsible for the preparation and submittal of a draft environmental covenant using a model form(s) and model language developed by the department and submittal of supporting documentation. The department will grant presumptive approval to environmental covenants which conform to department model forms and model language. The parties to the environmental covenant may propose revisions to the model language and model form by clearly noting any proposed revisions and making a written request for consideration and approval. The department recommends that the activity and use limitation language in the environmental covenant conform to model language developed by the department.

567—14.3(455B,455H) Supporting documentation. Supporting information and documentation shall be submitted with the proposed environmental covenant. Supporting documentation must be sufficient for the department to determine the legal capacity of all legal and equitable interests in the property, to verify the accuracy of the legal description of the affected property and its relationship to the contaminated area of concern, and to ensure that all legal and equitable interests necessary to establish a valid and enforceable environmental covenant have been accurately identified. Documentation shall include, but not be limited to:

14.3(1) An opinion which is prepared by an attorney and which represents that sufficient research has been conducted to identify all persons with a recorded interest in the affected property and other legal and equitable interests necessary to establish a valid and enforceable covenant free of any competing or subordinate property interests. Persons other than an attorney may submit supporting documentation in accordance with department guidance developed to assist them in conducting property interest research and identification of all legal and equitable interests necessary to establish a valid and enforceable covenant. The department may require on a case-by-case basis that an attorney prepare the covenant and supporting documentation and that an abstract of title be prepared or updated when necessary to identify and confirm all legal and equitable interests necessary to establish a valid and enforceable covenant. Property interests which must be identified include, but are not limited to, fee title and equitable titleholders (i.e., contract sellers and buyers), lessees of the property, and consensual lienholders such as mortgagees.

14.3(2) Copy of a current deed, contract for deed, or other property transfer instrument verifying the person(s) or business entity(ies) holding fee and equitable title in the property subject to the covenant. Proof of the legal capacity of other equitable interests and signatories to the covenant must be documented by provision of a copy of the applicable real estate instrument such as a mortgage or other consensual lien instrument.

14.3(3) A plat map or other official document which accurately depicts the boundaries of the affected property by legal description and as legally described in the environmental covenant. The map must be adequate to verify the relationship of the legally described property subject to the environmental covenant to (a) the contaminant source(s) areas, (b) the source site(s) subject to regulation such as an underground storage tank site, (c) the contaminated area of concern to which the terms of the environmental covenant are intended to apply, and (d) other adjoining or affected properties.

567—14.4(455B,455H) Recording and approval. An environmental covenant shall be recorded as provided in 2005 Iowa Code Supplement section 455I.8. An environmental covenant shall not be recorded without the approval and written signatures of the director or the director's appointed designee and all designated signatories. Signatures shall not be obtained on an environmental covenant until the environmental covenant and all supporting documentation have been reviewed and approved by the department.

567—14.5(455B,455H) Mandatory provisions. The environmental covenant shall contain provisions which adequately address the subject areas designated in 2005 Iowa Code Supplement section 455I.4(1). The language to address these mandatory provisions is contained in the department's model forms but may be revised as provided in rule 567—14.2(455B,455H). The environmental covenant and any other accompanying documents shall satisfy the formatting and recording requirements of Iowa law and specifically Iowa Code section 331.606B. All environmental covenants must have a proper signature acknowledgment as provided in Iowa Code sections 9E.14 and 9E.15. In addition to these mandatory provisions, the environmental covenant shall contain provisions that require any signatory to the environmental covenant to notify the department of conditions which would constitute a breach of the activity and use limitations contained in the environmental covenant.

567—14.6(455B,455H) Optional provisions. On a case-by-case basis, the department may require additional provisions in the environmental covenant within the subject areas authorized in 2005 Iowa Code Supplement section 455I.4(2) and otherwise within the department's authority. These provisions may include, but are not limited to:

14.6(1) A provision which requires a standard disclosure in a groundwater hazard statement in accordance with Iowa Code section 558.69 and department rules in 561—Chapter 9. A standard notice could be required if the department or the grantor determines that the property subject to the covenant constitutes a solid waste disposal site which is potentially hazardous or if hazardous waste exists on the property as provided in Iowa Code section 558.69.

14.6(2) A provision which requires notice to the department of any transfer of legal or equitable title in the property, notice of the establishment of a long-term lease, or notice of substantial change in use of the property subject to the environmental covenant. This provision may be added when the department finds the need to monitor compliance with and maintenance of the activity and use limitations and when the risks to health, safety and the environment warrant a higher degree of oversight.

14.6(3) A provision which places affirmative duties on subsequent transferees of equitable or legal title in the property or long-term lessees to inspect, monitor and report on conditions and continued compliance related to the activity and use limitations at the property subject to the environmental covenant. This provision may be added when the department finds the need to monitor compliance with and maintenance of the activity and use limitations and when the risks to health, safety and the environment warrant a higher degree of oversight.

567—14.7(455B,455H) Modification and termination. Modification or termination of the environmental covenant shall be in accordance with 2005 Iowa Code Supplement chapter 455I and the terms of the environmental covenant.

567—14.8(455B,455H) Signatories to the environmental covenant.

14.8(1) *Agency.* The department will generally not be a "holder" as defined in 2005 Iowa Code Supplement section 455I.2(7) and will generally sign the environmental covenant as an "agency" as defined in 2005 Iowa Code Supplement section 455I.2(2), without taking an interest in the property as provided in 2005 Iowa Code Supplement section 455I.3(2). However, the department reserves the right to sign as a holder on a case-by-case basis when it determines that holding an interest in the property is beneficial to satisfying the regulatory objectives of the environmental covenant.

14.8(2) *Holders.* The fee title owner of the affected property is required to sign the environmental covenant in the capacity as a grantor and may be required to sign as a holder/grantee as provided in

2005 Iowa Code Supplement section 455I.2(7) if necessary to establish a valid instrument. A contract buyer holding equitable title is required to sign as a holder. When the grantor of the environmental covenant is not the owner of the source site subject to regulation, or is not the person or entity responsible for conducting corrective action at the source site, the department may require the owner of the source site, a person or entity that is the party responsible for corrective action or the person or entity that has conducted the corrective action at the source site to sign on to the environmental covenant as a holder. The department may require a participant in an enrolled site regulated under 567—Chapter 137 to sign the environmental covenant as a holder if the participant has an interest in ensuring compliance with the terms of the environmental covenant and particularly if the participant has responsibility for corrective action or has undertaken corrective action at the enrolled site.

14.8(3) *Subordinated interests.* As provided in 2005 Iowa Code Supplement section 455I.3, all equitable or other property interests affected by the environmental covenant must consent to and subordinate their interests to the environmental covenant either by signing it or by signing a separate subordination and consent agreement approved by the department. These interests include, but are not limited to, lessees, mortgagees and other consensual lienholders.

567—14.9(455B,455H) Notice. In accordance with 2005 Iowa Code Supplement section 455I.7, persons requesting approval of the environmental covenant shall certify that copies of a recorded environmental covenant have been sent to:

1. Each person signing the environmental covenant.
2. Each person holding a recorded interest in the property subject to the environmental covenant but which is not a signatory.
3. Each person in possession of the property subject to the environmental covenant, including lessees, sublessees, assignees of a lease, and current owners and operators of the business assets on the affected property.
4. Each municipality or other unit of local government in which the property subject to the environmental covenant is located. The department may identify the appropriate official or specific unit of government depending on the applicable activity and use limitations specified in the environmental covenant.
5. Each current owner or operator of the underground storage tank to which the environmental covenant relates.
6. Any other person which the department designates, including an adjoining property owner.

These rules are intended to implement Iowa Code sections 455B.474 and 455H.105 and 2005 Iowa Code Supplement chapter 455I.

[Filed 6/28/06, Notice 3/15/06—published 7/19/06, effective 8/23/06]

CHAPTER 15
CROSS-MEDIA ELECTRONIC REPORTING

567—15.1(455B,554D) Purpose. This rule implements the cross-media electronic reporting rule (also known as CROMERR) as defined by 40 CFR Part 3.

15.1(1) *Applicability.* The provisions of this subrule shall apply to persons and signatories who submit electronic reports or other documents to satisfy requirements of Title 40 of the Code of Federal Regulations for authorized programs for which the department is accepting specified electronic documents and other media used for electronic reporting, except for the following:

a. Documents submitted via facsimile;

b. Electronic documents submitted via magnetic or optical media such as diskette, compact disc, digital video disc, or tape;

c. Electronic documents submitted through an electronic document receiving system pursuant to a non-federal state-only program; or

d. Data transfers between the department and the U.S. Environmental Protection Agency, local governments, or tribes as part of an authorized program or administrative arrangement.

15.1(2) *Definitions.* For the purpose of this rule, the following terms shall have the meanings indicated below:

"Authorized program" means a federal program that the U.S. Environmental Protection Agency (EPA) has delegated to, authorized, or approved the department, on behalf of the state of Iowa, to administer, or a program that the EPA has delegated to, authorized, or approved the department to administer in lieu of a federal program, under provisions of 40 CFR and for which the delegation, authorization or approval has not been withdrawn or expired.

"Copy of record" means a true and correct copy of an electronic document received by an electronic document receiving system, which can be viewed in a human-readable format that clearly and accurately associates all the information provided in the electronic document with descriptions or labeling of the information. A "copy of record" includes:

1. Any electronic signature contained in or logically associated with the document;
2. The date and time of receipt; and
3. Any other information used to record the meaning of the document or the circumstances of its receipt.

"Electronic document" means any information that is submitted to one of the department's electronic document receiving systems in digital form to satisfy requirements of an authorized program and may include data, text, sounds, codes, computer programs, software, or databases.

"Electronic document receiving system" means the apparatus, procedures, software, or records established and used by the department to receive electronic documents in lieu of paper.

"Electronic signature" means any information in digital form attached to or logically associated with a record submitted to one of the department's electronic document receiving systems and executed or adopted by a person with the intent of expressing the same meaning as would a handwritten signature if affixed to an equivalent paper document with the same content.

"Electronic signature agreement" means a written agreement prepared by the department and signed by an individual with respect to an electronic signature device that the individual will use to create the individual's electronic signature.

"Electronic signature device" means a code or other mechanism, assigned to an individual who is uniquely entitled to use it and that is then used to create the individual's electronic signature.

"Federal program" means any program administered by EPA under any provision of 40 CFR.

"Handwritten signature" means the scripted name or legal mark of an individual made by that individual with the present intention to authenticate a signature in a permanent form.

"Signatory" means an individual authorized to sign and who signs a document submitted to one of the department's electronic document receiving systems pursuant to an electronic signature agreement.

"State program" means any program other than an authorized program that is implemented by the department under the laws of the state of Iowa.

"Valid electronic signature" means an electronic signature on an electronic document created by using an electronic signature device that the identified signatory is uniquely entitled to use for signing the electronic document, provided the device has not been compromised and provided the signatory is an individual authorized to sign the document by virtue of legal status or relationship to the entity on whose behalf the signature is created.

15.1(3) *Use of electronic document receiving systems.*

a. Announcement on public Web site. When the director has announced on the department's public Web site that the department is accepting specified electronic documents in lieu of paper to satisfy requirements under each authorized program, individuals who submit such electronic documents must use the department's CROMERR-compliant electronic document receiving systems.

b. Submittals requiring signature. Any electronic document submitted to the department must bear a valid electronic signature of a signatory, if that signatory would be required under the authorized program to sign the paper document for which the electronic document substitutes.

c. Submittals not requiring signature. If no signature is required under the authorized program, individuals may submit electronic documents in lieu of paper to satisfy requirements of such programs through the department's CROMERR-compliant electronic document receiving system without an electronic signature or an electronic signature agreement.

15.1(4) *Electronic signature agreement.*

a. Agreement to be executed. In the case of an electronic document that must bear the electronic signature of a signatory under an authorized program, each signatory must execute an electronic signature agreement.

b. Form and content of agreement. All agreements shall be in writing and filed with the electronic document receiving system administrator via a mail delivery service or by hand delivery. The agreement shall include the information and follow the format as defined by the department. The agreement form may be downloaded and printed for signing during the signatory's registration process.

c. Verification. The identity and authority of each individual submitting an electronic signature agreement shall be verified by the state of Iowa. After the state of Iowa has satisfactorily completed the verification, the department shall notify the individual electronically that the electronic signature device has been activated and access to the database has been granted.

d. Certification. Each submission authorized by an electronic signature shall contain the following statement: "I certify under penalty of law that I have had the opportunity to review, in human-readable format, the content of the electronic document to which I here certify and attest, and I further certify under penalty of law that, based on the information and belief formed after reasonable inquiry, the statements and information contained in this submission are true, accurate, and complete. I understand that making any false statement, representation, or certification of this submission may result in criminal penalties."

15.1(5) *Valid electronic signature.*

a. Signatory. An authorized signatory may not allow another individual to use the electronic signature device unique to the authorized signatory's electronic signature.

b. Unique signature device. When the electronic signature device is used to create an individual's electronic signature, the code or mechanism must be unique to that individual at the time the signature is created and the individual must be uniquely entitled to use it. The signatory shall:

(1) Protect the electronic signature device from compromise; and

(2) Report to the department, within one business day of discovery, any evidence that the security of the device has been compromised.

15.1(6) *Effect of electronic signature.*

a. Electronic signature establishes intent. The presence of an electronic signature on an electronic document submitted to the department establishes that the signatory intended to sign the electronic document and to submit it to the department to fulfill the purpose of the electronic document.

b. Electronic signature legally binding. Where an electronic document submitted to satisfy a reporting requirement of an authorized program bears an electronic signature, the electronic signature legally binds, obligates, and makes the signatory responsible to the same extent as the signatory's handwritten signature on a paper document submitted to satisfy the same reporting requirement. If an

applicable law or rule requires a handwritten signature on a document, an electronic signature satisfies that requirement.

15.1(7) *Enforcement.*

a. Penalties and other remedies. If the submitter or signatory fails to comply with a reporting requirement by failing to comply with the provisions of this chapter, the electronic signature agreement, or other applicable reporting requirements, the submitter or signatory is subject to any appropriate civil or criminal penalties or other remedies under Iowa law.

b. Electronic document as evidence. Nothing in this chapter or the authorized program limits the use of an electronic document, copy of record, or other information derived from an electronic document as evidence in enforcement proceedings.

[**ARC 8678B**, IAB 4/7/10, effective 5/12/10]

This rule is intended to implement Iowa Code section 455B.105 and chapter 554D.

[Filed ARC 8678B (Notice ARC 8467B, IAB 1/13/10), IAB 4/7/10, effective 5/12/10]

CHAPTER 16
REVOCATION, SUSPENSION, AND NONRENEWAL OF LICENSE FOR FAILURE TO PAY STATE LIABILITIES

567—16.1(272D,261) Purpose and use. This chapter is intended to help collect liabilities of the state or a state agency from persons who have licenses with the commission or department. This chapter shall apply to all licenses issued, renewed or otherwise authorized by the department or the commission.
[**ARC 8843B**, IAB 6/16/10, effective 7/21/10]

567—16.2(272D,261) Definitions. For purposes of this chapter, the following definitions shall apply:

"Certificate of noncompliance" means a document provided by the collecting agency certifying the named person has outstanding liability placed with the collecting agency and has not entered into an approved payment plan to pay the liability.

"Collecting agency" means the centralized collection unit of the department of revenue or the Iowa college student aid commission.

"Commission" means the environmental protection commission.

"Department" means the department of natural resources.

"Liability" means a debt or obligation placed with the collecting agency for collection that is greater than $1,000. For purposes of this chapter, "liability" does not include child support payments collected pursuant to Iowa Code chapter 252J.

"License" means a license, certification, registration, permit, approval, renewal or other similar authorization issued to a person by the department which evidences the admission to, or granting of authority to engage in, a profession, occupation, business, industry, or recreation, including those authorizations set out in Iowa Code chapters 455A, 455B, 455C, 455D, 456A, 459, and 459A.

"Licensee" means a person to whom a license has been issued by the department or who is seeking the issuance of a license from the department.

"Notice of intent" means a notice sent to a licensee indicating the department's intent to suspend, revoke, or deny renewal or issuance of a license.

"Obligor" means a person with a liability placed with the collecting agency.

"Person" means a licensee.

"Withdrawal of a certificate of noncompliance" means a document provided by the collecting agency certifying that the certificate of noncompliance is withdrawn and that the department may proceed with issuance, reinstatement, or renewal of a person's license.
[**ARC 8843B**, IAB 6/16/10, effective 7/21/10]

567—16.3(272D,261) Requirements of the department.

16.3(1) *Records.*

a. The department shall collect and maintain records of its licensees that must include, at a minimum, the following:

(1) The licensee's first and last names.

(2) The licensee's current known address.

(3) The licensee's social security number.

b. The records shall be made available to the collecting agency so that the collecting agency may match to the records the names of persons with any liabilities placed with the collecting agency for collections. The records must be submitted in an electronic format and updated on a quarterly basis.

16.3(2) *Certificate of noncompliance.* Upon receipt of a certificate of noncompliance from the collecting agency, the department shall initiate rules and procedures for the suspension, revocation, or denial of issuance or renewal of a license to a person.

16.3(3) *Notice of intent.* The department shall provide to a person a notice of intent to suspend, revoke or deny issuance or renewal of the person's license in accordance with Iowa Code chapter 272D or Iowa Code section 261.126, whichever is appropriate. The suspension, revocation, or denial shall be effective no sooner than 30 days following the issuance of the notice of intent to the person. The notice shall state all of the following:

a. That the department has received a certificate of noncompliance from the collecting agency and intends to suspend, revoke or deny issuance or renewal of a person's license;

b. That the person must contact the collecting agency to schedule a conference or to otherwise obtain a withdrawal of a certificate of noncompliance;

c. That the department will revoke, suspend or deny issuance or renewal of the person's license unless a withdrawal of a certificate of noncompliance is received from the collecting agency within 30 days from the date of the notice of intent;

d. That in the event the department's rules and procedures conflict with the additional rules and procedures under this chapter, the rules and procedures of this chapter shall apply;

e. That mistakes of fact in the amount of the liability owed and the person's identity may not be contested to the department; and

f. That the person may request a district court hearing as outlined in rule 701—153.10(272D).

16.3(4) *Withdrawal.* Upon receipt of a withdrawal of a certificate of noncompliance from the collecting agency, the department shall immediately reinstate, renew, or issue a license if the person is otherwise in compliance with the department's requirements.

[**ARC 8843B**, IAB 6/16/10, effective 7/21/10]

567—16.4(272D,261) No administrative appeal of the department's action. Pursuant to Iowa Code sections 261.126 and 272D.8, a person does not have a right to a hearing before the department to contest the department's action under this chapter but may request a court hearing pursuant to rule 567—16.5(272D,261).

[**ARC 8843B**, IAB 6/16/10, effective 7/21/10]

567—16.5(272D,261) District court hearing. A person may seek review of the actions listed in 701—subrule 153.14(1) and request a hearing before the district court by filing an application with the district court in the county in which the majority of the liability was incurred. The person must send a copy of the application to the collecting agency by regular mail. The application must be filed no later than 30 days after the department issues its notice of intent.

16.5(1) *Scheduling.* The clerk of the district court shall schedule a hearing and mail a copy of the scheduling order to the person, the collecting agency, and the department.

16.5(2) *Certification.* Prior to the hearing, the collecting agency shall certify to the court a copy of its written decision and certificate of noncompliance, indicating the date of issuance, and the department shall certify to the court a copy of the notice issued pursuant to subrule 16.3(3).

16.5(3) *Stay.* Upon receipt of a copy of a scheduling order from the clerk of court and prior to the hearing, the department shall stay any action contemplated on the person's license pursuant to the notice of intent.

16.5(4) *Hearing.* The hearing on the person's application shall be scheduled and held within 30 days of the filing of the application. However, if the person fails to appear at the scheduled hearing, the stay shall be lifted and the department shall continue its procedures pursuant to the notice of intent.

16.5(5) *Scope of review.* The district court's review shall be limited to demonstration of the amount of the liability owed or the identity of the person.

16.5(6) *Findings.* If the court finds the collecting agency was in error either in issuing a certificate of noncompliance or in its failure to issue a withdrawal of a certificate of noncompliance, the collecting agency shall issue a withdrawal of a certificate of noncompliance to the department. If the court finds the collecting agency was justified in issuing a certificate of noncompliance or in not issuing a withdrawal of a certificate of noncompliance, a stay imposed under subrule 16.5(3) shall be lifted and the department shall proceed with the action as outlined in its notice of intent.

[**ARC 8843B**, IAB 6/16/10, effective 7/21/10]

These rules are intended to implement Iowa Code chapter 272D and Iowa Code section 261.126.

[Filed ARC 8843B (Notice ARC 8597B, IAB 3/10/10), IAB 6/16/10, effective 7/21/10]

CHAPTER 17
COMPLIANCE AND ENFORCEMENT PROCEDURES

567—17.1(455B) Scope. Prior to the initiation of administrative penalties pursuant to 567—Chapter 10, the department may consider other compliance and enforcement activities. This chapter sets out the possible compliance and enforcement procedures that the department may consider and utilize.
[**ARC 0594C**, IAB 2/6/13, effective 3/13/13]

567—17.2(455B) Basis. While serious violations of rules, regulations and permits may result in administrative penalties, many activities by regulated entities may not rise to the level of requiring such formal enforcement action. In some instances, development of additional facts is appropriate, and in other instances, notification of the nature of the violation with an opportunity to correct the violation may be sufficient. The following compliance and enforcement procedures are available to the department and may be considered in those instances where it is necessary for the department to undertake a compliance or enforcement initiative:

17.2(1) *Informal meeting.* Department staff may attempt to resolve a potential violation or obtain additional information with an informal meeting. This meeting may be at the facility where the inspection took place. The discussion will usually focus on corrective actions to be taken, and in most instances, only department staff and the facility representative are present.

17.2(2) *Letter of inquiry (LOI).* If an informal meeting is not practical or is insufficient, the department may issue a letter of inquiry (LOI). The purpose of the LOI is to allow the regulated entity the opportunity to provide information that would be helpful for a determination of whether a violation has occurred. The letter should be labeled "Letter of Inquiry" and should, to the extent possible, seek specific information that will aid in the enforcement review.

17.2(3) *Letter of noncompliance (LNC).* If the information available to the department indicates a violation has taken place, the department may issue a letter of noncompliance (LNC). This letter is used to address violations of a less significant nature, such as a single incident of late reporting. An LNC will most often be used when no environmental harm or threat to human health or safety has occurred or is imminent, the regulated entity is not a repeat offender, the corrective action is not deemed an emergency, or the violation is considered insignificant. The letter is similar to a notice of violation but is captioned "Letter of Noncompliance" and is intended to provide the regulated entity with an opportunity to correct the identified deficiencies prior to further enforcement activity. In the LNC, the department also may suggest remedial measures and set a date for returning to compliance. The department will usually request a response from the regulated entity within a specific time period as to how the identified problems will be resolved. The LNC will typically be followed by a notice of violation if the regulated entity does not respond.

17.2(4) *Notice of violation (NOV).* When the other compliance and enforcement activities described in this chapter are not appropriate for the violation, or when the regulated entity has not returned to compliance, the department may issue a notice of violation (NOV). An NOV will most often be used when environmental harm or a threat to human health or safety has occurred or is imminent, the regulated entity is a repeat offender, the corrective action is deemed an emergency, or the violation is considered significant. The NOV identifies the nature of the violation and any corrective action being required of the regulated entity.
[**ARC 0594C**, IAB 2/6/13, effective 3/13/13]

567—17.3(455B) Option to respond. Upon receiving a written inquiry, letter, or notice from the department as described in this chapter, the regulated entity has the option to respond to the department even if a response is not specifically requested. A letter of noncompliance (LNC) or notice of violation (NOV) will typically suggest a written response and corrective action from the regulated entity within a specified time period. In responding to an LNC or NOV, the regulated entity should, as appropriate, clearly outline any disagreements with the department's LNC or NOV, provide any pertinent additional information, describe any current or planned corrective action, and provide a schedule for returning to compliance. The department will review written information submitted in response to the compliance

and enforcement procedures described in this chapter and will include this information in the file of record. Nothing in this chapter adds to or takes away from the appeal rights provided in Iowa Code chapter 17A.
[**ARC 0594C**, IAB 2/6/13, effective 3/13/13]

567—17.4(455B) Department discretion. At the department's sole discretion, the department may follow the compliance and enforcement procedures described in this chapter, commence with an LNC or NOV, or forego these options and commence with an administrative action (567—Chapter 10), or the department may request referral to the attorney general. The procedures in this chapter are intended to inform the regulated community of possible forms of compliance and enforcement procedures available to the department.
[**ARC 0594C**, IAB 2/6/13, effective 3/13/13]

These rules are intended to implement Iowa Code section 455B.105.

[Filed ARC 0594C (Notice ARC 0051C, IAB 3/21/12; Amended Notice ARC 0126C, IAB 5/16/12; Amended Notice ARC 0182C, IAB 6/27/12), IAB 2/6/13, effective 3/13/13]
[Editorial change: IAC Supplement 2/20/13[1]]

[1] History line corrected.

CHAPTERS 18 and 19
Reserved

TITLE II
AIR QUALITY

CHAPTER 20
SCOPE OF TITLE—DEFINITIONS

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—20.1(455B,17A) Scope of title. The department has jurisdiction over the atmosphere of the state to prevent, abate and control air pollution, by establishing standards for air quality and by regulating potential sources of air pollution through a system of general rules or specific permits. The construction and operation of any new or existing stationary source which emits or may emit any air pollutant requires a specific permit from the department, unless exempted by the department.

This chapter provides general definitions applicable to this title.

567—Chapter 21 contains the provisions requiring compliance schedules, allowing for variances, and setting forth the emission reduction program. 567—Chapter 22 contains the standards and procedures for the permitting of emission sources. 567—Chapter 23 contains the air emission standards for contaminants. 567—Chapter 24 provides for the reporting of excess emissions and the equipment maintenance and repair requirements. 567—Chapter 25 contains the testing and sampling requirements for new and existing sources. 567—Chapter 26 identifies air pollution emergency episodes and the preplanned abatement strategies. 567—Chapter 27 sets forth the conditions political subdivisions must meet in order to secure acceptance of a local air pollution control program. 567—Chapter 28 identifies the state ambient air quality standards. 567—Chapter 29 sets forth the qualifications for an observer for reading visible emissions. 567—Chapter 30 sets forth requirements to pay fees for specified activities. 567—Chapter 31 contains rules for the nonattainment major new source review (NSR) program and general conformity. 567—Chapter 32 specifies requirements for conducting the animal feeding operations field study. 567—Chapter 33 contains special regulations and construction permit requirements for major stationary sources and includes the requirements for prevention of significant deterioration (PSD). 567—Chapter 34 contains provisions for air quality emissions trading programs. 567—Chapter 35 specifies the requirements for the department to provide financial assistance to eligible applicants for the purpose of reducing air pollution emissions.

All dates specified in reference to the Code of Federal Regulations (CFR) are the dates of publication of the last amendments to the portion of the CFR being cited.

[**ARC 1227C**, IAB 12/11/13, effective 1/15/14; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17]

567—20.2(455B) Definitions. For the purpose of these rules, the following terms shall have the meaning indicated in this chapter. The definitions set out in Iowa Code section 455B.411 shall be considered to be incorporated verbatim in these rules.

"Air pollution alert" means that action condition declared when the concentrations of air contaminants reach the level at which the first stage control actions are to begin.

"Air pollution emergency" means that action condition declared when the air quality is continuing to degrade to a level that should never be reached, and that the most stringent control actions are necessary.

"Air pollution episode" means a combination of forecast or actual meteorological conditions and emissions of air contaminants which may or do present an imminent and substantial endangerment to the health of persons, during which the chief meteorological factors are the absence of winds that disperse air contaminants horizontally and a stable atmospheric layer which tends to inhibit vertical mixing through relatively deep layers.

"Air pollution forecast" means an air stagnation advisory issued to the department, the commission, and to appropriate air pollution control agencies by an authorized Air Stagnation Advisory Office of the National Weather Service predicting that meteorological conditions conducive to an air pollution episode may be imminent. This advisory may be followed by a prediction of the duration and termination of such meteorological conditions.

"Air pollution warning" means that action condition declared when the air quality is continuing to degrade from the levels classified as an air pollution alert, and where control actions in addition to those conducted under an air pollution alert are necessary.

"Air quality standard" means an allowable level of air contaminant or atmospheric air concentration established by the commission.

"Ambient air" means that portion of the atmosphere, external to buildings, to which the general public has access. Ambient air does not include the atmosphere over land owned or controlled by the source and to which public access is precluded by a fence or other physical barriers.

"Anaerobic lagoon," for purposes of air quality rules contained in 567—Chapters 20 through 35, means an impoundment, the primary function of which is to store and stabilize organic wastes. The impoundment is designed to receive wastes on a regular basis and the design waste loading rates are such that the predominant biological activity in the impoundment will be anaerobic. An anaerobic lagoon does not include:

a. A runoff control basin which collects and stores only precipitation induced runoff from an open feedlot feeding operation; or

b. A waste slurry storage basin which receives waste discharges from confinement feeding operations and which is designed for complete removal of accumulated wastes from the basin at least semiannually; or

c. Any anaerobic treatment system which includes collection and treatment facilities for all off-gases.

"ASME" means the American Society of Mechanical Engineers.

"ASTM" means the American Society for Testing and Materials.

"Auxiliary fuel firing equipment" means equipment to supply additional heat, by the combustion of an auxiliary fuel, for the purpose of attaining temperatures sufficient to dry and ignite the waste material, to maintain ignition thereof, and to promote complete combustion of combustible gases, solids and vapors.

"Backyard burning" means the disposal of residential waste by open burning on the premises of the property where such waste is generated.

"Biodiesel fuel" means a renewable, biodegradable, mono alkyl ester combustible liquid fuel derived from agricultural plant oils or animal fat such as, but not limited to, soybean oil. For purposes of this definition, "biodiesel fuel" must also meet the specifications of American Society for Testing and Material Specifications (ASTM) D 6751-02, "Standard Specification for Biodiesel Fuel (B100) Blend Stock for Distillate Fuels," and be registered with the U.S. Environmental Protection Agency as a fuel and a fuel additive under Section 211(b) of the Clean Air Act, 42 U.S.C. Sections 7401, et seq. as amended through November 15, 1990.

"Btu" means British thermal unit, the quantity of heat required to raise the temperature of one pound of water from 59°F to 60°F.

"Carbonaceous fuel" means any form of combustible matter (whether solid, liquid, vapor or gas) consisting primarily of carbon-containing compounds in either fixed or volatile form, and which is burned primarily for its heat content.

"Chimney or stack" means any flue, conduit or duct permitting the discharge or passage of air contaminants into the open air, or constructed or arranged for this purpose.

"COH/1,000 linear feet" means coefficient of haze per 1,000 linear feet, which is a measure of the optical density of a filtered deposit of particulate matter as given in ASTM Standard D-1704-61, and indicated by the following formula:

$$\text{COH/1,000 linear feet} = \frac{(\text{Area tape, ft}^2)(100{,}000)}{(\text{Volume of air sample, ft}^3)} \log \frac{100}{\%\ \text{transmission}}$$

"Combustion for indirect heating" means the combustion of fuel to produce usable heat that is to be transferred through a heat-conducting materials barrier or by a heat storage medium to a material to

be heated so that the material being heated is not contacted by, and adds no substance to, the products of combustion.

"Control equipment" means any equipment that has the function to prevent the formation of or the emission to the atmosphere of air contaminants from any fuel burning, incinerator or process equipment.

"Country grain elevator" shall have the same definition as "country grain elevator" set forth in 567—subrule 22.10(1).

"Criteria" means information used as guidelines for decisions when establishing air quality goals, air quality standards and the various air quality levels, and which in no case is to be confused or used interchangeably with air quality goals or standards.

"Diesel fuel" means a low sulfur fuel oil that complies with the specifications for grade 1-D or 2-D, as defined by the American Society of Testing and Materials (ASTM) D 975-02, "Standard Specification for Diesel Fuel Oils," grade 1-GT or 2-GT, as defined by ASTM D 2880-00, "Standard Specification for Gas Turbine Fuel Oils," or grade 1 or 2, as defined by ASTM D 396-02, "Standard Specification for Fuel Oils."

1. For purposes of the air quality rules contained in Title II, and unless otherwise specified, diesel fuel may contain a blend of up to 2.0 percent biodiesel fuel, by volume, as "biodiesel fuel" is defined in this rule.

2. The department shall consider air pollutant emissions calculations for the biodiesel fuel blends specified in numbered paragraph "1" to be equivalent to the air pollutant emissions calculations for unblended diesel fuel.

3. Construction permits or operating permits issued under 567—Chapter 22 which restrict equipment fuel use to diesel fuel shall be considered by the department to include the biodiesel fuel blends specified in numbered paragraph "1," unless otherwise specified in 567—Chapter 22 or in a permit issued under 567—Chapter 22.

"Director" means the director of the department of natural resources or the director's designee.

"Electric furnace" means a furnace in which the melting and refining of metals are accomplished by means of electrical energy.

"Electronic format," "electronic submittal," and *"electronic submittal format,"* for purposes of the rules in 567—Chapters 20 through 35, mean a software, Internet-based, or other electronic means specified by the department for submitting information or fees to the department related to, but not limited to, applications, certifications, determination requests, emissions inventories, forms, notifications, payments, permit applications and registrations. References to these information submittal methods in 567—Chapters 20 through 35 may, as specified by the department, include electronic submittal.

"Emergency generator" means any generator of which the sole function is to provide emergency backup power during an interruption of electrical power from the electric utility. An emergency generator does not include:

1. Peaking units at electric utilities; or

2. Generators at industrial facilities that typically operate at low rates, but are not confined to emergency purposes; or

3. Any standby generators that are used during time periods when power is available from the electric utility.

An emergency is an unforeseeable condition that is beyond the control of the owner or operator.

"Emission limitation" and *"emission standard"* mean a requirement established by a state, local government, or the administrator which limits the quantity, rate or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications or prescribe operation or maintenance procedures for a source to ensure continuous emission reduction.

"EPA conditional method" means any method of sampling and analyzing for air pollutants that has been validated by the administrator but that has not been published as an EPA reference method.

"EPA reference method" means the following methods used for performance tests and continuous monitoring systems:

1. Performance test (stack test). A stack test shall be conducted according to EPA reference methods specified in 40 CFR 51, Appendix M (as amended through November 14, 2018); 40 CFR 60, Appendix A (as amended through November 14, 2018); 40 CFR 61, Appendix B (as amended through August 30, 2016); and 40 CFR 63, Appendix A (as amended through November 14, 2018).

2. Continuous monitoring systems. Minimum performance specifications and quality assurance procedures for performance evaluations of continuous monitoring systems are as specified in 40 CFR 60, Appendix B (as amended through November 14, 2018); 40 CFR 60, Appendix F (as amended through November 14, 2018); 40 CFR 75, Appendix A (as amended through August 30, 2016); 40 CFR 75, Appendix B (as amended through August 30, 2016); and 40 CFR 75, Appendix F (as amended through August 30, 2016).

"Equipment" means equipment capable of emitting air contaminants to produce air pollution such as fuel burning, combustion or process devices or apparatus including but not limited to fuel-burning equipment, refuse burning equipment used for the burning of fuel or other combustible material from which the products of combustion are emitted; and including but not limited to apparatus, equipment or process devices which generate heat and may emit products of combustion, and manufacturing, chemical, metallurgical or mechanical apparatus or process devices which may emit smoke, particulate matter or other air contaminants.

"Excess air" means that amount of air supplied in addition to the theoretical quantity necessary for complete combustion of all fuel or combustible waste material present.

"Excess emission" means any emission which exceeds any applicable emission standard prescribed in 567—Chapter 23 or rule 567—22.4(455B), 567—22.5(455B), 567—31.3(455B), or 567—33.3(455B) or any emission limit specified in a permit or order.

"Existing equipment" means equipment, machines, devices or installations that are in operation prior to September 23, 1970.

"Foundry cupola" means a stack-type furnace used for melting of metals consisting of, but not limited to, the furnace proper, tuyeres, fans or blowers, tapping spout, charging equipment, gas cleaning devices and other auxiliaries.

"Fugitive dust" means any airborne solid particulate matter emitted from any source other than a flue or stack.

"Garbage" means all solid and semisolid putrescible and nonputrescible animal and vegetable wastes resulting from the handling, preparing, cooking, storing and serving of food or of material intended for use as food, but excluding recognized industrial by-products.

"Gas cleaning device" means a facility designed to remove air contaminants from gases exhausted from equipment as defined herein.

"Goal" means a level of air quality which is expected to be obtained.

"Grain processing" means the equipment, or the combination of different types of equipment, used in the processing of grain to produce a product primarily for wholesale or retail sale for human or animal consumption, including the processing of grain for production of biofuels, except for "feed mill equipment," as "feed mill equipment" is defined in rule 567—22.10(455B).

"Grain storage elevator" means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded and that is located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant which has a permanent grain storage capacity (grain storage capacity which is inside a building, bin, or silo) of more than 35,200 m^3 (ca. 1 million U.S. bushels).

"Greenhouse gas" means carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

"Heating value" means the heat released by combustion of one pound of waste or fuel measured in Btu on an as received basis. For solid fuels, the heating value shall be determined by use of ASTM Standard D2015-66.

"Incinerator" means a combustion apparatus designed for high temperature operation in which solid, semisolid, liquid or gaseous combustible refuse is ignited and burned efficiently, and from which the solid residues contain little or no combustible material.

"Initiation of construction, installation or alteration" means significant permanent modification of a site to install equipment, control equipment or permanent structures. Not included are activities incident to preliminary engineering, environmental studies, or acquisition of a site for a facility.

"Landscape waste" means any vegetable or plant wastes except garbage. The term includes trees, tree trimmings, branches, stumps, brush, weeds, leaves, grass, shrubbery and yard trimmings.

"Level" means a certain specified degree, quality or characteristic.

"Malfunction" means any sudden and unavoidable failure of control equipment or of a process to operate in a normal manner. Any failure that is caused entirely or in part by poor maintenance, careless operation, lack of an adequate maintenance program, or any other preventable upset condition or preventable equipment breakdown shall not be considered a malfunction.

"Maximum achievable control technology (MACT)" means the following regarding regulated hazardous air pollutant sources:

1. For existing sources, the emissions limitation reflecting the maximum degree of reduction in emissions that the administrator or the department, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable by sources in the category of stationary sources, that shall not be less stringent than the MACT floor.

2. For new sources, the emission limitation which is not less stringent than the emission limitation achieved in practice by the best-controlled similar source and which reflects the maximum degree of reduction in emissions that the administrator or the department, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable by the affected source.

"Maximum achievable control technology (MACT) floor" means the following:

1. For existing sources, the average emission limitation achieved by the best 12 percent of the existing sources in the United States (for which the administrator or the department has or could reasonably obtain emissions information), excluding those sources that have, within 18 months before the emission standard is proposed or within 30 months before such standard is promulgated, whichever is later, first achieved a level of emission rate or emission reduction which complies, or would comply if the source is not subject to such standard, with the lowest achievable emission rate applicable to the source category and prevailing at the time, for categories and subcategories of stationary sources with 30 or more sources in the category or subcategory, or the average emission limitation achieved by the best-performing five sources in the United States (for which the administrator or the department has or could reasonably obtain emissions information), for a category or subcategory of stationary sources with fewer than 30 sources in the category or subcategory.

2. For new sources, the emission limitation achieved in practice by the best-controlled similar source.

"New equipment" means except for any equipment or modified equipment to which 567—subrule 23.1(2) applies, any equipment or control equipment not under construction or for which components have not been purchased on or before September 23, 1970, and any equipment which is altered or modified after such date, which may cause the emission of air contaminants or eliminate, reduce or control the emission of air contaminants.

"Number 1 fuel oil" and *"number 2 fuel oil,"* also known as "distillate oil," mean fuel oil that complies with the specifications for fuel oil number 1 or fuel oil number 2, as defined by the American Society of Testing and Materials (ASTM) D 396-02, "Standard Specification for Fuel Oils."

1. For purposes of the air quality rules contained in Title II, and unless otherwise specified, number 1 fuel oil or number 2 fuel oil may contain a blend of up to 2.0 percent biodiesel fuel, by volume, as "biodiesel fuel" is defined in this rule.

2. The department shall consider air pollutant emissions calculations for the biodiesel fuel blends specified in numbered paragraph "1" to be equivalent to the air pollutant emissions calculations for unblended number 1 fuel oil or unblended number 2 fuel oil.

3. Construction permits or operating permits issued under 567—Chapter 22 which restrict equipment fuel use to number 1 fuel oil or number 2 fuel oil shall be considered by the department to

include the biodiesel fuel blends specified in numbered paragraph "1," unless otherwise specified in 567—Chapter 22 or in a permit issued under 567—Chapter 22.

"Objective" means a certain specified degree, quality or characteristic expected to be attained.

"Odor" means that which produces a response of the human sense of smell to an odorous substance.

"Odorous substance" means a gaseous, liquid, or solid material that elicits a physiological response by the human sense of smell.

"Odorous substance source" means any equipment, installation operation, or material which emits odorous substances; such as, but not limited to, a stack, chimney, vent, window, opening, basin, lagoon, pond, open tank, storage pile, or inorganic or organic discharges.

"One-hour period" means any 60-minute period commencing on the hour.

"Opacity" means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background (See 567—Chapter 29).

"Open burning" means any burning of combustible materials where the products of combustion are emitted into the open air without passing through a chimney or stack.

"Particulate matter" (except for the purposes of new source performance standards as defined in 40 CFR 60) means any material, except uncombined water, that exists in a finely divided form as a liquid or solid at standard conditions and includes gaseous emissions that condense to liquid or solid form as measured by EPA-approved reference methods.

"Parts per million (PPM)" means a term which expresses the volumetric concentration of one material in one million unit volumes of a carrier material.

"Plan documents" means the reports, proposals, preliminary plans, survey and basis of design data, general and detail construction plans, profiles, specifications and all other information pertaining to equipment.

"PM_{10}" means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by an EPA-approved reference method.

"$PM_{2.5}$" means particulate matter as defined in this rule with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers as measured by an EPA-approved reference method.

"Potential to emit" means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the administrator. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations relating to acid rain.

For the purpose of determining potential to emit for country grain elevators, the provisions set forth in 567—subrule 22.10(2) shall apply.

For purposes of calculating potential to emit for emergency generators, "maximum capacity" means one of the following:

1. 500 hours of operation annually, if the generator has actually been operated less than 500 hours per year for the past five years;
2. 8,760 hours of operation annually, if the generator has actually been operated more than 500 hours in one of the past five years; or
3. The number of hours specified in a state or federally enforceable limit.

If the source is subject to new source construction permit review, then potential to emit is defined as stated above or as established in a federally enforceable permit.

"Privileged communication" means information other than air pollutant emissions data the release of which would tend to affect adversely the competitive position of the owner or operator of the equipment.

"Process" means any action, operation or treatment, and all methods and forms of manufacturing or processing, that may emit smoke, particulate matter, gaseous matter or other air contaminant.

"Process weight" means the total weight of all materials introduced into any source operation. Solid fuels charged will be considered as part of the process weight, but liquid and gaseous fuels and combustion air will not.

"Process weight rate" means continuous or long-run steady-state source operations, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof; or for a cyclical or batch source operation, the total process weight for a period that covers a complete operation or an integral number of cycles, divided by the number of hours of actual process operation during such a period. Where the nature of any process or operation, or the design of any equipment is such as to permit more than one interpretation of this definition, the interpretation that results in the minimum value for allowable emission shall apply.

"Refuse" means garbage, rubbish and all other putrescible and nonputrescible wastes, except sewage and water-carried trade wastes.

"Residential waste" means any refuse generated on the premises as a result of residential activities. The term includes landscape waste grown on the premises or deposited thereon by the elements, but excludes garbage, tires, trade wastes, and any locally recyclable goods or plastics.

"Rubbish" means all waste materials of nonputrescible nature.

"Salvage operations" means any business, industry or trade engaged wholly or in part in salvaging or reclaiming any product or material, including, but not limited to, chemicals, drums, metals, motor vehicles or shipping containers.

"Shutdown" means the cessation of operation of any control equipment or process equipment or process for any purpose.

"Six-minute period" means any one of the ten equal parts of a one-hour period.

"Smoke" means gas-borne particles resulting from incomplete combustion, consisting predominantly, but not exclusively, of carbon, and other combustible material, or ash, that form a visible plume in the air.

"Smoke monitor" means a device using a light source and a light detector which can automatically measure and record the light-obscuring power of smoke at a specific location in the flue or stack of a source.

"Source operation" means the last operation preceding the emission of an air contaminant, and which results in the separation of the air contaminant from the process materials or in the conversion of the process materials into air contaminants, but is not an air pollution control operation.

"Standard conditions" means a temperature of 68°F and a pressure of 29.92 inches of mercury absolute.

"Standard cubic foot (SCF)" means the volume of one cubic foot of gas at standard conditions.

"Standard metropolitan statistical area (SMSA)" means an area which has at least one city with a population of at least 50,000 and such surrounding areas as geographically defined by the U.S. Bureau of the Budget (Department of Commerce).

"Startup" means the setting into operation of any control equipment or process equipment or process for any purpose.

"Stationary source" means any building, structure, facility or installation which emits or may emit any air pollutant.

"Theoretical air" means the exact amount of air required to supply the required oxygen for complete combustion of a given quantity of a specific fuel or waste.

"Total suspended particulate" means particulate matter as defined in this rule.

"Trade waste" means any refuse resulting from the prosecution of any trade, business, industry, commercial venture (including farming and ranching), or utility or service activity, and any governmental or institutional activity, whether or not for profit.

"12-month rolling period" means a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.

"Untreated" as it refers to wood or wood products includes only wood or wood products that have not been treated with compounds such as, but not limited to, paint, pigment-stain, adhesive, varnish, lacquer, or resin or that have not been pressure treated with compounds such as, but not limited to, chromate copper acetate, pentachlorophenol or creosote. "Untreated" as it refers to seeds, pellets or other vegetative matter includes only seeds, pellets or other vegetative matter that has not been treated with pesticides or fungicides.

"Urban area" means any Iowa city of 100,000 or more population in the current census and all Iowa cities contiguous to such city.

"Variance" means a temporary waiver from rules or standards governing the quality, nature, duration or extent of emissions granted by the commission for a specified period of time.

"Volatile organic compounds" or *"VOC"* means any compound included in the definition of "volatile organic compounds" found at 40 CFR Section 51.100(s) as amended through November 28, 2018.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 0330C**, IAB 9/19/12, effective 10/24/12; **ARC 1227C**, IAB 12/11/13, effective 1/15/14; **ARC 1913C**, IAB 3/18/15, effective 4/22/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; **ARC 4335C**, IAB 3/13/19, effective 4/17/19; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—20.3(455B) Air quality forms generally. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

These rules are intended to implement Iowa Code section 17A.3 and chapter 455B.

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[1] Effective date of 20.2(455B), definition of "12-month rolling period," delayed 70 days by the Administrative Rules Review Committee at its meeting held October 10, 1995; delay lifted by this Committee December 13, 1995, effective December 14, 1995.

CHAPTER 21
COMPLIANCE

[Prior to 7/1/83, DEQ Chs 2 and 6]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—21.1(455B) Compliance schedule.

21.1(1) *New equipment.* All new equipment and all new control equipment, as defined herein, installed in this state shall perform in conformance with applicable emission standards specified in 567—Chapter 23.

21.1(2) *Existing equipment.* All existing equipment, as defined herein, shall be operated in conformance with applicable emission standards specified in 567—Chapter 23 or as otherwise specified herein; except that the performance standards specified in 567—subrule 23.1(2) shall not apply to existing equipment.

21.1(3) *Emissions inventory.* The person responsible for equipment as defined herein shall provide information on fuel use, materials processed, air contaminants emitted (including greenhouse gases as "greenhouse gas" is defined in rule 567—20.2(455B)), estimated rate of emissions, periods of emissions or other air pollution information to the director upon the director's written request for use in compiling and maintaining an emissions inventory for evaluation of the air pollution situation in the state and its various parts. The information requested shall be submitted on forms or by electronic format specified by the department. All information in regard to both actual and allowable emissions shall be public records, and any publication of such data shall be limited to actual and allowable air contaminant emissions.

21.1(4) *Emissions inventory to fulfill requirements of the Clean Air Interstate Rule (CAIR).* Rescinded IAB 2/15/17, effective 3/22/17.

21.1(5) *Public availability of data.* Emission data obtained from owners or operators of stationary sources under the provisions of 21.1(3) will be correlated with applicable emission limitations and other control measures. All such emission data and correlations will be available during normal business hours at the quarters of the department. The director may designate one or more additional places where such data and correlations will be available for public inspection.

21.1(6) *Maintenance of record.* Each owner or operator of any stationary source, as defined herein, shall, upon notification from the director, maintain records of the nature and amounts of air contaminant emissions from such source and any other information as may be deemed necessary by the commission to determine whether such source is in compliance with the applicable emission limitations or other control measures.

a. The information recorded shall be summarized and reported monthly to the director on forms furnished by the department. The initial reporting period shall commence 60 days from the date the director issues notification of the record-keeping requirements.

b. Information recorded by the owner or operator and copies of the summarizing reports submitted to the director shall be retained by the owner or operator for two years after the date on which the pertinent report is submitted.

This rule is intended to implement Iowa Code chapter 455B.

[**ARC 2949C**, IAB 2/15/17, effective 3/22/17]

567—21.2(455B) Variances.

21.2(1) *Application for variances.* A person may make application for a variance from applicable rules or standards specified in this title.

a. *Contents.* Each application for a variance shall be submitted to the director stating the following:

(1) The name, address and telephone number of the person submitting the application or, if such person is a legal entity, the name and address of the individual authorized to accept service of process on its behalf and the name of the person in charge of the premises where the pertinent activities are conducted.

(2) The type of business or activity involved.

(3) The nature of the operation or process involved; including information on the air contaminants emitted, the chemical and physical properties of such emissions and the estimated amount and rate of discharge of such emissions.

(4) The exact location of the operation or process involved.

(5) The reason or reasons for considering that compliance with the provisions specified in these rules will produce serious hardship without equal or greater benefits to the public, and the reasons why no other reasonable method can be used for such operations without resulting in a hazard to health or property.

(6) Each application shall contain certification by a responsible official as defined in rule 567—22.100(455B) of truth and accuracy. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information provided are true and accurate.

b. Variance extension. The request for extension of a variance shall be accompanied by an emission reduction program as specified in 21.3(455B).

21.2(2) *Processing of applications.* Each application for a variance and its supporting material shall be reviewed and an investigation of the facilities shall be made by the department, for evaluation of whether or not the emissions involved will produce the following effects.

a. Endanger human health. Endanger or tend to endanger the health of persons residing in or otherwise occupying the area affected by said emissions.

b. Create safety hazards. Create or tend to create safety hazards, such as (but not limited to) interference with traffic due to reduced visibility.

c. Damage to livestock or plant life. Damage or tend to damage any livestock harbored on, or any plant life on, property that is affected by said emissions and under other ownership.

d. Damage property. Damage or tend to damage any property on land that is affected by said emissions and under other ownership.

21.2(3) *Trial burns for alternative fuels.* An alternative fuel shall be defined as a fuel for which the emissions from combusting the fuel are not known and shall exclude natural gas, coal, liquid propane, and all petroleum distillates.

a. Variance from construction permit. The director may grant a variance for the purpose of testing an alternative fuel and quantifying the emissions from the alternative fuel, except as prohibited under paragraph 21.2(4)*"c."*

b. Baseline testing. In addition to submitting the information required in subrule 21.2(1), the applicant may be required to submit baseline emission data for all applicable pollutants as a condition of approval.

c. Source testing. Emissions testing deemed necessary for any pollutant may be required as a condition of the variance and shall be conducted in accordance with 567—paragraph 25.1(7)*"a."*

21.2(4) *Decision.*

a. Granting of variance. The director shall grant a variance when the director concludes that the action is appropriate. The variance may be granted subject to conditions specified by the director. The director shall specify the time intervals as are considered appropriate for submission of reports on the progress attained in the emission reduction program.

b. Denial of variance. The director shall deny a variance when the director concludes that the action is appropriate. The applicant may request a review hearing before the commission if the application is denied.

c. The director shall not grant a variance from any of the following requirements:

(1) Case-by-case maximum achievable control technology (MACT), 567—paragraph 22.1(1)*"b"*;

(2) Prevention of significant deterioration (PSD), 567—Chapter 33, to the extent that variances may not be granted from the preconstruction review and permitting program specified under 567—Chapter 33 (formerly rule 567—22.4(455B)), or from any PSD requirement contained in a PSD permit issued under 567—Chapter 33, or from any PSD requirement contained in a PSD permit issued under 40 CFR Section 51.166 or 52.21.

(3) New source performance standards, 567—subrule 23.1(2);

(4) Emission standards for hazardous air pollutants, 567—subrule 23.1(3);

(5) Emission standards for hazardous air pollutants for source categories, 567—subrule 23.1(4); or

(6) Emission guidelines, 567—subrule 23.1(5).

This rule is intended to implement Iowa Code section 455B.143.

567—21.3(455B) Emission reduction program.

21.3(1) *Content.* An air contaminant emission reduction program submitted to the department pursuant to these rules shall include a schedule for the installation of pollution control devices or the replacement or alteration of specified facilities in such a way that emissions of air contaminants are reduced to comply with the emission standard specified in 567—Chapter 23. The schedule must include, as a minimum, the following five increments of progress:

a. The date of submittal of the final control plan to the department.

b. The date by which contracts will be awarded for emission control systems or process modification or the date by which orders will be issued for the purchase of component parts to accomplish emission control or process modifications.

c. The date of initiation of on-site construction or installation of emission control equipment or process change.

d. The date by which on-site construction or installation of emission control equipment or process modification is to be completed.

e. The date by which final compliance is to be achieved.

21.3(2) *Action.* The director shall approve the programs if they are adequate and reasonable.

a. Upon approval of a program, a variance is granted for one year or until the final compliance date, whichever period is shorter. Emission reduction programs shall be reviewed annually by the director and a variance extension granted for ongoing approved emission reduction programs which show satisfactory progress toward the elimination or prevention of air pollution. The director may specify under what conditions and to what extent the variance or variance extension is granted.

b. If the director disapproves a program, the applicant may appeal to the commission, and the applicant shall have a period of 30 days from date of notification by the director in which to file an appeal.

c. Failure to meet any increment of progress in the compliance schedule contained in an approved emission reduction program may result in the disapproval by the director of the program and termination of the associated variance.

21.3(3) *Reports.* Each person responsible for an approved program shall make periodic written progress reports to the department, as specified by the department. The department shall make periodic reports to the commission on emission reduction programs submitted, and on the recommendations related to such programs.

This rule is intended to implement Iowa Code section 455B.143.

[1]**567—21.4(455B) Circumvention of rules.** No person shall build, erect, install or use any article, machine, equipment or other contrivance which, without resulting in a reduction in the total amount of air contaminants released to the atmosphere, reduces or conceals an emission which would otherwise constitute violation of these rules.

This rule is intended to implement Iowa Code chapter 455B.

[1] Prior to 6/22/83, DEQ rule 6.1.

567—21.5(455B) Evidence used in establishing that a violation has or is occurring. Notwithstanding any other provisions of these rules, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any provisions herein.

21.5(1) Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred at a source:

a. A monitoring method approved for the source and incorporated in an operating permit pursuant to 567—Chapter 22;

b. Compliance test methods specified in 567—Chapter 25; or

c. Testing or monitoring methods approved for the source in a construction permit issued pursuant to 567—Chapter 22.

21.5(2) The following testing, monitoring or information-gathering methods are presumptively credible testing, monitoring, or information-gathering methods:

a. Any monitoring or testing methods provided in these rules; or

b. Other testing, monitoring, or information-gathering methods that produce information comparable to that produced by any method in subrule 21.5(1) or this subrule.

This rule is intended to implement Iowa Code section 455B.133.

567—21.6(455B) Temporary electricity generation for disaster situations. An electric utility may operate generators at an electric utility substation with a total combined capacity not to exceed 2 megawatts in capacity for a period of not longer than 10 calendar days and only for the purpose of providing electricity generation in the event of a sudden and unforeseen disaster that has disabled standard transmission of electricity to the public. Department approval shall be required if the electric utility intends to operate generators for a period longer than 10 calendar days. The electric utility shall provide an oral report to the appropriate department field office and to the department's air quality bureau and shall specify the anticipated duration within eight hours of commencing use of a generator or at the start of the first working day following the placement of a generator at each site. A written report shall be submitted to the department within 30 calendar days following the cessation of use of the generators. The written report shall state the nature of the sudden and unforeseen disaster, the location of each site, the number of generators used, the capacity of the generators used, the fuel type of the generators, and the duration of use of each generator. For purposes of this rule, the definition of "disaster" shall be as defined in Iowa Code section 29C.2(1), and a disaster may occur before, with, or without a gubernatorial or federal disaster proclamation.

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CHAPTER 22
CONTROLLING POLLUTION

[Prior to 7/1/83, DEQ Ch 3]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—22.1(455B) Permits required for new or existing stationary sources.

22.1(1) *Permit required.* Unless exempted in subrule 22.1(2) or to meet the parameters established in paragraph *"c"* of this subrule, no person shall construct, install, reconstruct or alter any equipment, control equipment or anaerobic lagoon without first obtaining a construction permit, or permit pursuant to rule 567—22.8(455B), or permits required pursuant to rules 567—22.4(455B), 567—22.5(455B), 567—31.3(455B), and 567—33.3(455B) as required in this subrule. A permit shall be obtained prior to the initiation of construction, installation or alteration of any portion of the stationary source or anaerobic lagoon.

a. Existing sources. Sources built prior to September 23, 1970, are not subject to this subrule, unless they have been modified, reconstructed, or altered on or after September 23, 1970.

b. New or reconstructed major sources of hazardous air pollutants. No person shall construct or reconstruct a major source of hazardous air pollutants, as defined in 40 CFR 63.2 and 40 CFR 63.41 as adopted by reference in 567—subrule 23.1(4), unless a construction permit has been obtained from the department, which requires maximum achievable control technology for new sources to be applied. The permit shall be obtained prior to the initiation of construction or reconstruction of the major source.

c. New, reconstructed, or modified sources may initiate construction prior to issuance of the construction permit by the department if they meet the eligibility requirements stated in subparagraph (1) below. The applicant must assume any liability for construction conducted on a source before the permit is issued. In no case will the applicant be allowed to hook up the equipment to the exhaust stack or operate the equipment in any way that may emit any pollutant prior to receiving a construction permit.

(1) Eligibility.

1. The applicant has submitted a construction permit application to the department, as specified in subrule 22.1(3);

2. The applicant has notified the department of the applicant's intentions in writing five working days prior to initiating construction; and

3. The source is not subject to rule 567—22.4(455B), 567—subrule 23.1(2), 567—subrule 23.1(3), 567—subrule 23.1(4), 567—subrule 23.1(5), rule 567—31.3(455B), or paragraph *"b"* of this subrule. Prevention of significant deterioration (PSD) provisions and prohibitions remain applicable until a proposed project legally obtains PSD synthetic minor status (i.e., obtains permitted limits which limit the source below the PSD thresholds).

(2) The applicant must cease construction if the department's evaluation demonstrates that the construction, reconstruction or modification of the source will interfere with the attainment or maintenance of the national ambient air quality standards or will result in a violation of a control strategy required by 40 CFR Part 51, Subpart G, as amended through February 19, 2015.

(3) The applicant will be required to make any modification to the source that may be imposed in the issued construction permit.

(4) The applicant must notify the department of the date that construction or reconstruction actually started. All notifications shall be submitted to the department in writing no later than 30 days after construction or reconstruction started. All notifications shall include all of the information listed in 22.3(3)*"b."*

d. Permit requirements for country grain elevators, country grain terminal elevators, grain terminal elevators, and feed mill equipment. The owner or operator of a country grain elevator, country grain terminal elevator, grain terminal elevator or feed mill equipment, as "country grain elevator," "country grain terminal elevator," "grain terminal elevator," and "feed mill equipment" are defined in subrule 22.10(1), may elect to comply with the requirements specified in rule 567—22.10(455B) for equipment at these facilities.

22.1(2) *Exemptions.* The requirement to obtain a permit in subrule 22.1(1) is not required for the equipment, control equipment, and processes listed in this subrule. The permitting exemptions in this subrule do not relieve the owner or operator of any source from any obligation to comply with any other applicable requirements. Equipment, control equipment, or processes subject to rule 567—22.4(455B) and 567—Chapter 33 (except rule 567—33.9(455B)), prevention of significant deterioration requirements, or rule 567—22.5(455B) or 567—31.3(455B), requirements for nonattainment areas, may not use the exemptions from construction permitting listed in this subrule. Equipment, control equipment, or processes subject to 567—subrule 23.1(2), new source performance standards (40 CFR Part 60 NSPS); 567—subrule 23.1(3), emission standards for hazardous air pollutants (40 CFR Part 61 NESHAP); 567—subrule 23.1(4), emission standards for hazardous air pollutants for source categories (40 CFR Part 63 NESHAP); or 567—subrule 23.1(5), emission guidelines, may still use the exemptions from construction permitting listed in this subrule provided that a permit is not needed to create federally enforceable limits that restrict potential to emit. If equipment is permitted under the provisions of rule 567—22.8(455B), then no other exemptions shall apply to that equipment.

Records shall be kept at the facility for exemptions that have been claimed under the following paragraphs: 22.1(2)*"a"* (for equipment > 1 million Btu per hour input), 22.1(2)*"b,"* 22.1(2)*"e,"* 22.1(2)*"r"* or 22.1(2)*"s."* The records shall contain the following information: the specific exemption claimed and a description of the associated equipment. These records shall be made available to the department upon request.

The following paragraphs are applicable to paragraphs 22.1(2)*"g"* and *"i."* A facility claiming to be exempt under the provisions of paragraph 22.1(2)*"g"* or *"i"* shall provide to the department the information listed below. If the exemption is claimed for a source not yet constructed or modified, the information shall be provided to the department at least 30 days in advance of the beginning of construction on the project. If the exemption is claimed for a source that has already been constructed or modified and that does not have a construction permit for that construction or modification, the information listed below shall be provided to the department within 60 days of March 20, 1996. After that date, if the exemption is claimed by a source that has already been constructed or modified and that does not have a construction permit for that construction or modification, the source shall not operate until the information listed below is provided to the department:

- A detailed emissions estimate of the actual and potential emissions, specifically noting increases or decreases, for the project for all regulated pollutants (as defined in rule 567—22.100(455B)), accompanied by documentation of the basis for the emissions estimate;
- A detailed description of each change being made;
- The name and location of the facility;
- The height of the emission point or stack and the height of the highest building within 50 feet;
- The date for beginning actual construction and the date that operation will begin after the changes are made;
- A statement that the provisions of rules 567—22.4(455B), 567—22.5(455B), and 567—31.3(455B) and 567—Chapter 33 (except rule 567—33.9(455B)) do not apply; and
- A statement that the accumulated emissions increases associated with each change under paragraph 22.1(2)*"i,"* when totaled with other net emissions increases at the facility contemporaneous with the proposed change (occurring within five years before construction on the particular change commences), have not exceeded significant levels, as defined in 40 CFR 52.21(b)(23) as amended through October 20, 2010, and adopted in rules 567—22.4(455B) and 567—33.3(455B), and will not prevent the attainment or maintenance of the ambient air quality standards specified in 567—Chapter 28. This statement shall be accompanied by documentation for the basis of these statements.

The written statement shall contain certification by a responsible official as defined in rule 567—22.100(455B) of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

a. Fuel-burning equipment for indirect heating and reheating furnaces or cooling units using natural gas or liquefied petroleum gas with a capacity of less than ten million Btu per hour input per combustion unit.

b. Fuel-burning equipment for indirect heating or indirect cooling with a capacity of less than 1 million Btu per hour input per combustion unit when burning untreated wood, untreated seeds or pellets, other untreated vegetative materials, or fuel oil, provided that the equipment and the fuel meet the conditions specified in this paragraph. Used oils meeting the specification from 40 CFR 279.11 as amended through July 14, 2006, are acceptable fuels for this exemption. When combusting used oils, the equipment must have a maximum rated capacity of 50,000 Btu or less per hour of heat input or a maximum throughput of 3,600 gallons or less of used oils per year. When combusting untreated wood, untreated seeds or pellets, or other untreated vegetative materials, the equipment must have a maximum rated capacity of 265,600 Btu or less per hour or a maximum throughput of 378,000 pounds or less per year of each fuel or any combination of fuels. Records shall be maintained on site by the owner or operator for at least two calendar years to demonstrate that fuel usage is less than the exemption thresholds. Owners or operators initiating construction, installation, reconstruction, or alteration of equipment (as defined in rule 567—20.2(455B)) on or before October 23, 2013, burning coal, used oils, untreated wood, untreated seeds or pellets, or other untreated vegetative materials that qualified for this exemption may continue to claim this exemption after October 23, 2013, without being restricted to the maximum heat input or throughput specified in this paragraph.

c. Mobile internal combustion and jet engines, marine vessels and locomotives.

d. Equipment used for cultivating land, harvesting crops, or raising livestock other than anaerobic lagoons. This exemption is not applicable if the equipment is used to remove substances from grain which were applied to the grain by another person. This exemption is also not applicable to equipment used by a person to manufacture commercial feed, as defined in Iowa Code section 198.3, which is normally not fed to livestock, owned by the person or another person, in a feedlot, as defined in Iowa Code section 172D.1(6), or a confinement building owned or operated by that person and located in this state.

e. Incinerators and pyrolysis cleaning furnaces with a rated refuse burning capacity of less than 25 pounds per hour for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013. Pyrolysis cleaning furnace exemption is limited to those units that use only natural gas or propane. Salt bath units are not included in this exemption. Incinerators or pyrolysis cleaning furnaces for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, shall not qualify for this exemption. After October 23, 2013, only paint clean-off ovens with a maximum rated capacity of less than 25 pounds per hour that do not combust lead-containing materials shall qualify for this exemption.

f. Fugitive dust controls unless a control efficiency can be assigned to the equipment or control equipment.

g. Equipment or control equipment which reduces or eliminates all emission to the atmosphere. If a source wishes to obtain credit for emission reductions, a permit must be obtained for the reduction prior to the time the reduction is made. If a construction permit has been previously issued for the equipment or control equipment, all other conditions of the construction permit remain in effect.

h. Equipment (other than anaerobic lagoons) or control equipment which emits odors unless such equipment or control equipment also emits particulate matter, or any other regulated air contaminant (as defined in rule 567—22.100(455B)).

i. Initiation of construction, installation, reconstruction, or alteration (modification) to equipment (as defined in rule 567—20.2(455B)) on or before October 23, 2013, which will not result in a net emissions increase (as defined in 567—subrule 31.3(1)) of more than 1.0 lb/hr of any regulated air pollutant (as defined in rule 567—22.100(455B)). Emission reduction achieved through the installation of control equipment, for which a construction permit has not been obtained, does not establish a limit to potential emissions.

Hazardous air pollutants (as defined in rule 567—22.100(455B)) are not included in this exemption except for those listed in Table 1. Further, the net emissions rate INCREASE must not equal or exceed the values listed in Table 1.

Table 1

Pollutant	Ton/year
Lead	0.6
Asbestos	0.007
Beryllium	0.0004
Vinyl Chloride	1
Fluorides	3

This exemption is ONLY applicable to vertical discharges with the exhaust stack height 10 or more feet above the highest building within 50 feet. If a construction permit has been previously issued for the equipment or control equipment, the conditions of the construction permit remain in effect. In order to use this exemption, the facility must comply with the information submission to the department as described above.

The department reserves the right to require proof that the expected emissions from the source which is being exempted from the air quality construction permit requirement, in conjunction with all other emissions, will not prevent the attainment or maintenance of the ambient air quality standards specified in 567—Chapter 28. If the department finds, at any time after a change has been made pursuant to this exemption, evidence of violations of any of the department's rules, the department may require the source to submit to the department sufficient information to determine whether enforcement action should be taken. This information may include, but is not limited to, any information that would have been submitted in an application for a construction permit for any changes made by the source under this exemption, and air quality dispersion modeling.

Equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, shall not qualify for this exemption.

j. Residential heaters, cookstoves, or fireplaces, which burn untreated wood, untreated seeds or pellets, or other untreated vegetative materials.

k. Asbestos demolition and renovation projects subject to 40 CFR 61.145 as amended through January 16, 1991.

l. The equipment in laboratories used exclusively for nonproduction chemical and physical analyses. Nonproduction analyses means analyses incidental to the production of a good or service and includes analyses conducted for quality assurance or quality control activities, or for the assessment of environmental impact.

m. Storage tanks with a capacity of less than 19,812 gallons and an annual throughput of less than 200,000 gallons.

n. Stack or vents to prevent escape of sewer gases through plumbing traps. Systems which include any industrial waste are not exempt.

o. A nonproduction surface coating process that uses only hand-held aerosol spray cans.

p. Brazing, soldering or welding equipment or portable cutting torches used only for nonproduction activities.

q. Cooling and ventilating equipment: Comfort air conditioning not designed or used to remove air contaminants generated by, or released from, specific units of equipment.

r. An internal combustion engine with a brake horsepower rating of less than 400 measured at the shaft, provided that the owner or operator meets all of the conditions in this paragraph. For the purposes of this exemption, the manufacturer's nameplate rated capacity at full load shall be defined as the brake horsepower output at the shaft. The owner or operator of an engine that was manufactured, ordered, modified or reconstructed after March 18, 2009, may use this exemption only if the owner or operator, prior to installing, modifying or reconstructing the engine, submits to the department a

completed registration on forms provided by the department (unless the engine is exempted from registration, as specified in this paragraph or on the registration form), certifying that the engine is in compliance with the following federal regulations:

(1) New source performance standards (NSPS) for stationary compression ignition internal combustion engines (40 CFR Part 60, Subpart IIII); or

(2) New source performance standards (NSPS) for stationary spark ignition internal combustion engines (40 CFR Part 60, Subpart JJJJ); and

(3) National emission standards for hazardous air pollutants (NESHAP) for reciprocating internal combustion engines (40 CFR Part 63, Subpart ZZZZ).

Use of this exemption does not relieve an owner or operator from any obligation to comply with NSPS or NESHAP requirements. An engine that meets the definition of a nonroad engine as specified in 40 CFR 1068.30 is exempt from the registration requirements of this paragraph (22.1(2)*"r"*).

s. Equipment that is not related to the production of goods or services and used exclusively for academic purposes, located at educational institutions (as defined in Iowa Code section 455B.161). The equipment covered under this exemption is limited to: lab hoods, art class equipment, wood shop equipment in classrooms, wood fired pottery kilns, and fuel-burning units with a capacity of less than one million Btu per hour fuel capacity. This exemption does not apply to incinerators.

t. Any container, storage tank, or vessel that contains a fluid having a maximum true vapor pressure of less than 0.75 psia. "Maximum true vapor pressure" means the equilibrium partial pressure of the material considering:

- For material stored at ambient temperature, the maximum monthly average temperature as reported by the National Weather Service, or
- For material stored above or below the ambient temperature, the temperature equal to the highest calendar-month average of the material storage temperature.

u. Equipment for carving, cutting, routing, turning, drilling, machining, sawing, surface grinding, sanding, planing, buffing, sandblast cleaning, shot blasting, shot peening, or polishing ceramic artwork, leather, metals (other than beryllium), plastics, concrete, rubber, paper stock, and wood or wood products, where such equipment is either used for nonproduction activities or exhausted inside a building.

v. Manually operated equipment, as defined in rule 567—22.100(455B), used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, scarfing, surface grinding, or turning.

w. Small unit exemption.

(1) "Small unit" means any emission unit and associated control (if applicable) that emits less than the following:

1. 2 pounds per year of lead and lead compounds expressed as lead (40 pounds per year of lead or lead compounds for equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013);
2. 5 tons per year of sulfur dioxide;
3. 5 tons per year of nitrogen oxides;
4. 5 tons per year of volatile organic compounds;
5. 5 tons per year of carbon monoxide;
6. 5 tons per year of particulate matter (particulate matter as defined in 40 CFR Part 51.100(pp));
7. 2.5 tons per year of PM_{10};
8. 0.52 tons per year of $PM_{2.5}$ (does not apply to equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013); and
9. 5 tons per year of hazardous air pollutants (as defined in rule 567—22.100(455B)).

For the purposes of this exemption, "emission unit" means any part or activity of a stationary source that emits or has the potential to emit any pollutant subject to regulation under the Act. This exemption applies to existing and new or modified "small units."

An emission unit that emits hazardous air pollutants (as defined in rule 567—22.100(455B)) is not eligible for this exemption if the emission unit is required to be reviewed for compliance with

567—subrule 23.1(3), emission standards for hazardous air pollutants (40 CFR 61, NESHAP), or 567—subrule 23.1(4), emission standards for hazardous air pollutants for source categories (40 CFR 63, NESHAP).

An emission unit that emits air pollutants that are not regulated air pollutants as defined in rule 567—22.100(455B) shall not be eligible to use this exemption.

(2) Permit requested. If requested in writing by the owner or operator of a small unit, the director may issue a construction permit for the emission point associated with that emission unit.

(3) An owner or operator that utilizes the small unit exemption must maintain on site an "exemption justification document." The exemption justification document must document conformance and compliance with the emission rate limits contained in the definition of "small unit" for the particular emission unit or group of similar emission units obtaining the exemption. Controls which may be part of the exemption justification document include, but are not limited to, the following: emission control devices, such as cyclones, filters, or baghouses; restricted hours of operation or fuel; and raw material or solvent substitution. The exemption justification document for an emission unit or group of similar emission units must be made available for review during normal business hours and for state or EPA on-site inspections, and shall be provided to the director or the director's representative upon request. If an exemption justification document does not exist, the applicability of the small unit exemption is voided for that particular emission unit or group of similar emission units. The controls described in the exemption justification document establish a limit on the potential emissions. An exemption justification document shall include the following for each applicable emission unit or group of similar emission units:

1. A narrative description of how the emissions from the emission unit or group of similar emission units were determined and maintained at or below the annual small unit exemption levels.

2. If air pollution control equipment is used, a description of the air pollution control equipment used on the emission unit or group of similar emission units and a statement that the emission unit or group of similar emission units will not be operated without the pollution control equipment operating.

3. If air pollution control equipment is used, applicant shall maintain a copy of any report of manufacturer's testing results of any emissions test, if available. The department may require a test if it believes that a test is necessary for the exemption claim.

4. A description of all production limits required for the emission unit or group of similar emission units to comply with the exemption levels.

5. Detailed calculations of emissions reflecting the use of any air pollution control devices or production or throughput limitations, or both, for applicable emission unit or group of similar emission units.

6. Records of actual operation that demonstrate that the annual emissions from the emission unit or group of similar emission units were maintained below the exemption levels.

7. Facilities designated as major sources with respect to rules 567—22.4(455B) and 567—22.101(455B), or subject to any applicable federal requirements, shall retain all records demonstrating compliance with the exemption justification document for five years. The record retention requirements supersede any retention conditions of an individual exemption.

8. A certification from the responsible official that the emission unit or group of similar emission units have complied with the exemption levels specified in 22.1(2)*"w"*(1).

(4) Requirement to apply for a construction permit. An owner or operator of a small unit will be required to obtain a construction permit or take the unit out of service if the emission unit exceeds the small unit emission levels.

1. If, during an inspection or other investigation of a facility, the department believes that the emission unit exceeds the emission levels that define a "small unit," then the department will submit calculations and detailed information in a letter to the owner or operator. The owner or operator shall have 60 days to respond with detailed calculations and information to substantiate a claim that the small unit does not exceed the emission levels that define a small unit.

2. If the owner or operator is unable to substantiate a claim to the satisfaction of the department, then the owner or operator that has been using the small unit exemption must cease operation of that small

unit or apply for a construction permit for that unit within 90 days after receiving a letter of notice from the department. The emission unit and control equipment may continue operation during this period and the associated initial application review period.

3. If the notification of nonqualification as a small unit is made by the department following the process described above, the owner or operator will be deemed to have constructed an emission unit without the required permit and may be subject to applicable penalties.

(5) Required notice for construction or modification of a "substantial small unit." The owner or operator shall notify the department in writing at least 10 days prior to commencing construction of any new or modified "substantial small unit" as defined in 22.1(2)*"w"*(6). The owner or operator shall notify the department within 30 days after determining an existing small unit meets the criteria of the "substantial small unit" as defined in 22.1(2)*"w"*(6). Notification shall include the name of the business, the location where the unit will be installed, and information describing the unit and quantifying its emissions. The owner or operator shall notify the department within 90 days of the end of the calendar year for which the aggregate emissions from substantial small units at the facility have reached any of the cumulative notice thresholds listed below.

(6) For the purposes of this paragraph, "substantial small unit" means a small unit which emits more than the following amounts, as documented in the exemption justification document:

1. 2 pounds per year of lead and lead compounds expressed as lead (30 pounds per year of lead or lead compounds for equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013);
2. 3.75 tons per year of sulfur dioxide;
3. 3.75 tons per year of nitrogen oxides;
4. 3.75 tons per year of volatile organic compounds;
5. 3.75 tons per year of carbon monoxide;
6. 3.75 tons per year of particulate matter (particulate matter as defined in 40 CFR Part 51.100(pp));
7. 1.875 tons per year of PM_{10};
8. 0.4 tons per year of $PM_{2.5}$ (does not apply to equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013); or
9. 3.75 tons per year of any hazardous air pollutant or 3.75 tons per year of any combination of hazardous air pollutants.

An emission unit is a "substantial small unit" only for those substances for which annual emissions exceed the above-indicated amounts.

(7) Required notice that a cumulative notice threshold has been reached. Once a "cumulative notice threshold," as defined in 22.1(2)*"w"*(8), has been reached for any of the listed pollutants, the owner or operator at the facility must apply for air construction permits for all substantial small units for which the cumulative notice threshold for the pollutant(s) in question has been reached. The owner or operator shall have 90 days from the date it determines that the cumulative notice threshold has been reached in which to apply for construction permit(s). The owner or operator shall submit a letter to the department, within 5 working days of making this determination, establishing the date the owner or operator determined that the cumulative notice threshold had been reached.

(8) "Cumulative notice threshold" means the total combined emissions from all substantial small units using the small unit exemption which emit at the facility the following amounts, as documented in the exemption justification document:

1. 0.6 tons per year of lead and lead compounds expressed as lead;
2. 40 tons per year of sulfur dioxide;
3. 40 tons per year of nitrogen oxides;
4. 40 tons per year of volatile organic compounds;
5. 100 tons per year of carbon monoxide;
6. 25 tons per year of particulate matter (particulate matter as defined in 40 CFR Part 51.100(pp));
7. 15 tons per year of PM_{10};

8. 10 tons per year of $PM_{2.5}$ (does not apply to equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013); or

9. 10 tons per year of any hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants.

x. The following equipment, processes, and activities:

(1) Cafeterias, kitchens, and other facilities used for preparing food or beverages primarily for consumption at the source.

(2) Consumer use of office equipment and products, not including printers or businesses primarily involved in photographic reproduction.

(3) Janitorial services and consumer use of janitorial products.

(4) Internal combustion engines used for lawn care, landscaping, and groundskeeping purposes.

(5) Laundry activities located at a stationary source that uses washers and dryers to clean, with water solutions of bleach or detergents, or to dry clothing, bedding, and other fabric items used on site. This exemption does not include laundry activities that use dry cleaning equipment or steam boilers.

(6) Bathroom vent emissions, including toilet vent emissions.

(7) Blacksmith forges.

(8) Plant maintenance and upkeep activities and repair or maintenance shop activities (e.g., groundskeeping, general repairs, cleaning, painting, welding, plumbing, retarring roofs, installing insulation, and paving parking lots), provided that these activities are not conducted as part of manufacturing process, are not related to the source's primary business activity, and do not otherwise trigger a permit modification. Cleaning and painting activities qualify if they are not subject to control requirements for volatile organic compounds or hazardous air pollutants as defined in rule 567—22.100(455B).

(9) Air compressors and vacuum pumps, including hand tools.

(10) Batteries and battery charging stations, except at battery manufacturing plants.

(11) Equipment used to store, mix, pump, handle or package soaps, detergents, surfactants, waxes, glycerin, vegetable oils, greases, animal fats, sweetener, corn syrup, and aqueous salt or caustic solutions, provided that appropriate lids and covers are utilized and that no organic solvent has been mixed with such materials.

(12) Equipment used exclusively to slaughter animals, but not including other equipment at slaughterhouses, such as rendering cookers, boilers, heating plants, incinerators, and electrical power generating equipment.

(13) Vents from continuous emissions monitors and other analyzers.

(14) Natural gas pressure regulator vents, excluding venting at oil and gas production facilities.

(15) Equipment used by surface coating operations that apply the coating by brush, roller, or dipping, except equipment that emits volatile organic compounds or hazardous air pollutants as defined in rule 567—22.100(455B).

(16) Hydraulic and hydrostatic testing equipment.

(17) Environmental chambers not using gases which are hazardous air pollutants as defined in rule 567—22.100(455B).

(18) Shock chambers, humidity chambers, and solar simulators.

(19) Fugitive dust emissions related to movement of passenger vehicles on unpaved road surfaces, provided that the emissions are not counted for applicability purposes and that any fugitive dust control plan or its equivalent is submitted as required by the department.

(20) Process water filtration systems and demineralizers, demineralized water tanks, and demineralizer vents.

(21) Boiler water treatment operations, not including cooling towers or lime silos.

(22) Oxygen scavenging (deaeration) of water.

(23) Fire suppression systems.

(24) Emergency road flares.

(25) Steam vents, safety relief valves, and steam leaks.

(26) Steam sterilizers.

(27) Application of hot melt adhesives from closed-pot systems using polyolefin compounds, polyamides, acrylics, ethylene vinyl acetate and urethane material when stored and applied at the manufacturer's recommended temperatures. Equipment used to apply hot melt adhesives shall have a safety device that automatically shuts down the equipment if the hot melt temperature exceeds the manufacturer's recommended application temperature.

y. Direct-fired equipment burning natural gas, propane, or liquefied propane with a capacity of less than 10 million Btu per hour input, and direct-fired equipment burning fuel oil with a capacity of less than 1 million Btu per hour input, with emissions that are attributable only to the products of combustion. Emissions other than those attributable to the products of combustion shall be accounted for in an enforceable permit condition or shall otherwise be exempt under this subrule.

z. Closed refrigeration systems, including storage tanks used in refrigeration systems, but excluding any combustion equipment associated with such systems.

aa. Pretreatment application processes that use aqueous-based chemistries designed to clean a substrate, provided that the chemical concentrate contains no more than 5 percent organic solvents by weight. This exemption includes pretreatment processes that use aqueous-based cleaners, cleaner-phosphatizers, and phosphate conversion coating chemistries.

bb. Indoor-vented powder coating operations with filters or powder recovery systems.

cc. Electric curing ovens or curing ovens that run on natural gas or propane with a maximum heat input of less than 10 million Btu per hour and that are used for powder coating operations, provided that the total cured powder usage is less than 75 tons of powder per year at the stationary source. Records shall be maintained on site by the owner or operator for a period of at least two calendar years to demonstrate that cured powder usage is less than the exemption threshold.

dd. Each production painting, adhesive or coating unit using an application method other than a spray system and associated cleaning operations that use 1,000 gallons or less of coating and solvents annually, unless the production painting, adhesive or coating unit and associated cleaning operations are subject to work practice, process limits, emissions limits, stack testing, record-keeping or reporting requirements under 567—subrule 23.1(2), 567—subrule 23.1(3), or 567—subrule 23.1(4). Records shall be maintained on site by the owner or operator for a period of at least two calendar years to demonstrate that paint, adhesive, or solvent usage is at or below the exemption threshold.

ee. Any production surface coating activity that uses only nonrefillable hand-held aerosol cans, where the total volatile organic compound emissions from all these activities at a stationary source do not exceed 5.0 tons per year.

ff. Production welding.

(1) Consumable electrode.

1. Welding operations for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013, using a consumable electrode, provided that the consumable electrode used falls within American Welding Society specification A5.18/A5.18M for Gas Metal Arc Welding (GMAW), A5.1 or A5.5 for Shielded Metal Arc Welding (SMAW), and A5.20 for Flux Core Arc Welding (FCAW), and provided that the quantity of all electrodes used at the stationary source of the acceptable specifications is below 200,000 pounds per year for GMAW and 28,000 pounds per year for SMAW or FCAW. Records that identify the type and annual amount of welding electrode used shall be maintained on site by the owner or operator for a period of at least two calendar years.For stationary sources where electrode usage exceeds these levels, the welding activity at the stationary source may be exempted if the amount of electrode used (Y) is less than:

Y = the greater of 1380x - 19,200 or 200,000 for GMAW, or

Y = the greater of 187x - 2,600 or 28,000 for SMAW or FCAW

Where "x" is the minimum distance to the property line in feet and "Y" is the annual electrode usage in pounds per year.

If the stationary source has welding processes that fit into both of the specified exemptions, the most stringent limits must be applied.

2. Welding operations for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, using a consumable electrode, provided that the consumable electrode used falls within American Welding Society specification A5.18/A5.18M for Gas Metal Arc Welding (GMAW), A5.1 or A5.5 for Shielded Metal Arc Welding (SMAW), and A5.20 for Flux Core Arc Welding (FCAW), and provided that the quantity of all electrodes used at the stationary source of the acceptable specifications is below 12,500 pounds per year for GMAW and 1,600 pounds per year for SMAW or FCAW. Records that identify the type and annual amount of welding electrode used shall be maintained on site by the owner or operator for a period of at least two calendar years. For stationary sources where electrode usage exceeds these levels, the welding activity at the stationary source may be exempted if the amount of electrode used (Y) is less than:

Y = the greater of 84x - 1,200 or 12,500 for GMAW, or

Y = the greater of 11x - 160 or 1,600 for SMAW or FCAW

Where "x" is the minimum distance to the property line in feet and "Y" is the annual electrode usage in pounds per year.

If the stationary source has welding processes that fit into both of the specified exemptions, the most stringent limits must be applied.

(2) Resistance welding, submerged arc welding, or arc welding that does not use a consumable electrode, provided that the base metals do not include stainless steel, alloys of lead, alloys of arsenic, or alloys of beryllium and provided that the base metals are uncoated, excluding manufacturing process lubricants.

gg. Electric hand soldering, wave soldering, and electric solder paste reflow ovens for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013. Electric hand soldering, wave soldering, and electric solder paste reflow ovens for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, shall be limited to 37,000 pounds or less per year of lead-containing solder. Records shall be maintained on site by the owner or operator for at least two calendar years to demonstrate that use of lead-containing solder is less than the exemption thresholds.

hh. Pressurized piping and storage systems for natural gas, propane, liquefied petroleum gas (LPG), and refrigerants, where emissions could only result from an upset condition.

ii. Emissions from the storage and mixing of paints and solvents associated with the painting operations, provided that the emissions from the storage and mixing are accounted for in an enforceable permit condition or are otherwise exempt.

jj. Product labeling using laser and ink-jet printers with target distances less than or equal to six inches and an annual material throughput of less than 1,000 gallons per year as calculated on a stationary sourcewide basis.

kk. Equipment related to research and development activities at a stationary source, provided that:

(1) Actual emissions from all research and development activities at the stationary source based on a 12-month rolling total are less than the following levels:

2 pounds per year of lead and lead compounds expressed as lead (40 pounds per year for research and development activities that commenced on or before October 23, 2013);

5 tons per year of sulfur dioxide;

5 tons per year of nitrogen oxides;

5 tons per year of volatile organic compounds;

5 tons per year of carbon monoxide;

5 tons per year of particulate matter (particulate matter as defined in 40 CFR Part 51.100(pp) as amended through November 29, 2004);

2.5 tons per year of PM_{10};

0.52 tons per year of $PM_{2.5}$ (does not apply to research and development activities that commenced on or before October 23, 2013); and

5 tons per year of hazardous pollutants (as defined in rule 567—22.100(455B)); and

(2) The owner or operator maintains records of actual operations demonstrating that the annual emissions from all research and development activities conducted under this exemption are below the levels listed in subparagraph (1) above. These records shall:

1. Include a list of equipment that is included under the exemption;

2. Include records of actual operation and detailed calculations of actual annual emissions, reflecting the use of any control equipment and demonstrating that the emissions are below the levels specified in the exemption;

3. Include, if air pollution equipment is used in the calculation of emissions, a copy of any report of manufacturer's testing, if available. The department may require a test if it believes that a test is necessary for the exemption claim; and

4. Be maintained on site for a minimum of two years, be made available for review during normal business hours and for state and EPA on-site inspections, and be provided to the director or the director's designee upon request. Facilities designated as major sources pursuant to rules 567—22.4(455B) and 567—22.101(455B), or subject to any applicable federal requirements, shall retain all records demonstrating compliance with this exemption for five years.

(3) An owner or operator using this exemption obtains a construction permit or ceases operation of equipment if operation of the equipment would cause the emission levels listed in this exemption to be exceeded.

For the purposes of this exemption, "research and development activities" shall be defined as activities:

1. That are operated under the close supervision of technically trained personnel; and

2. That are conducted for the primary purpose of theoretical research or research and development into new or improved processes and products; and

3. That do not manufacture more than de minimis amounts of commercial products; and

4. That do not contribute to the manufacture of commercial products by collocated sources in more than a de minimis manner.

ll. A regional collection center (RCC), as defined in 567—Chapter 211, involved in the processing of permitted hazardous materials from households and conditionally exempt small quantity generators (CESQG), not to exceed 1,200,000 pounds of VOC containing material in a 12-month rolling period. Latex paint drying may not exceed 120,000 pounds per year on a 12-month rolling total. Other nonprocessing emission units (e.g., standby generators and waste oil heaters) shall not be eligible to use this exemption.

mm. Cold solvent cleaning machines that are not in-line cleaning machines, where the maximum vapor pressure of the solvents used shall not exceed 0.7 kPa (5 mmHg or 0.1 psi) at 20°C (68°F). The machine must be equipped with a tightly fitted cover or lid that shall be closed at all times except during parts entry and removal. This exemption cannot be used for cold solvent cleaning machines that use solvent containing methylene chloride (CAS # 75-09-2), perchloroethylene (CAS # 127-18-4), trichloroethylene (CAS # 79-01-6), 1,1,1-trichloroethane (CAS # 71-55-6), carbon tetrachloride (CAS # 56-23-5) or chloroform (CAS # 67-66-3), or any combination of these halogenated HAP solvents in a total concentration greater than 5 percent by weight.

nn. Emissions from mobile over-the-road trucks, and mobile agricultural and construction internal combustion engines that are operated only for repair or maintenance purposes at equipment repair shops or equipment dealerships, and only when the repair shops or equipment dealerships are not major sources as defined in rule 567—22.100(455B).

oo. A non-road diesel fueled engine, as defined in 40 CFR 1068.30 as amended through April 30, 2010, with a brake horsepower rating of less than 1,100 at full load measured at the shaft, used to conduct periodic testing and maintenance on natural gas pipelines. For the purposes of this exemption, the manufacturer's nameplate rating shall be defined as the brake horsepower output at the shaft at full load.

(1) To qualify for the exemption, the engine must:

1. Be used for periodic testing and maintenance on natural gas pipelines outside the compressor station, which shall not exceed 330 hours in any 12-month consecutive period at a single location; or

2. Be used for periodic testing and maintenance on natural gas pipelines within the compressor station, which shall not exceed 330 hours in any 12-month consecutive period.

(2) The owner or operator shall maintain a monthly record of the number of hours the engine operated and a record of the rolling 12-month total of the number of hours the engine operated for each location outside the compressor station and within the compressor station. These records shall be maintained for two years. Records shall be made available to the department upon request.

(3) This exemption shall not apply to the replacement or substitution of engines for backup power generation at a pipeline compressor station.

22.1(3) *Construction permits.* The owner or operator of a new or modified stationary source shall apply for a construction permit. One copy of a construction permit application for a new or modified stationary source shall be presented or mailed to the air quality bureau of the department of natural resources. Alternatively, the owner or operator may apply for a construction permit for a new or modified stationary source through the electronic submittal format specified by the department. References to "application(s)," "certification(s)," "determination request(s)," "emissions inventory(ies)," "fees," "form(s)," "notification(s)," "payment(s)," "permit application(s)," and "registration(s)" in rules 567—22.1(455B) through 567—22.10(455B) may, as specified by the department, include electronic submittal. An owner or operator applying for a permit as required pursuant to rule 567—31.3(455B) (nonattainment new source review) or rule 567—33.3(455B) (prevention of significant deterioration (PSD)) shall present or mail to the department one hard copy of a construction permit application to the address specified above and, upon request from the department, shall also submit one electronic copy and one additional hard copy of the application. Application submission methods may include, but are not limited to, U.S. Postal Service, private parcel delivery services, and hand delivery. Applications are not required to be submitted by certified mail. The owner or operator of any new or modified industrial anaerobic lagoon shall apply for a construction permit as specified in this subrule and as provided in 567—Chapter 22. The owner or operator of a new or modified anaerobic lagoon for an animal feeding operation shall apply for a construction permit as provided in 567—Chapter 65.

a. Regulatory applicability determinations. If requested in writing, the director will review the design concepts of equipment and associated control equipment prior to application for a construction permit. The purpose of the review would be to determine the acceptability of the location of the equipment. If the review is requested, the requester shall supply the following information and submit a fee as required in 567—Chapter 30:

(1) Preliminary plans and specifications of equipment and related control equipment.

(2) The exact site location and a plot plan of the immediate area, including the distance to and height of nearby buildings and the estimated location and elevation of the emission points.

(3) The estimated emission rates of any air contaminants which are to be considered.

(4) The estimated exhaust gas temperature, velocity at the point of discharge, and stack diameter at the point of discharge.

(5) An estimate of when construction would begin and when construction would be completed.

b. Construction permit applications. Each application for a construction permit shall be submitted to the department on the permit application forms available on the department's website. Final plans and specifications for the proposed equipment or related control equipment shall be submitted with the application for a permit and shall be prepared by or under the direct supervision of a professional engineer licensed in the state of Iowa in conformance with Iowa Code section 542B.1, or consistent with the provisions of Iowa Code section 542B.26 for any full-time employee of any corporation while the employee is doing work for that corporation. The application for a permit to construct shall include the following information:

(1) A description of the equipment or control equipment covered by the application;

(2) A scaled plot plan, including the distance and height of nearby buildings, and the location and elevation of existing and proposed emission points;

(3) The composition of the effluent stream, both before and after any control equipment with estimates of emission rates, concentration, volume and temperature;

(4) The physical and chemical characteristics of the air contaminants;

(5) The proposed dates and description of any tests to be made by the owner or operator of the completed installation to verify compliance with applicable emission limits or standards of performance;

(6) Information pertaining to sampling port locations, scaffolding, power sources for operation of appropriate sampling instruments, and pertinent allied facilities for making tests to ascertain compliance;

(7) Any additional information deemed necessary by the department to determine compliance with or applicability of rules 567—22.4(455B), 567—22.5(455B), 567—31.3(455B) and 567—33.3(455B);

(8) Application for a case-by-case MACT determination. If the source meets the definition of construction or reconstruction of a major source of hazardous air pollutants, as defined in paragraph 22.1(1)*"b,"* then the owner or operator shall submit an application for a case-by-case MACT determination, as required in 567—subparagraph 23.1(4)*"b"*(1), with the construction permit application. In addition to this paragraph, an application for a case-by-case MACT determination shall include the following information:

1. The hazardous air pollutants (HAP) emitted by the constructed or reconstructed major source, and the estimated emission rate for each HAP, to the extent this information is needed by the permitting authority to determine MACT;

2. Any federally enforceable emission limitations applicable to the constructed or reconstructed major source;

3. The maximum and expected utilization of capacity of the constructed or reconstructed major source, and the associated uncontrolled emission rates for that source, to the extent this information is needed by the permitting authority to determine MACT;

4. The controlled emissions for the constructed or reconstructed major source in tons/yr at expected and maximum utilization of capacity to the extent this information is needed by the permitting authority to determine MACT;

5. A recommended emission limitation for the constructed or reconstructed major source consistent with the principles set forth in 40 CFR Part 63.43(d) as amended through December 27, 1996;

6. The selected control technology to meet the recommended MACT emission limitation, including technical information on the design, operation, size, estimated control efficiency of the control technology (and the manufacturer's name, address, telephone number, and relevant specifications and drawings, if requested by the permitting authority);

7. Supporting documentation including identification of alternative control technologies considered by the applicant to meet the emission limitation, and analysis of cost and non-air quality health environmental impacts or energy requirements for the selected control technology;

8. An identification of any listed source category or categories in which the major source is included;

(9) A signed statement that ensures the applicant's legal entitlement to install and operate equipment covered by the permit application on the property identified in the permit application. A signed statement shall not be required for rock crushers, portable concrete or asphalt equipment used in conjunction with specific identified construction projects which are intended to be located at a site only for the duration of the specific, identified construction project;

(10) Application fee.

1. The owner or operator shall submit a fee as required in 567—Chapter 30 to obtain a permit under subrule 22.1(1), rule 567—22.4(455B), rule 567—22.5(455B), rule 567—22.8(455B), rule 567—22.10(455B), 567—Chapter 31 or 567—Chapter 33;

2. For application submittals from a minor source as defined in 567—Chapter 30, the department shall not initiate review and processing of a permit application submittal until all required application fees have been paid to the department; and

(11) Quantity of greenhouse gas emissions for all applications for projects that will or do have greenhouse gas emissions. For all applications for projects that will not or do not have greenhouse gas emissions, the applicant shall indicate in the application that no greenhouse gases will be emitted, and the applicant will not be required to file an inventory of greenhouse gases with that application, unless requested by the department.

c. Application requirements for anaerobic lagoons. The application for a permit to construct an anaerobic lagoon shall include the following information:

(1) The source of the water being discharged to the lagoon;

(2) A plot plan, including distances to nearby residences or occupied buildings, local land use zoning maps of the vicinity, and a general description of the topography in the vicinity of the lagoon;

(3) In the case of an animal feeding operation, the information required in rule 567—65.15(455B);

(4) In the case of an industrial source, a chemical description of the waste being discharged to the lagoon;

(5) A report of sulfate analyses conducted on the water to be used for any purpose in a livestock operation proposing to use an anaerobic lagoon. The report shall be prepared by using standard methods as defined in 567—60.2(455B);

(6) A description of available water supplies to prove that adequate water is available for dilution;

(7) In the case of an animal feeding operation, a waste management plan describing the method of waste collection and disposal and the land to be used for disposal. Evidence that the waste disposal equipment is of sufficient size to dispose of the wastes within a 20-day period per year shall also be provided;

(8) Any additional information needed by the department to determine compliance with these rules.

22.1(4) *Conditional permits.* Rescinded IAB 3/18/15, effective 4/22/15.

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 7565B**, IAB 2/11/09, effective 3/18/09; **ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 1013C**, IAB 9/18/13, effective 10/23/13; **ARC 1227C**, IAB 12/11/13, effective 1/15/14; **ARC 1913C**, IAB 3/18/15, effective 4/22/15; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3440C**, IAB 11/8/17, effective 12/13/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; **ARC 4335C**, IAB 3/13/19, effective 4/17/19; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—22.2(455B) Processing permit applications.

22.2(1) *Incomplete applications.* The department will notify the applicant whether the application is complete or incomplete. If the application is found by the department to be incomplete upon receipt, the applicant will be notified within 30 days of that fact and of the specific deficiencies. Sixty days following such notification, the application may be denied for lack of information. When this schedule would cause undue hardship to an applicant, or the applicant has a compelling need to proceed promptly with the proposed installation, modification or location, a request for priority consideration and the justification therefor shall be submitted to the department.

22.2(2) *Public notice and participation.* A notice of intent to issue a construction permit to a major stationary source shall be published by the department in a newspaper having general circulation in the area affected by the emissions of the proposed source. The notice and supporting documentation shall be made available for public inspection upon request from the department's central office. Publication of the notice shall be made at least 30 days prior to issuing a permit and shall include the department's evaluation of ambient air impacts. The public may submit written comments or request a public hearing. If the response indicates significant interest, a public hearing may be held after due notice.

22.2(3) *Final notice.* The department shall notify the applicant in writing of the issuance or denial of a construction permit as soon as practicable and at least within 120 days of receipt of the completed application. This shall not apply to applicants for electric generating facilities subject to Iowa Code chapter 476A.

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 1913C**, IAB 3/18/15, effective 4/22/15]

567—22.3(455B) Issuing permits.

22.3(1) *Stationary sources other than anaerobic lagoons.* In no case shall a construction permit which results in an increase in emissions be issued to any facility which is in violation of any condition found in a permit involving PSD, NSPS, NESHAP or a provision of the Iowa state implementation plan. If the facility is in compliance with a schedule for correcting the violation and that schedule is contained in an order or permit condition, the department may consider issuance of a construction permit. A

construction permit shall be issued when the director concludes that the preceding requirement has been met and:

a. That the required plans and specifications represent equipment which reasonably can be expected to comply with all applicable emission standards, and

b. That the expected emissions from the proposed source or modification in conjunction with all other emissions will not prevent the attainment or maintenance of the ambient air quality standards specified in 567—Chapter 28, and

c. That the applicant has not relied on emission limits based on stack height that exceeds good engineering practice or any other dispersion techniques as defined in 567—subrule 23.1(6), and

d. That the applicant has met all other applicable requirements.

22.3(2) *Anaerobic lagoons.* A construction permit for an industrial anaerobic lagoon shall be issued when the director concludes that the application for permit represents an approach to odor control that can reasonably be expected to comply with the criteria in 567—subrule 23.5(2). A construction permit for an animal feeding operation using an anaerobic lagoon shall be issued when the director concludes that the application has met the requirements of rule 567—65.15(455B).

22.3(3) *Conditions of approval.* A permit may be issued subject to conditions which shall be specified in writing. Such conditions may include but are not limited to emission limits, operating conditions, fuel specifications, compliance testing, continuous monitoring, and excess emission reporting.

a. Each permit shall specify the date on which it becomes void if work on the installation for which it was issued has not been initiated.

b. Each permit shall list the requirements for notifying the department of the dates of intended startup, start of construction and actual equipment startup. All notifications shall be in writing and include the following information:

(1) The date or dates required by 22.3(3)*"b"* for which the notice is being submitted.

(2) Facility name.

(3) Facility address.

(4) DNR facility number.

(5) DNR air construction permit number.

(6) The name or the number of the emission unit or units in the notification.

(7) The emission point number or numbers in the notification.

(8) The name and signature of a company official.

(9) The date the notification was signed.

c. Each permit shall specify that no review has been undertaken on the various engineering aspects of the equipment other than the potential of the equipment for reducing air contaminant emissions.

d. Rescinded IAB 3/18/15, effective 4/22/15.

e. If changes in the final plans and specifications are proposed by the permittee after a construction permit has been issued, a supplemental permit shall be obtained.

f. A permit is not transferable from one location to another or from one piece of equipment to another unless the equipment is portable. When portable equipment for which a permit has been issued is to be transferred from one location to another, the department shall be notified in writing at least 7 days prior to the transfer of the portable equipment to the new location. Written notification shall be submitted to the department through one of the following methods: electronic mail (email), mail delivery service (including U.S. Mail), hand delivery, facsimile (fax), or by electronic format specified by the department (at such time as an Internet-based submittal system or other, similar electronic submittal system becomes available). However, if the owner or operator is relocating the portable equipment to an area currently classified as nonattainment for ambient air quality standards or to an area under a maintenance plan for ambient air quality standards, the owner or operator shall notify the department at least 14 days prior to transferring the portable equipment to the new location. A list of nonattainment and maintenance areas may be obtained from the department, upon request, or on the department's Internet website. The owner or operator will be notified by the department at least 10 days prior to the scheduled relocation if said relocation will prevent the attainment or maintenance of ambient air quality standards and thus require a

more stringent emission standard and the installation of additional control equipment. In such a case, the owner or operator shall obtain a supplemental permit prior to the initiation of construction, installation, or alteration of such additional control equipment.

g. The issuance of a permit (approval to construct) shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the state implementation plan and any other requirement under local, state or federal law.

22.3(4) *Denial of a permit.*

a. When an application for a construction permit is denied, the applicant shall be notified in writing of the reasons therefor. A denial shall be without prejudice to the right of the applicant to file a further application after revisions are made to meet the objections specified as reasons for the denial.

b. The department may deny an application based upon the applicant's failure to provide a signed statement of the applicant's legal entitlement to install and operate equipment covered by the permit application on the property identified in the permit application.

22.3(5) *Modification of a permit.* The director may, after public notice of such decision, modify a condition of approval of an existing permit for a major stationary source or an emission limit contained in an existing permit for a major stationary source if necessary to attain or maintain an ambient air quality standard, or to mitigate excessive deposition of mercury.

22.3(6) *Limits on hazardous air pollutants.* The department may limit a source's hazardous air pollutant potential to emit, as defined at rule 567—22.100(455B), in the source's construction permit for the purpose of establishing federally enforceable limits on the source's hazardous air pollutant potential to emit.

22.3(7) *Revocation of a permit.* The department may revoke a permit upon obtaining knowledge that a permit holder has lost legal entitlement to use the property identified in the permit to install and operate equipment covered by the permit, upon notice that the property owner does not wish to have continued the operation of the permitted equipment, or upon notice that the owner of the permitted equipment no longer wishes to retain the permit for future operation.

22.3(8) *Ownership change of permitted equipment.* The new owner shall notify the department in writing no later than 30 days after the change in ownership of equipment covered by a construction permit pursuant to rule 567—22.1(455B). The notification to the department shall be mailed to the Air Quality Bureau, Iowa Department of Natural Resources, 502 East 9th Street, Des Moines, Iowa 50319, and shall include the following information:

a. The date of ownership change;

b. The name, address and telephone number of the responsible official, the contact person and the owner of the equipment both before and after ownership change; and

c. The construction permit number of the equipment changing ownership.

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 0330C**, IAB 9/19/12, effective 10/24/12; **ARC 1913C**, IAB 3/18/15, effective 4/22/15; **ARC 4335C**, IAB 3/13/19, effective 4/17/19]

567—22.4(455B) Special requirements for major stationary sources located in areas designated attainment or unclassified (PSD). As applicable, the owner or operator of a stationary source shall comply with the rules for prevention of significant deterioration (PSD) as set forth in 567—Chapter 33. An owner or operator required to apply for a construction permit under this rule shall submit all required fees as required in 567—Chapter 30.

[**ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—22.5(455B) Special requirements for nonattainment areas. As applicable, the owner or operator of a stationary source shall comply with the requirements for the nonattainment major NSR program as set forth in rule 567—31.20(455B). An owner or operator required to apply for a construction permit under this rule shall submit all required fees as required in 567—Chapter 30.

[**ARC 1227C**, IAB 12/11/13, effective 1/15/14; **ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—22.6(455B) Nonattainment area designations. Rescinded **ARC 1227C**, IAB 12/11/13, effective 1/15/14.

567—22.7(455B) Alternative emission control program.

22.7(1) *Applicability.* The owner or operator of any source located in an area with attainment or unclassified status (as published at 40 CFR §81.316 amended August 5, 2013) or located in an area with an approved state implementation plan (SIP) demonstrating attainment by the statutory deadline may apply for an alternative set of emission limits if:

a. The applicant is presently in compliance with EPA approved SIP requirements, or

b. The applicant is subject to a consent order to meet an EPA approved compliance schedule and the final compliance date will not be delayed by the use of alternative emission limits.

22.7(2) *Demonstration requirements.* The applicant for the alternative emission control program shall have the burden of demonstrating that:

a. The alternative emission control program will not interfere with the attainment and maintenance of ambient air quality standards, including the reasonable further progress or prevention of significant deterioration requirements of the Clean Air Act;

b. The alternative emission limits are equivalent to existing emission limits in pollution reduction, enforceability, and environmental impact; (In the case of a particulate nonattainment area, the difference between the allowable emission rate and the actual emission rate, as of January 1, 1978, cannot be credited in the emissions tradeoff.)

c. The pollutants being exchanged are comparable and within the same pollutant category;

d. Hazardous air pollutants designated in 40 CFR Part 61, as amended through July 20, 2004, will not be exchanged for nonhazardous air pollutants;

e. The alternative program will not result in any delay in compliance by any source.

Specific situations may require additional demonstration as specified at 44 FR 71780-71788, December 11, 1979, or as requested by the director.

22.7(3) *Approval process.*

a. The director shall review all alternative emission control program proposals and shall make recommendations on all completed demonstrations to the commission.

b. After receiving recommendations from the director and public comments made available through the hearing process, the commission may approve or disapprove the alternative emission control program proposal.

c. If approved by the commission, the program will be forwarded to the EPA regional administrator as a revision to the State Implementation Plan. The alternative emission control program must receive the approval of the EPA regional administrator prior to becoming effective.

[**ARC 1227C**, IAB 12/11/13, effective 1/15/14]

567—22.8(455B) Permit by rule.

22.8(1) *Permit by rule for spray booths.* Spray booths which comply with the requirements contained in this rule will be deemed to be in compliance with the requirements to obtain an air construction permit and an air operating permit. Spray booths which comply with this rule will be considered to have federally enforceable limits so that their potential emissions are less than the major source limits for regulated air pollutants and hazardous air pollutants as defined in rule 567—22.100(455B). An owner or operator required to apply for a permit by rule under this subrule shall submit fees as required in 567—Chapter 30.

a. Definition. "Sprayed material" is material applied by spray equipment when used in a surface coating process in a spray booth, including but not limited to paint, solvents, and mixtures of paint and solvents. Powder coatings applied in an indoor-vented spray booth equipped with filters or overspray powder recovery systems are not considered sprayed material for purposes of this rule (567—22.8(455B)).

b. Facilities which facilitywide spray one gallon per day or less of sprayed material are exempt from all other requirements in 567—Chapter 22, except that they must submit the certification in

22.8(1)*"e"* to the department and keep records of daily sprayed material use. Any spray booth or associated equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, shall use sprayed material with a maximum lead content of 0.35 pounds or less per gallon if the booth or associated equipment is subject to the following NESHAP: 40 CFR Part 63, Subpart HHHHHH or Subpart XXXXXX. Any spray booth or associated equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, that is not subject to the NESHAP or is otherwise exempt from the NESHAP shall use sprayed material with a maximum lead content of 0.02 pounds or less per gallon. The owner or operator must keep the records of daily sprayed material use for 18 months from the date to which the records apply and shall keep safety data sheets (SDS) or equivalent records for at least two calendar years to demonstrate that the sprayed materials contain lead at less than the exemption thresholds. The owner or operator must also certify that the facility is in compliance with or otherwise exempt from the federal regulations specified in 22.8(1)*"e."*

c. Facilities which facilitywide spray more than one gallon per day but never more than three gallons per day are exempt from all other requirements in 567—Chapter 22, except that they must submit the certification in 22.8(1)*"e"* to the department, keep records of daily sprayed material use, and vent emissions from a spray booth(s) through a stack(s) which is at least 22 feet tall, measured from ground level. Any spray booth or associated equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, shall use sprayed material with a maximum lead content of 0.35 pounds or less per gallon if the booth or associated equipment is subject to the following NESHAP: 40 CFR Part 63, Subpart HHHHHH or Subpart XXXXXX. Any spray booth or associated equipment for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, that is not subject to the NESHAP or is otherwise exempt from the NESHAP shall use sprayed material with a maximum lead content of 0.02 pounds or less per gallon. The owner or operator must keep the records of daily sprayed material use for 18 months from the date to which the records apply and shall keep safety data sheets (SDS) or equivalent records for at least two calendar years to demonstrate that the sprayed materials contain lead at less than the exemption thresholds. The owner or operator must also certify that the facility is in compliance with or otherwise exempt from the federal regulations specified in 22.8(1)*"e."*

d. Facilities which facilitywide spray more than three gallons per day are not eligible to use the permit by rule for spray booths and must apply for a construction permit as required by subrules 22.1(1) and 22.1(3) unless otherwise exempt.

e. Notification letter.

(1) Facilities which claim to be permitted by provisions of this rule must submit to the department a written notification letter, on forms provided by the department, certifying that the facility meets the following conditions:

1. All paint booths and associated equipment are in compliance with the provisions of subrule 22.8(1);

2. All paint booths and associated equipment are in compliance with all applicable requirements including, but not limited to, the allowable particulate emission rate for painting and surface coating operations of 0.01 gr/scf of exhaust gas as specified in 567—subrule 23.4(13); and

3. All paint booths and associated equipment currently are or will be in compliance with or otherwise exempt from the national emissions standards for hazardous air pollutants (NESHAP) for paint stripping and miscellaneous surface coating at area sources (40 CFR Part 63, Subpart HHHHHH) and the NESHAP for metal fabricating and finishing at area sources (40 CFR Part 63, Subpart XXXXXX) by the applicable NESHAP compliance dates.

(2) The certification must be signed by one of the following individuals:

1. For corporations, a principal executive officer of at least the level of vice president, or a responsible official as defined at rule 567—22.100(455B).

2. For partnerships, a general partner.

3. For sole proprietorships, the proprietor.

4. For municipal, state, county, or other public facilities, the principal executive officer or the ranking elected official.

22.8(2) Reserved.

[**ARC 7565B**, IAB 2/11/09, effective 3/18/09; **ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 1013C**, IAB 9/18/13, effective 10/23/13; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 3679C**, IAB 3/14/18, effective 4/18/18]

567—22.9(455B) Special requirements for visibility protection.

22.9(1) *Definitions.* Definitions included in this subrule apply to the provisions set forth in rule 567—22.9(455B).

"Best available retrofit technology (BART)" means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by an existing stationary facility. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

"Deciview" means a haze index derived from calculated light extinction, such that uniform changes in haziness correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to highly impaired. The deciview haze index is calculated based on an equation found in 40 CFR 51.301, as amended on July 1, 1999.

"Mandatory Class I area" means any Class I area listed in 40 CFR Part 81, Subpart D, as amended through October 5, 1989.

22.9(2) *Best available retrofit technology (BART) applicability.* A source shall comply with the provisions of subrule 22.9(3) if the source falls within numbers 1 through 20 or 22 through 26 of the "stationary source categories" of air pollutants listed in rule 22.100(455B) or is a fossil-fuel fired boiler individually totaling more than 250 million Btu's per hour heat input and meets the following criteria:

a. Any emission unit for which startup began after August 7, 1962; and

b. Construction of the emission unit commenced on or before August 7, 1977; and

c. The sum of the potential to emit, as "potential to emit" is defined in 567—20.2(455B), from emission units identified above is equal to or greater than 250 tons per year or more of one of the following pollutants: nitrogen oxides, sulfur dioxide, particulate matter (PM_{10}), or volatile organic compounds.

22.9(3) *Duty to self-identify.* The owner or operator or designated representative of a facility meeting the conditions of subrule 22.9(2) shall submit two copies of a completed BART Eligibility Certification Form #542-8125, which shall include all information necessary for the department to complete eligibility determinations. The information submitted shall include source identification, description of processes, potential emissions, emission unit and emission point characteristics, date construction commenced and date of startup, and other information required by the department. The completed form was required to be submitted to the Air Quality Bureau, Department of Natural Resources, by September 1, 2005.

22.9(4) *Notification.* The department shall notify in writing the owner or operator or designated representative of a source of the department's determination that either:

a. A source meets the conditions listed in 22.9(2) (a source that meets these conditions is BART-eligible); or

b. For the purposes of the regional haze program, a source may cause or contribute to visibility impairment in any mandatory Class I area, as identified during either:

(1) Regional haze plan development required by 40 CFR 51.308(d) as amended on July 6, 2005; or

(2) A five-year periodic review on the progress toward the reasonable progress goals required by 40 CFR 51.308(g) as amended on July 6, 2005; or

(3) A ten-year comprehensive periodic revision of the implementation plan required by 40 CFR 51.308(f) as amended on July 6, 2005.

22.9(5) *Analysis.* The department may request in writing an analysis from the owner or operator or designated representative of a source that the department has determined may be causing or contributing to visibility impairment in a mandatory Class I area.

a. *BART control analysis.* For the purposes of BART, a source that is responsible for an impact of 1.0 deciview or more at a mandatory Class I area is considered to cause visibility impairment. A source that is responsible for an impact of 0.5 deciview or more at a mandatory Class I area is considered to contribute to visibility impairment. If a source meets either of these criteria, the owner or operator or designated representative shall prepare the BART analysis in accordance with Section IV of Appendix Y of 40 CFR Part 51 as amended through July 5, 2005, and shall submit the BART analysis 180 days after receipt of written notification by the department that a BART analysis is required.

b. *Regional haze analysis.* The owner or operator or designated representative of a source subject to 22.9(4)*"b"* shall prepare and submit an analysis after receipt of written notification by the department that an analysis is required.

22.9(6) *Control technology implementation.* Following the department's review of the analysis submitted pursuant to 22.9(5), an owner or operator of a source identified in 22.9(4) shall:

a. Submit all necessary permit applications to achieve the emissions requirements established following the completion of analysis performed in accordance with 22.9(5).

b. Install, operate, and maintain the control technology as required by permits issued by the department.

22.9(7) *BART exemption.* The owner or operator of a source subject to the BART emission control requirements may apply for an exemption from subrule 22.9(5) in accordance with 40 CFR 51.303 as amended on July 1, 1999.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 4335C**, IAB 3/13/19, effective 4/17/19]

567—22.10(455B) Permitting requirements for country grain elevators, country grain terminal elevators, grain terminal elevators and feed mill equipment. The requirements of this rule apply only to country grain elevators, country grain terminal elevators, grain terminal elevators and feed mill equipment, as these terms are defined in subrule 22.10(1). The requirements of this rule do not apply to equipment located at grain processing plants or grain storage elevators, as "grain processing" and "grain storage elevator" are defined in rule 567—20.2(455B). Compliance with the requirements of this rule does not alleviate any affected person's duty to comply with any applicable state or federal regulations. In particular, the emission standards set forth in 567—Chapter 23, including the regulations for grain elevators contained in 40 CFR Part 60, Subpart DD (as adopted by reference in 567—paragraph 23.1(2)*"ooo"*), may apply. An owner or operator subject to this rule shall submit fees as required in 567—Chapter 30.

22.10(1) *Definitions.* For purposes of rule 567—22.10(455B), the following terms shall have the meanings indicated in this subrule.

"Country grain elevator" means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded and which meets the following criteria:

1. Receives more than 50 percent of its grain, as "grain" is defined in this subrule, from farmers in the immediate vicinity during harvest season;

2. Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

"Country grain terminal elevator" means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded and which meets the following criteria:

1. Receives 50 percent or less of its grain, as "grain" is defined in this subrule, from farmers in the immediate vicinity during harvest season;

2. Has a permanent storage capacity of less than or equal to 2.5 million U.S. bushels, as "permanent storage capacity" is defined in this subrule;

3. Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

"Feed mill equipment," for purposes of rule 567—22.10(455B), means grain processing equipment that is used to make animal feed including, but not limited to, grinders, crackers, hammermills, and pellet coolers, and that is located at a country grain elevator, country grain terminal elevator or grain terminal elevator.

"Grain," as set forth in Iowa Code section 203.1(9), means any grain for which the United States Department of Agriculture has established standards including, but not limited to, corn, wheat, oats, soybeans, rye, barley, grain sorghum, flaxseeds, sunflower seed, spelt (emmer), and field peas.

"Grain processing" shall have the same definition as "grain processing" set forth in rule 567—20.2(455B).

"Grain storage elevator" shall have the same definition as "grain storage elevator" set forth in rule 567—20.2(455B).

"Grain terminal elevator," for purposes of rule 567—22.10(455B), means any plant or installation at which grain is unloaded, handled, cleaned, dried, stored, or loaded and which meets the following criteria:

1. Receives 50 percent or less of its grain, as "grain" is defined in this subrule, from farmers in the immediate vicinity during harvest season;
2. Has a permanent storage capacity of more than 88,100 m^3 (2.5 million U.S. bushels), as "permanent storage capacity" is defined in this subrule;
3. Is not located at an animal food manufacturer, pet food manufacturer, cereal manufacturer, brewery, or livestock feedlot;
4. Is not located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant.

"Permanent storage capacity" means grain storage capacity which is inside a building, bin, or silo.

22.10(2) *Methods for determining potential to emit (PTE).* The owner or operator of a country grain elevator, country grain terminal elevator, grain terminal elevator or feed mill equipment shall use the following methods for calculating the potential to emit (PTE) for particulate matter (PM) and for particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}).

a. Country grain elevators. The owner or operator of a country grain elevator shall calculate the PTE for PM and PM_{10} as specified in the definition of "potential to emit" in rule 567—20.2(455B), except that "maximum capacity" means the greatest amount of grain received at the country grain elevator during one calendar, 12-month period of the previous five calendar, 12-month periods, multiplied by an adjustment factor of 1.2. The owner or operator may make additional adjustments to the calculations for air pollution control of PM and PM_{10} if the owner or operator submits the calculations to the department using the PTE calculation tool provided by the department, and only if the owner or operator fully implements the applicable air pollution control measures no later than March 31, 2009, or upon startup of the equipment, whichever event first occurs. Credit for the application of some best management practices, as specified in subrule 22.10(3) or in a permit issued by the department, may also be used to make additional adjustments in the PTE for PM and PM_{10} if the owner or operator submits the calculations to the department using the PTE calculation tool provided by the department, and only if the owner or operator fully implements the applicable best management practices no later than March 31, 2009, or upon startup of the equipment, whichever event first occurs.

b. Country grain terminal elevators. The owner or operator of a country grain terminal elevator shall calculate the PTE for PM and PM_{10} as specified in the definition of "potential to emit" in rule 567—20.2(455B).

c. Grain terminal elevators. For purposes of the permitting and other requirements specified in subrule 22.10(3), the owner or operator of a grain terminal elevator shall calculate the PTE for PM and PM_{10} as specified in the definition of "potential to emit" in rule 567—20.2(455B). For purposes of determining whether the stationary source is subject to the prevention of significant deterioration (PSD) requirements set forth in 567—Chapter 33, or for determining whether the source is subject to the operating permit requirements set forth in rules 567—22.100(455B) through 567—22.300(455B), the owner or operator of a grain terminal elevator shall include fugitive emissions, as "fugitive emissions" is defined in 567—subrule 33.3(1) and in rule 567—22.100(455B), in the PTE calculation.

d. Feed mill equipment. The owner or operator of feed mill equipment, as "feed mill equipment" is defined in subrule 22.10(1), shall calculate the PTE for PM and PM10 for the feed mill equipment as specified in the definition of "potential to emit" in rule 567—20.2(455B). For purposes of determining whether the stationary source is subject to the prevention of significant deterioration (PSD) requirements

set forth in 567—Chapter 33, or for determining whether the stationary source is subject to the operating permit requirements set forth in rules 567—22.100(455B) through 567—22.300(455B), the owner or operator of feed mill equipment shall sum the PTE of the feed mill equipment with the PTE of the country grain elevator, country grain terminal elevator or grain terminal elevator.

22.10(3) *Classification and requirements for permits, emissions controls, record keeping and reporting for Group 1, Group 2, Group 3 and Group 4 grain elevators.* The requirements for construction permits, operating permits, emissions controls, record keeping and reporting for a stationary source that is a country grain elevator, country grain terminal elevator or grain terminal elevator are set forth in this subrule.

a. Group 1 facilities. A country grain elevator, country grain terminal elevator or grain terminal elevator may qualify as a Group 1 facility if the PTE at the stationary source is less than 15 tons of PM_{10} per year, as PTE is specified in subrule 22.10(2). For purposes of this paragraph, an "existing" Group 1 facility is one that commenced construction or reconstruction before February 6, 2008. A "new" Group 1 facility is one that commenced construction or reconstruction on or after February 6, 2008.

(1) Group 1 registration. The owner or operator of a Group 1 facility shall submit to the department a Group 1 registration, including PTE calculations, on forms provided by the department, certifying that the facility's PTE is less than 15 tons of PM_{10} per year. The owner or operator of an existing facility shall provide the Group 1 registration to the department on or before March 31, 2008. The owner or operator of a new facility shall provide the Group 1 registration to the department prior to initiating construction or reconstruction of a facility. The registration becomes effective upon the department's receipt of the signed registration form and the PTE calculations.

1. If the owner or operator registers with the department as specified in subparagraph 22.10(3)*"a"*(1), the owner or operator is exempt from the requirement to obtain a construction permit as specified under subrule 22.1(1).

2. Upon department receipt of a Group 1 registration and PTE calculations, the owner or operator is allowed to add, remove and modify the emissions units or change throughput or operations at the facility without modifying the Group 1 registration, provided that the owner or operator calculates the PTE for PM_{10} on forms provided by the department prior to making any additions to, removals of or modifications to equipment, and only if the facility continues to meet the emissions limits and operating limits (including restrictions on material throughput and hours of operation, if applicable, as specified in the PTE for PM_{10} calculations) specified in the Group 1 registration.

3. If equipment at a Group 1 facility currently has an air construction permit issued by the department, that permit shall remain in full force and effect, and the permit shall not be invalidated by the subsequent submittal of a registration made pursuant to subparagraph 22.10(3)*"a"*(1).

(2) Best management practices (BMP). The owner or operator of a Group 1 facility shall implement best management practices (BMP) for controlling air pollution at the facility and for limiting fugitive dust at the facility from crossing the property line. The owner or operator shall implement BMP according to the department manual, Best Management Practices (BMP) for Grain Elevators (December 2007; revised July 15, 2014), as adopted by the commission on January 15, 2008, and July 15, 2014, and adopted by reference herein (available from the department, upon request, and on the department's Internet website). No later than March 31, 2009, the owner or operator of an existing Group 1 facility shall fully implement applicable BMP, except that BMPs for grain vacuuming operations shall be fully implemented no later than September 10, 2014. Upon startup of equipment at the facility, the owner or operator of a new Group 1 facility shall fully implement applicable BMP.

(3) Record keeping. The owner or operator of a Group 1 facility shall retain a record of the previous five calendar years of total annual grain handled and shall calculate the facility's potential PM_{10} emissions annually by January 31 for the previous calendar year. These records shall be kept on site for a period of five years and shall be made available to the department upon request.

(4) Emissions increases. The owner or operator of a Group 1 facility shall calculate any emissions increases prior to making any additions to, removals of or modifications to equipment. If the owner or operator determines that PM_{10} emissions at a Group 1 facility will increase to 15 tons per year or more,

the owner or operator shall comply with the requirements set forth for Group 2, Group 3 or Group 4 facilities, as applicable, prior to making any additions to, removals of or modifications to equipment.

(5) Changes to facility classification or permanent grain storage capacity. If the owner or operator of a Group 1 facility plans to change the facility's operations or increase the facility's permanent grain storage capacity to more than 2.5 million U.S. bushels, the owner or operator, prior to making any changes, shall reevaluate the facility's classification and the allowed method for calculating PTE to determine if any increases to the PTE for PM_{10} will occur. If the proposed change will alter the facility's classification or will increase the facility's PTE for PM_{10} such that the facility PTE increases to 15 tons per year or more, the owner or operator shall comply with the requirements set forth for Group 2, Group 3 or Group 4 facilities, as applicable, prior to making the change.

b. Group 2 facilities. A country grain elevator, country grain terminal elevator or grain terminal elevator may qualify as a Group 2 facility if the PTE at the stationary source is greater than or equal to 15 tons of PM_{10} per year and is less than or equal to 50 tons of PM_{10} per year, as PTE is specified in subrule 22.10(2). For purposes of this paragraph, an "existing" Group 2 facility is one that commenced construction, modification or reconstruction before February 6, 2008. A "new" Group 2 facility is one that commenced construction or reconstruction on or after February 6, 2008.

(1) Group 2 permit for grain elevators. The owner or operator of a Group 2 facility may, in lieu of obtaining air construction permits for each piece of emissions equipment at the facility, submit to the department a completed Group 2 permit application for grain elevators, including PTE calculations, on forms provided by the department. Alternatively, the owner or operator may obtain an air construction permit as specified under subrule 22.1(1). The owner or operator of an existing facility shall provide the appropriate completed Group 2 permit application for grain elevators or the appropriate construction permit applications to the department on or before March 31, 2008. The owner or operator of a new facility shall provide the appropriate, completed Group 2 permit application for grain elevators or the appropriate construction permit applications to the department prior to initiating construction or reconstruction of a facility.

1. Upon department issuance of a Group 2 permit to a facility, the owner or operator is allowed to add, remove and modify the emissions units at the facility, or change throughput or operations, without modifying the Group 2 permit, provided that the owner or operator calculates the PTE for PM_{10} prior to making any additions to, removals of or modifications to equipment, and only if the facility continues to meet the emissions limits and operating limits (including restrictions on material throughput and hours of operation, if applicable, as specified in the PTE for PM_{10} calculations) specified in the Group 2 permit.

2. If a Group 2 facility currently has an air construction permit issued by the department, that permit shall remain in full force and effect, and the permit shall not be invalidated by the subsequent submittal of a Group 2 permit application for grain elevators made pursuant to this rule. However, the owner or operator of a Group 2 facility may request that the department incorporate any equipment with a previously issued construction permit into the Group 2 permit for grain elevators. The department will grant such requests on a case-by-case basis. If the department grants the request to incorporate previously permitted equipment into the Group 2 permit for grain elevators, the owner or operator of the Group 2 facility is responsible for requesting that the department rescind any previously issued construction permits.

(2) Best management practices (BMP). The owner or operator shall implement BMP, as specified in the Group 2 permit, for controlling air pollution at the source and for limiting fugitive dust at the source from crossing the property line. If the department revises the BMP requirements for Group 2 facilities after a facility is issued a Group 2 permit, the owner or operator of the Group 2 facility may request that the department modify the facility's Group 2 permit to incorporate the revised BMP requirements. The department will issue permit modifications to incorporate BMP revisions on a case-by-case basis. No later than March 31, 2009, the owner or operator of an existing Group 2 facility shall fully implement BMP, as specified in the Group 2 permit. Upon startup of equipment at the facility, the owner or operator of a new Group 2 facility shall fully implement BMP, as specified in the Group 2 permit.

(3) Record keeping. The owner or operator of a Group 2 facility shall retain all records as specified in the Group 2 permit.

(4) Emissions inventory. The owner or operator of a Group 2 facility shall submit an emissions inventory for the facility for all regulated air pollutants as specified under 567—subrule 21.1(3).

(5) Emissions increases. The owner or operator of a Group 2 facility shall calculate any emissions increases prior to making any additions to, removals of or modifications to equipment. If the owner or operator determines that potential PM_{10} emissions at a Group 2 facility will increase to more than 50 tons per year, the owner or operator shall comply with the requirements set forth for Group 3 or Group 4 facilities, as applicable, prior to making any additions to, removals of or modifications to equipment.

(6) Changes to facility classification or permanent grain storage capacity. If the owner or operator of a Group 2 facility plans to change the facility's operations or increase the facility's permanent grain storage capacity to more than 2.5 million U.S. bushels, the owner or operator, prior to making any changes, shall reevaluate the facility's classification and the allowed method for calculating PTE to determine if any increases to the PTE for PM_{10} will occur. If the proposed change will increase the facility's PTE for PM_{10} such that the facility PTE increases to more than 50 tons per year, the owner or operator shall comply with the requirements set forth for Group 3 or Group 4 facilities, as applicable, prior to making the change.

c. Group 3 facilities. A country grain elevator, country grain terminal elevator or grain terminal elevator may qualify as a Group 3 facility if the PTE for PM_{10} at the stationary source is greater than 50 tons per year, but is less than 100 tons of PM_{10} per year, as PTE is specified in subrule 22.10(2). For purposes of this paragraph, an "existing" Group 3 facility is one that commenced construction, modification or reconstruction before February 6, 2008. A "new" Group 3 facility is one that commenced construction or reconstruction on or after February 6, 2008.

(1) Air construction permit. The owner or operator of a Group 3 facility shall obtain the required construction permits as specified under subrule 22.1(1). The owner or operator of an existing facility shall provide the construction permit applications, as specified in subrule 22.1(3), to the department on or before March 31, 2008. The owner or operator of a new facility shall obtain the required permits, as specified in subrule 22.1(1), from the department prior to initiating construction or reconstruction of a facility.

(2) Permit conditions. Construction permit conditions for a Group 3 facility shall include, but are not limited to, the following:

1. The owner or operator shall implement BMP, as specified in the permit, for controlling air pollution at the source and for limiting fugitive dust at the source from crossing the property line. If the department revises the BMP requirements for Group 3 facilities after a facility is issued a permit, the owner or operator of the Group 3 facility may request that the department modify the facility's permit to incorporate the revised BMP requirements. The department will issue permit modifications to incorporate BMP revisions on a case-by-case basis.

2. The owner or operator shall retain all records as specified in the permit.

(3) Emissions inventory. The owner or operator shall submit an emissions inventory for the facility for all regulated air pollutants as specified under 567—subrule 21.1(3).

(4) Changes to facility classification or permanent grain storage capacity. If the owner or operator of a Group 3 facility plans to change its operations or increase the facility's permanent grain storage capacity to more than 2.5 million U.S. bushels, the owner or operator, prior to making any changes, shall reevaluate the facility's classification and the allowed method for calculating PTE to determine if any increases to the PTE for PM_{10} will occur. If the proposed change will alter the facility's classification or will increase the facility's PTE for PM_{10} such that the facility PTE increases to greater than or equal to 100 tons per year, the owner or operator shall comply with the requirements set forth for Group 4 facilities, as applicable, prior to making the change.

(5) PSD applicability. If the PTE for PM or PM_{10} at the Group 3 facility is greater than or equal to 250 tons per year, the owner or operator shall comply with requirements specified in 567—Chapter 33, as applicable. The owner or operator of a Group 3 facility that is a grain terminal elevator shall include fugitive emissions, as "fugitive emissions" is defined in 567—subrule 33.3(1), in the PTE calculation for determining PSD applicability.

(6) Record keeping. The owner or operator shall keep the records of annual grain handled at the facility and annual PTE for PM and PM_{10} emissions on site for a period of five years, and the records shall be made available to the department upon request.

d. Group 4 facilities. A facility qualifies as a Group 4 facility if the facility is a stationary source with a PTE equal to or greater than 100 tons of PM_{10} per year, as PTE is specified in subrule 22.10(2). For purposes of this paragraph, an "existing" Group 4 facility is one that commenced construction, modification or reconstruction before February 6, 2008. A "new" Group 4 facility is one that commenced construction or reconstruction on or after February 6, 2008.

(1) Air construction permit. The owner or operator of a Group 4 facility shall obtain the required construction permits as specified under subrule 22.1(1). The owner or operator of an existing facility shall provide the construction permit applications, as specified by subrule 22.1(3), to the department on or before March 31, 2008. The owner or operator of a new facility shall obtain the required permits, as specified by subrule 22.1(1), from the department prior to initiating construction or reconstruction of a facility.

(2) Permit conditions. Construction permit conditions for a Group 4 facility shall include, but are not limited to, the following:

1. The owner or operator shall implement BMP, as specified in the permit, for controlling air pollution at the facility and for limiting fugitive dust at the facility from crossing the property line. If the department revises the BMP requirements for Group 4 facilities after a facility is issued a permit, the owner or operator of the Group 4 facility may request that the department modify the facility's permit to incorporate the revised BMP requirements. The department will issue permit modifications to incorporate BMP revisions on a case-by-case basis.

2. The owner or operator shall retain all records as specified in the permit.

(3) PSD applicability. If the PTE for PM or PM_{10} at the facility is equal to or greater than 250 tons per year, the owner or operator shall comply with requirements specified in 567—Chapter 33, as applicable. The owner or operator of a Group 4 facility that is a grain terminal elevator shall include fugitive emissions, as "fugitive emissions" is defined in 567—subrule 33.3(1), in the PTE calculation for determining PSD applicability.

(4) Record keeping. The owner or operator shall keep the records of annual grain handled at the facility and annual PTE for PM and PM_{10} emissions on site for a period of five years, and the records shall be made available to the department upon request.

(5) Operating permits. The owner or operator of a Group 4 facility shall apply for an operating permit for the facility if the facility's annual PTE for PM_{10} is equal to or greater than 100 tons per year as specified in rules 567—22.100(455B) through 567—22.300(455B). The owner or operator of a Group 4 facility that is a grain terminal elevator shall include fugitive emissions in the calculations to determine if the PTE for PM_{10} is greater than or equal to 100 tons per year. The owner or operator also shall submit annual emissions inventories and fees, as specified in rule 567—22.106(455B).

22.10(4) *Feed mill equipment.* This subrule sets forth the requirements for construction permits, operating permits, and emissions inventories for an owner or operator of feed mill equipment as "feed mill equipment" is defined in subrule 22.10(1). For purposes of this subrule, the owner or operator of "existing" feed mill equipment shall have commenced construction or reconstruction of the feed mill equipment before February 6, 2008. The owner or operator of "new" feed mill equipment shall have commenced construction or reconstruction of the feed mill equipment on or after February 6, 2008.

a. Air construction permit. The owner or operator of feed mill equipment shall obtain an air construction permit as specified under subrule 22.1(1) for each piece of feed mill equipment that emits a regulated air pollutant. The owner or operator of "existing" feed mill equipment shall provide the appropriate permit applications to the department on or before March 31, 2008. The owner or operator of "new" feed mill equipment shall provide the appropriate permit applications to the department prior to initiating construction or reconstruction of feed mill equipment.

b. Emissions inventory. The owner or operator shall submit an emissions inventory for the feed mill equipment for all regulated air pollutants as specified under 567—subrule 21.1(3).

c. Operating permits. The owner or operator shall sum the PTE of the feed mill equipment with the PTE of the equipment at the country grain elevator, country grain terminal elevator or grain terminal elevator, as PTE is specified in subrule 22.10(2), to determine if operating permit requirements specified in rules 567—22.100(455B) through 567—22.300(455B) apply to the stationary source. If the operating permit requirements apply, then the owner or operator shall apply for an operating permit as specified in rules 567—22.100(455B) through 567—22.300(455B). The owner or operator also shall begin submitting annual emissions inventories and fees, as specified under rule 567—22.106(455B).

d. PSD applicability. For purposes of determining whether the stationary source is subject to the prevention of significant deterioration (PSD) requirements set forth in 567—Chapter 33, the owner or operator shall sum the PTE of the feed mill equipment with the PTE of the equipment at the country grain elevator, country grain terminal elevator or grain terminal elevator. If the PTE for PM or PM_{10} for the stationary source is equal to or greater than 250 tons per year, the owner or operator shall comply with requirements for PSD specified in 567—Chapter 33, as applicable.

[**ARC 1561C**, IAB 8/6/14, effective 9/10/14; **ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—22.11 to **22.99** Reserved.

567—22.100(455B) Definitions for Title V operating permits. For purposes of rules 567—22.100(455B) to 567—22.116(455B), the following terms shall have the meaning indicated in this rule:

"Act" means the Clean Air Act, 42 U.S.C. Sections 7401, et seq.

"Actual emissions" means the actual rate of emissions of a pollutant from an emissions unit, as determined in accordance with the following:

1. In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which immediately precedes that date and which is representative of normal source operations. The director may allow the use of a different time period upon a demonstration that it is more representative of normal source operations. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period. Actual emissions for acid rain affected sources are calculated using a one-year period.

2. Lacking specific information to the contrary, the director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

3. For any emissions unit which has not begun normal operations on a particular date, actual emissions shall equal the potential to emit of the unit on that date.

4. For purposes of calculating early reductions of hazardous air pollutants, actual emissions shall not include excess emissions resulting from a malfunction or from startups and shutdowns associated with a malfunction.

Actual emissions for purposes of determining fees shall be the actual emissions calculated over a period of one year.

"Administrator" means the administrator for the United States Environmental Protection Agency (EPA) or designee.

"Affected facility" means, with reference to a stationary source, any apparatus which emits or may emit any regulated air pollutant or contaminant.

"Affected source" means a source that includes one or more affected units subject to any emissions reduction requirement or limitation under Title IV of the Act.

"Affected state" means any state which is contiguous to the permitting state and whose air quality may be affected through the modification, renewal or issuance of a Title V permit; or which is within 50 miles of the permitted source.

"Affected unit" means a unit that is subject to any acid rain emissions reduction requirement or acid rain emissions limitation under Title IV of the Act.

"Allowable emissions" means the emission rate of a stationary source calculated using both the maximum rated capacity of the source, unless the source is subject to federally enforceable limits which restrict the operating rate or hours of operation, and the most stringent of the following:

1. The applicable new source performance standards or national emissions standards for hazardous air pollutants, contained in 567—subrules 23.1(2) and 23.1(3);
2. The applicable existing source emission standard contained in 567—Chapter 23; or
3. The emissions rate specified in the air construction permit for the source.

"Allowance" means an authorization by the administrator under Title IV of the Act or rules promulgated thereunder to emit during or after a specified calendar year up to one ton of sulfur dioxide.

"Applicable requirement" includes the following:

1. Any standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rule making under Title I of the Act that implements the relevant requirements of the Act, including any revisions to that plan promulgated in 40 CFR 52;
2. Any term or condition of any preconstruction permits issued pursuant to regulations approved or promulgated through rule making under Title I, including Parts C and D, of the Act;
3. Any standard or other requirement under Section 111 of the Act (subrule 23.1(2)), including Section 111(d);
4. Any standard or other requirement under Section 112 of the Act, including any requirement concerning accident prevention under Section 112(r)(7) of the Act;
5. Any standard or other requirement of the acid rain program under Title IV of the Act or the regulations promulgated thereunder;
6. Any requirements established pursuant to Section 504(b) or Section 114(a)(3) of the Act;
7. Any standard or other requirement governing solid waste incineration, under Section 129 of the Act;
8. Any standard or other requirement for consumer and commercial products, under Section 183(e) of the Act;
9. Any standard or other requirement for tank vessels under Section 183(f) of the Act;
10. Any standard or other requirement of the program to control air pollution from outer continental shelf sources, under Section 328 of the Act;
11. Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the Act, unless the administrator has determined that such requirements need not be contained in a Title V permit; and
12. Any national ambient air quality standard or increment or visibility requirement under Part C of Title I of the Act, but only as it would apply to temporary sources permitted pursuant to Section 504(e) of the Act.

"Area source" means any stationary source of hazardous air pollutants that is not a major source as defined in rule 567—22.100(455B).

"CFR" means the Code of Federal Regulations, with standard references in this chapter by Title and Part, so that "40 CFR 51" means "Title 40 of the Code of Federal Regulations, Part 51."

"Consumer Price Index" means for any calendar year the average of the Consumer Price Index for all urban consumers published by the United States Department of Labor, as of the close of the 12-month period ending on August 31 of each calendar year.

"Country grain elevator" shall have the same definition as "country grain elevator" set forth in subrule 22.10(1).

"Designated representative" means a responsible natural person authorized by the owner(s) or operator(s) of an affected source and of all affected units at the source, as evidenced by a certificate of representation submitted in accordance with Subpart B of 40 CFR Part 72 as amended through April 28, 2006, to represent and legally bind each owner and operator, as a matter of federal law, in matters pertaining to the acid rain program. Whenever the term "responsible official" is used in Chapter 22, it shall be deemed to refer to the designated representative with regard to all matters under the acid rain program.

"Draft Title V permit" means the version of a Title V permit for which the department offers public participation or affected state review.

"Electronic format," "electronic submittal," and *"electronic submittal format"* mean a software, Internet-based, or other electronic means specified by the department for submitting information or fees to the department related to, but not limited to, applications, certifications, determination requests, emissions inventories, forms, notifications, payments, permit applications and registrations. References to these information submittal methods in rules 567—22.100(455B) through 567—22.116(455B) may, as specified by the department, include electronic submittal.

"Emergency generator" means any generator of which the sole function is to provide emergency backup power during an interruption of electrical power from the electric utility. An emergency generator does not include:

1. Peaking units at electric utilities;
2. Generators at industrial facilities that typically operate at low rates, but are not confined to emergency purposes; or
3. Any standby generators that are used during time periods when power is available from the electric utility.

An emergency is an unforeseeable condition that is beyond the control of the owner or operator.

"Emissions allowable under the permit" means a federally enforceable permit term or condition determined at issuance to be required by an applicable requirement that establishes an emissions limit (including a work practice standard) or a federally enforceable emissions cap that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject.

"Emissions unit" means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any pollutant listed under Section 112(b) of the Act. This term is not meant to alter or affect the definition of the term "unit" for purposes of Title IV of the Act or any related regulations.

"EPA conditional method" means any method of sampling and analyzing for air pollutants that has been validated by the administrator but that has not been published as an EPA reference method.

"EPA reference method" means the following methods used for performance tests and continuous monitoring systems:

1. Performance test (stack test). A stack test shall be conducted according to EPA reference methods specified in 40 CFR 51, Appendix M (as amended through November 14, 2018); 40 CFR 60, Appendix A (as amended through November 14, 2018); 40 CFR 61, Appendix B (as amended through August 30, 2016); and 40 CFR 63, Appendix A (as amended through November 14, 2018).
2. Continuous monitoring systems. Minimum performance specifications and quality assurance procedures for performance evaluations of continuous monitoring systems are as specified in 40 CFR 60, Appendix B (as amended through November 14, 2018); 40 CFR 60, Appendix F (as amended through November 14, 2018); 40 CFR 75, Appendix A (as amended through August 30, 2016); 40 CFR 75, Appendix B (as amended through August 30, 2016); and 40 CFR 75, Appendix F (as amended through August 30, 2016).

"Equipment leaks" means leaks from pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, agitators, accumulator vessels, and instrumentation systems.

"Existing hazardous air pollutant source" means any source as defined in 40 CFR 61 as adopted by reference in 567—subrule 23.1(3) and 40 CFR 63.72 as adopted by reference in 567—subrule 23.1(4) with respect to Section 112(i)(5) of the Act, the construction or reconstruction of which commenced prior to proposal of an applicable Section 112(d) standard.

"Facility" means, with reference to a stationary source, any apparatus which emits or may emit any air pollutant or contaminant.

"Federal implementation plan" means a plan promulgated by the administrator to fill all or a portion of a gap or otherwise correct all or a portion of an inadequacy in a state implementation plan, and which includes enforceable emission limitations or other control measures, means or techniques, and provides for attainment of the relevant national ambient air quality standard.

"Federally enforceable" means all limitations and conditions which are enforceable by the administrator including, but not limited to, the requirements of the new source performance standards and national emission standards for hazardous air pollutants contained in 567—subrules 23.1(2) and 23.1(3); the requirements of such other state rules or orders approved by the administrator for inclusion in the SIP; and any construction, Title V or other federally approved operating permit conditions.

"Final Title V permit" means the version of a Title V permit issued by the department that has completed all required review procedures.

"Fugitive emissions" are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening.

"Hazardous air pollutant" means any of the following air pollutants listed in Section 112 of the Act:

cas #	chemical name
75343	1,1-Dichloroethane
57147	1,1-Dimethyl hydrazine
71556	1,1,1-Trichloroethane
79005	1,1,2-Trichloroethane
79345	1,1,2,2-Tetrachloroethane
106887	1,2-Butylene oxide
96128	1,2-Dibromo-3-chloropropane
106934	1,2-Dibromoethane
107062	1,2-Dichloroethane
78875	1,2-Dichloropropane
122667	1,2-Diphenylhydrazine
120821	1,2,4-Trichlorobenzene
106990	1,3-Butadiene
542756	1,3-Dichloropropylene
106467	1,4-Dichlorobenzene
123911	1,4-Dioxane
53963	2-Acetylaminofluorene
532274	2-Chloroacetophenone
79469	2-Nitropropane
540841	2,2,4-Trimethylpentane
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TC-DD)
94757	2,4-D salts and esters
95807	2,4-Diaminotoluene
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
91941	3,3'-Dichlorobenzidine
119904	3,3'-Dimethoxybenzidine
119937	3,3'-Dimethylbenzidine
92671	4-Aminobiphenyl
60117	4-Dimethylaminoazobenzene

cas #	chemical name
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
101144	4,4’-Methylenebis(2-chloroaniline)
101779	4,4’-methylenedianiline
534521	4,6-Dinitro-o-cresol, and salts
75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
62533	Aniline
0	Antimony Compounds
0	Arsenic Compounds (inorganic including arsine)
1332214	Asbestos (friable)
71432	Benzene
92875	Benzidine
98077	Benzoic trichloride
100447	Benzyl chloride
0	Beryllium Compounds
57578	Beta-Propiolactone
92524	Biphenyl
111444	Bis(2-chloroethyl) ether
542881	Bis(chloromethyl) ether
75252	Bromoform
74839	Bromomethane
0	Cadmium Compounds
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid

cas #	chemical name
108907	Chlorobenzene
510156	Chlorobenzilate
75003	Chloroethane
67663	Chloroform
74873	Chloromethane
107302	Chloromethyl methyl ether
126998	Chloroprene
0	Chromium Compounds
0	Cobalt Compounds
0	Coke Oven Emissions
1319773	Cresol/Cresylic acid (isomers & mixture)
98828	Cumene
0	Cyanide Compounds[1]
72559	DDE
117817	Di(2-ethylhexyl) phthalate
334883	Diazomethane
132649	Dibenzofuran
84742	Dibutyl phthalate
75092	Dichloromethane
62737	Dichlorvos
111422	Diethanolamine
64675	Diethyl sulfate
68122	Dimethyl formamide
131113	Dimethyl phthalate
77781	Dimethyl sulfate
79447	Dimethylcarbamyl chloride
106898	Epichlorohydrin
140885	Ethyl acrylate
100414	Ethylbenzene
107211	Ethylene glycol
75218	Ethylene oxide
96457	Ethylene thiourea
151564	Ethyleneimine
0	Fine Mineral Fibers[3]
50000	Formaldehyde
0	Glycol Ethers[2], except cas #111-76-2, ethylene glycol mono-butyl ether, also known as EGBE or 2-Butoxyethanol
76448	Heptachlor
87683	Hexachloro-1,3-butadiene
118741	Hexachlorobenzene
77474	Hexachlorocyclopentadiene

cas #	chemical name
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride
123319	Hydroquinone
78591	Isophorone
0	Lead Compounds
58899	Lindane (all isomers)
108394	m-Cresol
108383	m-Xylene
108316	Maleic anhydride
0	Manganese Compounds
0	Mercury Compounds
67561	Methanol
72435	Methoxychlor
60344	Methyl hydrazine
74884	Methyl iodide
108101	Methyl isobutyl ketone
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tertbutyl ether
101688	Methylene bis(phenylisocyanate)
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
91203	Naphthalene
0	Nickel Compounds
98953	Nitrobenzene
121697	N,N-Dimethylaniline
90040	o-Anisidine
95487	o-Cresol
95534	o-Toluidine
95476	o-Xylene
106445	p-Cresol
106503	p-Phenylenediamine
106423	p-Xylene
56382	Parathion
87865	Pentachlorophenol

cas #	chemical name
108952	Phenol
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus (yellow or white)
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls
0	Polycyclic Organic Matter[4]
1120714	Propane sultone
123386	Propionaldehyde
114261	Propoxur
75569	Propylene oxide
75558	Propyleneimine
91225	Quinoline
106514	Quinone
82688	Quintozene
0	Radionuclides (including Radon)[5]
0	Selenium Compounds
100425	Styrene
96093	Styrene oxide
127184	Tetrachloroethylene
7550450	Titanium tetrachloride
108883	Toluene
584849	Toluene-2,4-diisocyanate
8001352	Toxaphene
79016	Trichloroethylene
121448	Triethylamine
1582098	Trifluralin
51796	Urethane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride
1330207	Xylene (mixed isomers)

NOTE: For all listings above which contain the word "compounds" and for glycol ethers, the following applies: Unless otherwise specified, these listings are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical's infrastructure.

[1]X'CN where X=H' or any other group where a formal dissociation may occur. For example KCN or $Ca(CN)_2$

[2]Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol $R(OCH2CH2)_n$-OR' where n=1,2, or 3; R=alkyl or aryl groups; R'=R,H, or groups which, when removed, yield glycol ethers with the structure $R(OCH2CH)_n$-OH. Polymers are excluded from the glycol category.

[3]Includes mineral fiber emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

[4]Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100 degrees C.

[5]A type of atom which spontaneously undergoes radioactive decay.

"High-risk pollutant" means one of the following hazardous air pollutants listed in Table 1 in 40 CFR 63.74 as adopted by reference in 567—subrule 23.1(4).

cas #	chemical name	weighting factor
53963	2-Acetylaminofluorene	100
107028	Acrolein	100
79061	Acrylamide	10
107131	Acrylonitrile	10
0	Arsenic compounds	100
1332214	Asbestos	100
71432	Benzene	10
92875	Benzidine	1000
0	Beryllium compounds	10
542881	Bis(chloromethyl) ether	1000
106990	1,3-Butadiene	10
0	Cadmium compounds	10
57749	Chlordane	100
532274	2-Chloroacetophenone	100
0	Chromium compounds	100
107302	Chloromethyl methyl ether	10
0	Coke oven emissions	10
334883	Diazomethane	10
132649	Dibenzofuran	10
96128	1,2-Dibromo-3-chloropropane	10
111444	Dichloroethyl ether(Bis(2-chloroethyl) ether)	10
79447	Dimethylcarbamoyl chloride	100
122667	1,2-Diphenylhydrazine	10
106934	Ethylene dibromide	10
151564	Ethylenimine (Aziridine)	100
75218	Ethylene oxide	10
76448	Heptachlor	100
118741	Hexachlorobenzene	100
77474	Hexachlorocyclopentadiene	100
302012	Hydrazine	100
0	Manganese compounds	10
0	Mercury compounds	100
60344	Methyl hydrazine	10
624839	Methyl isocyanate	10
0	Nickel compounds	10

cas #	chemical name	weighting factor
62759	N-Nitrosodimethylamine	100
684935	N-Nitroso-N-methylurea	1000
56382	Parathion	10
75445	Phosgene	10
7803512	Phosphine	10
7723140	Phosphorus	10
75558	1,2-Propylenimine	100
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	100,000
8001352	Toxaphene (chlorinated camphene)	100
75014	Vinyl chloride	10

"Major source" means any stationary source (or any group of stationary sources located on one or more contiguous or adjacent properties and under common control of the same person or of persons under common control) belonging to a single major industrial grouping that is any of the following:

1. A major stationary source of air pollutants, as defined in Section 302 of the Act, that directly emits or has the potential to emit 100 tons per year (tpy) or more of any air pollutant subject to regulation (including any major source of fugitive emissions of any such pollutant). The fugitive emissions of a stationary source shall not be considered in determining whether it is a major stationary source for the purposes of Section 302(j) of the Act, unless the source belongs to one of the stationary source categories listed in this chapter.

2. A major source of hazardous air pollutants according to Section 112 of the Act as follows:

For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, 10 tpy or more of any hazardous air pollutant which has been listed pursuant to Section 112(b) of the Act and these rules or 25 tpy or more of any combination of such hazardous air pollutants. Notwithstanding the previous sentence, emissions from any oil or gas exploration or production well (with its associated equipment) and emission from any pipeline compressor or pump station shall not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources.

For Title V purposes, all fugitive emissions of hazardous air pollutants are to be considered in determining whether a stationary source is a major source.

For radionuclides, "major source" shall have the meaning specified by the administrator by rule.

3. A major stationary source as defined in Part D of Title I of the Act, including:

For ozone nonattainment areas, sources with the potential to emit 100 tpy or more of volatile organic compounds or oxides of nitrogen in areas classified or treated as classified as "marginal" or "moderate," 50 tpy or more in areas classified or treated as classified as "serious," 25 tpy or more in areas classified or treated as classified as "severe" and 10 tpy or more in areas classified or treated as classified as "extreme"; except that the references in this paragraph to 100, 50, 25, and 10 tpy of nitrogen oxides shall not apply with respect to any source for which the administrator has made a finding, under Section 182(f)(1) or (2) of the Act, that requirements under Section 182(f) of the Act do not apply;

For ozone transport regions established pursuant to Section 184 of the Act, sources with potential to emit 50 tpy or more of volatile organic compounds;

For carbon monoxide nonattainment areas (1) that are classified or treated as classified as "serious" and (2) in which stationary sources contribute significantly to carbon monoxide levels, and sources with the potential to emit 50 tpy or more of carbon monoxide;

For particulate matter (PM_{10}), nonattainment areas classified or treated as classified as "serious," sources with the potential to emit 70 tpy or more of PM_{10}.

For the purposes of defining "major source," a stationary source or group of stationary sources shall be considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties belong to the same major group (i.e., all have the same two-digit code) as described in the Standard Industrial Classification Manual, 1987.

"Manually operated equipment" means a machine or tool that is handheld, such as a handheld circular saw or compressed air chisel; a machine or tool for which the work piece is held or manipulated by hand, such as a bench grinder; a machine or tool for which the tool or bit is manipulated by hand, such as a lathe or drill press; and any dust collection system which is part of such machine or tool; but not including any machine or tool for which the extent of manual operation is to control power to the machine or tool and not including any central dust collection system serving more than one machine or tool.

"Maximum achievable control technology (MACT)" means the following regarding regulated hazardous air pollutant sources:

1. For existing sources, the emissions limitation reflecting the maximum degree of reduction in emissions that the administrator or the department, taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impacts and energy requirements, determines is achievable by sources in the category of stationary sources, that shall not be less stringent than the MACT floor.

2. For new sources, the emission limitation which is not less stringent than the emission limitation achieved in practice by the best-controlled similar source, and which reflects the maximum degree of reduction in emissions that the administrator or the department, taking into consideration the cost of achieving such emission reduction, and any nonair quality health and environmental impacts and energy requirements, determines is achievable by sources in the Title IV affected source category.

"Maximum achievable control technology (MACT) floor" means the following:

1. For existing sources, the average emission limitation achieved by the best 12 percent of the existing sources in the United States (for which the administrator or the department has or could reasonably obtain emission information), excluding those sources that have, within 18 months before the emission standard is proposed or within 30 months before such standard is promulgated, whichever is later, first achieved a level of emission rate or emission reduction which complies, or would comply if the source is not subject to such standard, with the lowest achievable emission rate applicable to the source category and prevailing at the time, for categories and subcategories of stationary sources with 30 or more sources in the category or subcategory, or the average emission limitation achieved by the best performing 5 sources in the United States (for which the administrator or the department has or could reasonably obtain emissions information) for a category or subcategory or stationary source with fewer than 30 sources in the category or subcategory.

2. For new sources, the emission limitation achieved in practice by the best-controlled similar source.

"New Title IV affected source or unit" means a unit that commences commercial operation on or after November 15, 1990, including any such unit that serves a generator with a nameplate capacity of 25 MWe or less or that is a simple combustion turbine.

"Nonattainment area" means an area so designated by the administrator, acting pursuant to Section 107 of the Act.

"Permit modification" means a revision to a Title V operating permit that cannot be accomplished under the provisions for administrative permit amendments found at rule 567—22.111(455B). A permit modification for purposes of the acid rain portion of the permit shall be governed by the regulations pertaining to acid rain found at rules 567—22.120(455B) to 567—22.147(455B). This definition of "permit modification" shall be used solely for purposes of this chapter governing Title V operating permits.

"Permit revision" means any permit modification or administrative permit amendment.

"Permitting authority" means the Iowa department of natural resources or the director thereof.

"Potential to emit" means the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a

source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation is enforceable by the administrator. This term does not alter or affect the use of this term for any other purposes under the Act, or the term "capacity factor" as used in Title IV of the Act or the regulations relating to acid rain.

For the purpose of determining potential to emit for country grain elevators, the provisions set forth in subrule 22.10(2) shall apply.

For purposes of calculating potential to emit for emergency generators, "maximum capacity" means one of the following:

1. 500 hours of operation annually, if the generator has actually been operated less than 500 hours per year for the past five years;
2. 8,760 hours of operation annually, if the generator has actually been operated more than 500 hours in one of the past five years; or
3. The number of hours specified in a state or federally enforceable limit.

"Proposed Title V permit" means the version of a permit that the permitting authority proposes to issue and forwards to the administrator for review in compliance with 22.107(7)*"a."*

"Regulated air contaminant" shall mean the same thing as "regulated air pollutant."

"Regulated air pollutant" means the following:

1. Nitrogen oxides or any volatile organic compounds;
2. Any pollutant for which a national ambient air quality standard has been promulgated;
3. Any pollutant that is subject to any standard promulgated under Section 111 of the Act;
4. Any Class I or II substance subject to a standard promulgated under or established by Title VI of the Act; or
5. Any pollutant subject to a standard promulgated under Section 112 or other requirements established under Section 112 of the Act, including Sections 112(g), (j), and (r) of the Act, including the following:

- Any pollutant subject to requirements under Section 112(j) of the Act. If the administrator fails to promulgate a standard by the date established pursuant to Section 112(e) of the Act, any pollutant for which a subject source would be major shall be considered to be regulated on the date 18 months after the applicable date established pursuant to Section 112(e) of the Act; and
- Any pollutant for which the requirements of Section 112(g)(2) of the Act have been met, but only with respect to the individual source subject to the Section 112(g)(2) requirement.

6. With respect to Title V, particulate matter, except for PM10, is not considered a regulated air pollutant for the purpose of determining whether a source is considered to be a major source.

"Regulated air pollutant or contaminant (for fee calculation)," which is used only for purposes of 567—Chapter 30, means any "regulated air pollutant or contaminant" except the following:

1. Carbon monoxide;
2. Particulate matter, excluding PM10;
3. Any pollutant that is a regulated air pollutant solely because it is a Class I or II substance subject to a standard promulgated under or established by Title VI of the Act;
4. Any pollutant that is a regulated pollutant solely because it is subject to a standard or regulation under Section 112(r) of the Act;
5. Greenhouse gas, as defined in rule 567—20.2(455B).

"Renewal" means the process by which a permit is reissued at the end of its term.

"Responsible official" means one of the following:

1. For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

- The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

- The delegation of authority to such representative is approved in advance by the permitting authority.

2. For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

3. For a municipality, state, federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this chapter, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a regional administrator of EPA); or

4. For Title IV affected sources:

- The designated representative insofar as actions, standards, requirements, or prohibitions under Title IV of the Act or the regulations promulgated thereunder are concerned; and
- The designated representative for any other purposes under this chapter or the Act.

"Section 502(b)(10) changes" are changes that contravene an express permit term and which are made pursuant to rule 567—22.110(455B). Such changes do not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), record keeping, reporting, or compliance certification requirements.

"State implementation plan (SIP)" means the plan adopted by the state of Iowa and approved by the administrator which provides for implementation, maintenance, and enforcement of such primary and secondary ambient air quality standards as are adopted by the administrator, pursuant to the Act.

"Stationary source" means any building, structure, facility, or installation that emits or may emit any regulated air pollutant or any pollutant listed under Section 112(b) of the Act.

"Stationary source categories" means any of the following classes of sources:

1. Coal cleaning plants with thermal dryers;
2. Kraft pulp mills;
3. Portland cement plants;
4. Primary zinc smelters;
5. Iron and steel mills;
6. Primary aluminum ore reduction plants;
7. Primary copper smelters;
8. Municipal incinerators capable of charging more than 250 tons of refuse per day;
9. Hydrofluoric, sulfuric, or nitric acid plants;
10. Petroleum refineries;
11. Lime plants;
12. Phosphate rock processing plants;
13. Coke oven batteries;
14. Sulfur recovery plants;
15. Carbon black plants using the furnace process;
16. Primary lead smelters;
17. Fuel conversion plants;
18. Sintering plants;
19. Secondary metal production plants;
20. Chemical process plants — The term chemical processing plant shall not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS code 325193 or 312140;
21. Fossil-fuel boilers, or combinations thereof, totaling more than 250 million Btu's per hour heat input;
22. Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
23. Taconite ore processing plants;
24. Glass fiber processing plants;
25. Charcoal production plants;
26. Fossil fuel-fired steam electric plants of more than 250 million Btu's per hour heat input;

27. Any other stationary source category, which as of August 7, 1980, is regulated under Section 111 or 112 of the Act.

"Subject to regulation" means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally applicable regulation codified by the Administrator in 40 CFR Subchapter C (Air Programs) that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity, except that:

1. Greenhouse gases (GHGs), the air pollutant defined in 40 CFR §86.1818-12(a) (as amended on May 7, 2010) as the aggregate group of six greenhouse gases that includes carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, shall not be subject to regulation unless, as of July 1, 2011, the GHG emissions are at a stationary source emitting or having the potential to emit 100,000 tpy CO_2 equivalent emissions.

2. The term "tpy CO_2 equivalent emissions (CO_2e)" shall represent an amount of GHGs emitted and shall be computed by multiplying the mass amount of emissions (tpy) for each of the six greenhouse gases in the pollutant GHGs by the associated global warming potential of the gas published at 40 CFR Part 98, Subpart A, Table A-1, "Global Warming Potentials," (as amended through December 24, 2014) and summing the resultant value for each to compute a tpy CO_2e.

For purposes of this definition, prior to July 21, 2014, the mass of the greenhouse gas carbon dioxide shall not include carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms (including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material).

"Title V permit" means an operating permit under Title V of the Act.

"12-month rolling period" means a period of 12 consecutive months determined on a rolling basis with a new 12-month period beginning on the first day of each calendar month.

[**ARC 9224B**, IAB 11/17/10, effective 12/22/10; **ARC 9906B**, IAB 12/14/11, effective 11/16/11; **ARC 0330C**, IAB 9/19/12, effective 10/24/12; **ARC 1913C**, IAB 3/18/15, effective 4/22/15; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; **ARC 4335C**, IAB 3/13/19, effective 4/17/19; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—22.101(455B) Applicability of Title V operating permit requirements.

22.101(1) Except as provided in rule 567—22.102(455B), any person who owns or operates any of the following sources shall obtain a Title V operating permit and shall submit fees as required in 567—Chapter 30:

a. Any affected source subject to the provisions of Title IV of the Act;

b. Any major source;

c. Any source, including any nonmajor source, subject to a standard, limitation, or other requirement under Section 111 of the Act (567—subrule 23.1(2), new source performance standards; 567—subrule 23.1(5), emission guidelines);

d. Any source, including any area source, subject to a standard or other requirement under Section 112 of the Act (567—subrules 23.1(3) and 23.1(4), emission standards for hazardous air pollutants), except that a source is not required to obtain a Title V permit solely because it is subject to regulations or requirements under Section 112(r) of the Act;

e. Any solid waste incinerator unit required to obtain a Title V permit under Section 129(e) of the Act;

f. Any source category designated by the Administrator pursuant to 40 CFR 70.3 as amended through December 19, 2005.

22.101(2) Any nonmajor source required to obtain a Title V operating permit pursuant to subrule 22.101(1) is required to obtain a Title V permit only for the emissions units and related equipment causing the source to be subject to the Title V program.

22.101(3) Election to apply for permit. Rescinded IAB 7/19/06, effective 8/23/06.

[**ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—22.102(455B) Source category exemptions.

22.102(1) All sources listed in subrule 22.101(1) that are not major sources, affected sources subject to the provisions of Title IV of the Act or solid waste incineration units required to obtain a permit pursuant to Section 129(e) of the Act are exempt from the obligation to obtain a Title V permit until such time as the Administrator completes a rule making to determine how the program should be structured for nonmajor sources and the appropriateness of any permanent exemptions in addition to those provided for in subrule 22.102(3).

22.102(2) In the case of nonmajor sources subject to a standard or other requirement under either Section 111 or Section 112 of the Act after July 21, 1992, publication, the Administrator will determine at the time the new or amended standard is promulgated whether to exempt any or all such applicable sources from the requirement to obtain a Title V permit.

22.102(3) The following source categories are exempt from the obligation to obtain a Title V permit:

a. All sources and source categories that would be required to obtain a Title V permit solely because they are subject to 40 CFR 60, Subpart AAA, Standards of Performance for New Residential Wood Heaters, as amended through March 16, 2015;

b. All sources and source categories that would be required to obtain a Title V permit solely because they are subject to 40 CFR 61, Subpart M, National Emission Standard for Hazardous Air Pollutants for Asbestos, Section 61.145, Standard for Demolition and Renovation, as adopted by reference in 567—subrule 23.1(3);

c. All sources and source categories that would be required to obtain a Title V permit solely because they are subject to any of the following subparts from 40 CFR 63:

(1) Subpart M, National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities, as adopted by reference in 567—subrule 23.1(4).

(2) Subpart N, National Emission Standards for Chromium Emissions from Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks, as adopted by reference in 567—subrule 23.1(4).

(3) Subpart O, Ethylene Oxide Emissions Standards for Sterilization Facilities, as adopted by reference in 567—subrule 23.1(4).

(4) Subpart T, National Emission Standards for Halogenated Solvent Cleaning, as adopted by reference in 567—subrule 23.1(4).

(5) Subpart RRR, National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production, as adopted by reference in 567—subrule 23.1(4).

(6) Subpart VVV, National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works, as adopted by reference in 567—subrule 23.1(4).

[**ARC 2949C**, IAB 2/15/17, effective 3/22/17]

567—22.103(455B) Insignificant activities. The following are insignificant activities for purposes of the Title V application if not needed to determine the applicability of or to impose any applicable requirement. Title V permit emissions fees are not required from insignificant activities pursuant to 567—paragraph 30.4(2)*"f."*

22.103(1) *Insignificant activities excluded from Title V operating permit application.* In accordance with 40 CFR 70.5 (as amended through October 6, 2009), these activities need not be included in the Title V permit application.

a. Mobile internal combustion and jet engines, marine vessels, and locomotives.

b. Equipment, other than anaerobic lagoons, used for cultivating land, harvesting crops, or raising livestock. This exemption is not applicable if the equipment is used to remove substances from grain which were applied to the grain by another person. This exemption also is not applicable to equipment used by a person to manufacture commercial feed, as defined in Iowa Code section 198.3, when that feed is normally not fed to livestock:

(1) Owned by that person or another person, and

(2) Located in a feedlot, as defined in Iowa Code section 172D.1(6), or in a confinement building owned or operated by that person, and

(3) Located in this state.

c. Equipment or control equipment which eliminates all emissions to the atmosphere.

d. Equipment (other than anaerobic lagoons) or control equipment which emits odors unless such equipment or control equipment also emits particulate matter or any other air pollutant or contaminant.

e. Air conditioning or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment.

f. Residential wood heaters, cookstoves, or fireplaces.

g. The equipment in laboratories used exclusively for nonproduction chemical and physical analyses. Nonproduction analyses means analyses incidental to the production of a good or service and includes analyses conducted for quality assurance or quality control activities, or for the assessment of environmental impact.

h. Recreational fireplaces.

i. Barbecue pits and cookers except at a meat packing plant or a prepared meat manufacturing facility.

j. Stacks or vents to prevent escape of sewer gases through plumbing traps for systems handling domestic sewage only. Systems which include any industrial waste are not exempt.

k. Retail gasoline and diesel fuel handling facilities.

l. Photographic process equipment by which an image is reproduced upon material sensitized to radiant energy.

m. Equipment used for hydraulic or hydrostatic testing.

n. General vehicle maintenance and servicing activities at the source, other than gasoline fuel handling.

o. Cafeterias, kitchens, and other facilities used for preparing food or beverages primarily for consumption at the source.

p. Equipment using water, water and soap or detergent, or a suspension of abrasives in water for purposes of cleaning or finishing provided no organic solvent has been added to the water, the boiling point of the additive is not less than 100°C (212°F), and the water is not heated above 65.5°C (150°F).

q. Administrative activities including, but not limited to, paper shredding, copying, photographic activities, and blueprinting machines. This does not include incinerators.

r. Laundry dryers, extractors, and tumblers processing clothing, bedding, and other fabric items used at the source that have been cleaned with water solutions of bleach or detergents provided that any organic solvent present in such items before processing that is retained from cleanup operations shall be addressed as part of the volatile organic compound emissions from use of cleaning materials.

s. Housekeeping activities for cleaning purposes, including collecting spilled and accumulated materials at the source, but not including use of cleaning materials that contain organic solvent.

t. Refrigeration systems, including storage tanks used in refrigeration systems, but excluding any combustion equipment associated with such systems.

u. Activities associated with the construction, on-site repair, maintenance or dismantlement of buildings, utility lines, pipelines, wells, excavations, earthworks and other structures that do not constitute emission units.

v. Storage tanks of organic liquids with a capacity of less than 500 gallons, provided the tank is not used for storage of any material listed as a hazardous air pollutant pursuant to Section 112(b) of the Clean Air Act.

w. Piping and storage systems for natural gas, propane, and liquified petroleum gas, excluding pipeline compressor stations and associated storage facilities.

x. Water treatment or storage systems, as follows:

(1) Systems for potable water or boiler feedwater.

(2) Systems, including cooling towers, for process water provided that such water has not been in direct or indirect contact with process steams that contain volatile organic material or materials listed as hazardous air pollutants pursuant to Section 112(b) of the Clean Air Act.

y. Lawn care, landscape maintenance, and groundskeeping activities.

z. Containers, reservoirs, or tanks used exclusively in dipping operations to coat objects with oils, waxes, or greases, provided no organic solvent has been mixed with such materials.

aa. Cold cleaning degreasers that are not in-line cleaning machines, where the vapor pressure of the solvents used never exceeds 2 kPa (15 mmHg or 0.3 psi) measured at 38°C (100°F) or 0.7 kPa (5 mmHg or 0.1 psi) at 20°C (68°F). (Note: Cold cleaners subject to 40 CFR Part 63 Subpart T are not considered insignificant activities.)

bb. Manually operated equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, scarfing, surface grinding or turning.

cc. Use of consumer products, including hazardous substances as that term is defined in the Federal Hazardous Substances Act (15 U.S.C. 1261 et seq.), when the product is used at a source in the same manner as normal consumer use.

dd. Activities directly used in the diagnosis and treatment of disease, injury or other medical condition.

ee. Firefighting activities and training in preparation for fighting fires conducted at the source. (Note: Written notification pursuant to 567—paragraph 23.2(3)*"g"* is required at least ten working days before such action commences.)

ff. Activities associated with the construction, repair or maintenance of roads or other paved or open areas, including operation of street sweepers, vacuum trucks, spray trucks and other vehicles related to the control of fugitive emissions of such roads or other areas.

gg. Storage and handling of drums or other transportable containers when the containers are sealed during storage and handling.

hh. Individual points of emission or activities as follows:

(1) Individual flanges, valves, pump seals, pressure relief valves and other individual components that have the potential for leaks.

(2) Individual sampling points, analyzers, and process instrumentation, whose opreation may result in emissions.

(3) Individual features of an emission unit such as each burner and sootblower in a boiler or each use of cleaning materials on a coating or printing line.

ii. Construction activities at a source solely associated with the modification or building of a facility, an emission unit or other equipment at the source. (Note: Notwithstanding the status of this activity as insignificant, a particular activity that entails modification or construction of an emission unit or construction of air pollution control equipment may require a construction permit pursuant to 22.1(455B) and may subsequently require a revised Title V operating permit. A revised Title V operating permit may also be necessary for operation of an emission unit after completion of a particular activity if the existing Title V operating permit does not accommodate the new state of the emission unit.)

jj. Activities at a source associated with the maintenance, repair, or dismantlement of an emission unit or other equipment installed at the source, including preparation for maintenance, repair or dismantlement, and preparation for subsequent startup, including preparation of a shutdown vessel for entry, replacement of insulation, welding and cutting, and steam purging of a vessel prior to startup.

22.103(2) *Insignificant activities which must be included in Title V operating permit applications.*

a. The following are insignificant activities based on potential emissions:

An emission unit which has the potential to emit less than:

5 tons per year of any regulated air pollutant, except:

2.5 tons per year of PM_{10},

0.52 tons per year of $PM_{2.5}$ (does not apply to emission units for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013),

2 lbs per year of lead or lead compounds (40 lbs per year for emission units for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013),

2500 lbs per year of any combination of hazardous air pollutants except high-risk pollutants,

1000 lbs per year of any individual hazardous air pollutant except high-risk pollutants,

250 lbs per year of any combination of high-risk pollutants, or

100 lbs per year of any individual high-risk pollutant.

The definition of "high-risk pollutant" is found in rule 567—22.100(455B).

b. The following are insignificant activities:

(1) Fuel-burning equipment for indirect heating and reheating furnaces or indirect cooling units using natural or liquefied petroleum gas with a capacity of less than 10 million Btu per hour input per combustion unit.

(2) Fuel-burning equipment for indirect heating or indirect cooling for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013, with a capacity of less than 1 million Btu per hour input per combustion unit when burning coal, untreated wood, or fuel oil.

Fuel-burning equipment for indirect heating or indirect cooling for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, with a capacity of less than 1 million Btu per hour input per combustion unit when burning untreated wood, untreated seeds or pellets, other untreated vegetative materials, or fuel oil provided that the equipment and the fuel meet the condition specified in this subparagraph (22.103(2)*"b"*(2)). Used oils meeting the specification from 40 CFR 279.11 as amended through July 14, 2006, are acceptable fuels. When combusting used oils, the equipment must have a maximum rated capacity of 50,000 Btu or less per hour of heat input or a maximum throughput of 3600 gallons or less of used oils per year. When combusting untreated wood, untreated seeds or pellets, or other untreated vegetative materials, the equipment must have a maximum rated capacity of 265,600 Btu or less per hour or a maximum throughput of 378,000 pounds or less per year of each fuel or any combination of fuels.

(3) Incinerators with a rated refuse burning capacity of less than 25 pounds per hour for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred on or before October 23, 2013. Incinerators for which initiation of construction, installation, reconstruction, or alteration (as defined in rule 567—20.2(455B)) occurred after October 23, 2013, shall not qualify as an insignificant activity. After October 23, 2013, only paint clean-off ovens with a maximum rated capacity of less than 25 pounds per hour that do not combust lead-containing materials shall qualify as an insignificant activity.

(4) Gasoline, diesel fuel, or oil storage tanks with a capacity of 1,000 gallons or less and an annual throughput of less than 40,000 gallons.

(5) A storage tank which contains no volatile organic compounds above a vapor pressure of 0.75 pounds per square inch at the normal operating temperature of the tank when other emissions from the tank do not exceed the levels in paragraph 22.103(2)*"a."*

(6) Internal combustion engines that are used for emergency response purposes with a brake horsepower rating of less than 400 measured at the shaft. The manufacturer's nameplate rating at full load shall be defined as the brake horsepower output at the shaft. Emergency engines that are subject to any of the following federal regulations are not considered to be insignificant activities for purposes of this rule (567—22.103(455B)):

1. New source performance standards (NSPS) for stationary compression ignition internal combustion engines (40 CFR Part 60, Subpart IIII);

2. New source performance standards (NSPS) for stationary spark ignition internal combustion engines (40 CFR Part 60, Subpart JJJJ); or

3. National emission standards for hazardous air pollutants (NESHAP) for reciprocating internal combustion engines (40 CFR Part 63, Subpart ZZZZ).

[**ARC 1013C**, IAB 9/18/13, effective 10/23/13; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; Editorial change: IAC Supplement 5/9/18]

567—22.104(455B) Requirement to have a Title V permit. No source may operate after the time that it is required to submit a timely and complete application, except in compliance with a properly issued Title V operating permit. However, if a source submits a timely and complete application for permit issuance (including renewal), the source's failure to have a permit is not a violation of this chapter until

the director takes final action on the permit application, except as noted in this rule. In that case, all terms and conditions of the permit shall remain in effect until the renewal permit has been issued or denied.

22.104(1) This protection shall cease to apply if, subsequent to the completeness determination, the applicant fails to submit, by the deadline specified in writing by the director, any additional information identified as being needed to process the application.

22.104(2) Sources making permit revisions pursuant to rule 567—22.110(455B) shall not be in violation of this rule.

567—22.105(455B) Title V permit applications.

22.105(1) *Duty to apply.* For each source required to obtain a Title V operating permit, the owner or operator or designated representative, where applicable, shall present or mail a complete and timely permit application in accordance with this rule to the following locations: Iowa Department of Natural Resources, Air Quality Bureau, 502 East 9th Street, Des Moines, Iowa 50319 (one copy); and U.S. EPA Region VII, 11201 Renner Boulevard, Lenexa, Kansas 66219 (one copy); and, if applicable, the local permitting authority, which is either Linn County Public Health Department, Air Quality Division, 501 13th Street NW, Cedar Rapids, Iowa 52405 (one copy); or Polk County Public Works, Air Quality Division, 5885 NE 14th Street, Des Moines, Iowa 50313 (one copy). Application submission methods may include, but are not limited to, U.S. Postal Service, private parcel delivery services, or hand delivery. Applications are not required to be submitted by certified mail. Alternatively, an owner or operator may submit a complete and timely application through the electronic submittal format specified by the department. An owner or operator of a source required to obtain a Title V permit pursuant to subrule 22.101(1) shall submit all required fees as required in 567—Chapter 30.

a. *Timely application.* Each owner or operator applying for a Title V permit shall submit an application as follows:

(1) Initial application for an existing source. The owner or operator of a stationary source that was existing on or before April 20, 1994, shall make the first time submittals of a Title V permit application to the department by November 15, 1994. However, the owner or operator may choose to defer submittal of Part 2 of the permit application until December 31, 1995. The department will mail notice of the deadline for Part 2 of the permit application to all applicants who have filed Part 1 of the application by October 17, 1995.

(2) Initial application for a new source. The owner or operator of a stationary source that commenced construction or reconstruction after April 20, 1994, or that otherwise became subject to the requirement to obtain a Title V permit after April 20, 1994, shall submit an application to the department within 12 months of becoming subject to the Title V permit requirements.

(3) Application related to 112(g), PSD or nonattainment. The owner or operator of a stationary source that is subject to Section 112(g) of the Act, that is subject to rule 567—22.4(455B) or 567—33.3(455B) (prevention of significant deterioration (PSD)), or that is subject to rule 567—22.5(455B) or 567—31.3(455B) (nonattainment area permitting) shall submit an application to the department within 12 months of commencing operation. In cases in which an existing Title V permit would prohibit such construction or change in operation, the owner or operator must obtain a Title V permit revision before commencing operation.

(4) Renewal application. The owner or operator of a stationary source with a Title V permit shall submit an application to the department for a permit renewal at least 6 months prior to, but not more than 18 months prior to, the date of permit expiration.

(5) Changes allowed without a permit revision (off-permit revision). The owner or operator of a stationary source with a Title V permit who is proposing a change that is allowed without a Title V permit revision (an off-permit revision) as specified in rule 567—22.110(455B) shall submit to the department a written notification as specified in rule 567—22.110(455B) at least 30 days prior to the proposed change.

(6) Application for an administrative permit amendment. Prior to implementing a change that satisfies the requirements for an administrative permit amendment as set forth in rule 567—22.111(455B), the owner or operator shall submit to the department an application for an administrative amendment as specified in rule 567—22.111(455B).

(7) Application for a minor permit modification. Prior to implementing a change that satisfies the requirements for a minor permit modification as set forth in rule 567—22.112(455B), the owner or operator shall submit to the department an application for a minor permit modification as specified in rule 567—22.112(455B).

(8) Application for a significant permit modification. The owner or operator of a source that satisfies the requirements for a significant permit modification as set forth in rule 567—22.113(455B) shall submit to the department an application for a significant permit modification as specified in rule 567—22.113(455B) within three months after the commencing operation of the changed source. However, if the existing Title V permit would prohibit such construction or change in operation, the owner or operator shall not commence operation of the changed source until the department issues a revised Title V permit that allows the change.

(9) Application for an acid rain permit. The owner or operator of a source subject to the acid rain program, as set forth in rules 567—22.120(455B) through 567—22.148(455B), shall submit an application for an initial Phase II acid rain permit by January 1, 1996 (for sulfur dioxide), or by January 1, 1998 (for nitrogen oxides).

b. Complete application. To be deemed complete, an application must provide all information required pursuant to subrule 22.105(2), except that applications for permit revision need supply such information only if it is related to the proposed change.

22.105(2) *Standard application form and required information.* To apply for a Title V permit, applicants shall complete the standard permit application form available only from the department and supply all information required by the filing instructions found on that form. The information submitted must be sufficient to evaluate the source and its application and to determine all applicable requirements and to evaluate the fee amount required by rule 567—30.4(455B). If a source is not a major source and is applying for a Title V operating permit solely because of a requirement imposed by paragraphs 22.101(1)*"c"* and *"d,"* then the information provided in the operating permit application may cover only the emissions units that trigger Title V applicability. The applicant shall submit the information called for by the application form for each emissions unit to be permitted, except for activities which are insignificant according to the provisions of rule 567—22.103(455B). The applicant shall provide a list of all insignificant activities and specify the basis for the determination of insignificance for each activity. Nationally standardized forms shall be used for the acid rain portions of permit applications and compliance plans, as required by regulations promulgated under Title IV of the Act. The standard application form and any attachments shall require that the following information be provided:

a. Identifying information, including company name and address (or plant or source name if different from the company name), owner's name and agent, and telephone number and names of plant site manager/contact.

b. A description of the source's processes and products (by two-digit Standard Industrial Classification Code) including any associated with each alternate scenario identified by the applicant.

c. The following emissions-related information shall be submitted to the department on the emissions inventory portion of the application, unless the department notifies the applicant that the emissions-related information is not required because it has already been submitted:

(1) All emissions of pollutants for which the source is major, and all emissions of regulated air pollutants. The permit application shall describe all emissions of regulated air pollutants emitted from any emissions unit except where such units are exempted. The source shall submit additional information related to the emissions of air pollutants sufficient to verify which requirements are applicable to the source, and other information necessary to collect any permit fees owed under the approved fee schedule.

(2) Identification and description of all points of emissions in sufficient detail to establish the basis for fees and the applicability of any and all requirements.

(3) Emissions rates in tons per year and in such terms as are necessary to establish compliance consistent with the applicable standard reference test method, if any.

(4) The following information to the extent it is needed to determine or regulate emissions: fuels, fuel use, raw materials, production rates, and operating schedules.

(5) Identification and description of air pollution control equipment.

(6) Identification and description of compliance monitoring devices or activities.

(7) Limitations on source operations affecting emissions or any work practice standards, where applicable, for all regulated pollutants.

(8) Other information required by any applicable requirement (including information related to stack height limitations developed pursuant to Section 123 of the Act).

(9) Calculations on which the information in subparagraphs (1) to (8) above is based.

(10) Fugitive emissions from a source shall be included in the permit application in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.

d. The following air pollution control requirements:

(1) Citation and description of all applicable requirements, and

(2) Description of or reference to any applicable test method for determining compliance with each applicable requirement.

e. Other specific information that may be necessary to implement and enforce other applicable requirements of the Act or of these rules or to determine the applicability of such requirements.

f. An explanation of any proposed exemptions from otherwise applicable requirements.

g. Additional information as determined to be necessary by the director to define alternative operating scenarios identified by the source pursuant to subrule 22.108(12) or to define permit terms and conditions relating to operational flexibility and emissions trading pursuant to subrule 22.108(11) and rule 567—22.112(455B).

h. A compliance plan that contains the following:

(1) A description of the compliance status of the source with respect to all applicable requirements.

(2) The following statements regarding compliance status: For applicable requirements with which the stationary source is in compliance, a statement that the stationary source will continue to comply with such requirements. For applicable requirements that will become effective during the permit term, a statement that the stationary source will meet such requirements on a timely basis. For requirements for which the stationary source is not in compliance at the time of permit issuance, a narrative description of how the stationary source will achieve compliance with such requirements.

(3) A compliance schedule that contains the following:

1. For applicable requirements with which the stationary source is in compliance, a statement that the stationary source will continue to comply with such requirements. For applicable requirements that will become effective during the permit term, a statement that the stationary source will meet such requirements on a timely basis. A statement that the stationary source will meet in a timely manner applicable requirements that become effective during the permit term shall satisfy this provision, unless a more detailed schedule is expressly required by the applicable requirement.

2. A compliance schedule for sources that are not in compliance with all applicable requirements at the time of permit issuance. Such a schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the stationary source will be in noncompliance at the time of permit issuance.

3. This compliance schedule shall resemble and be at least as stringent as any compliance schedule contained in any judicial consent decree or administrative order to which the source is subject. Any compliance schedule shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based.

(4) A schedule for submission of certified progress reports no less frequently than every six months for sources required to have a compliance schedule in the permit.

i. Requirements for compliance certification, including the following:

(1) A certification of compliance for the prior year with all applicable requirements certified by a responsible official consistent with subrule 22.107(4) and Section 114(a)(3) of the Act.

(2) A statement of methods used for determining compliance, including a description of monitoring, record keeping, and reporting requirements and test methods.

(3) A schedule for submission of compliance certifications for each compliance period (one year unless required for a shorter time period by an applicable requirement) during the permit term, which

shall be submitted annually, or more frequently if required by an underlying applicable requirement or by the director.

(4) A statement indicating the source's compliance status with any applicable enhanced monitoring and compliance certification requirements of the Act.

(5) Notwithstanding any other provisions of these rules, for the purposes of submission of compliance certifications, an owner or operator is not prohibited from using monitoring as required by subrules 22.108(3), 22.108(4) or 22.108(5) and incorporated into a Title V operating permit in addition to any specified compliance methods.

j. The compliance plan content requirements specified in these rules shall apply and be included in the acid rain portion of a compliance plan for a Title IV affected source, except as specifically superseded by regulations promulgated under Title IV of the Act, with regard to the schedule and method(s) the source shall use to achieve compliance with the acid rain emissions limitations.

22.105(3) *Hazardous air pollutant early reduction application.* Anyone requesting a compliance extension from a standard issued under Section 112(d) of the Act must submit with its Title V permit application information that complies with the requirements established in 567—paragraph 23.1(4)*"d."*

22.105(4) *Acid rain application content.* The acid rain application content shall be as prescribed in the acid rain rules found at rules 567—22.128(455B) and 567—22.129(455B).

22.105(5) *More than one Title V operating permit for a stationary source.* Following application made pursuant to subrule 22.105(1), the department may, at its discretion, issue more than one Title V operating permit for a stationary source, provided that the owner or operator does not have, and does not propose to have, a sourcewide emission limit or a sourcewide alternative operating scenario.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 1227C**, IAB 12/11/13, effective 1/15/14; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3440C**, IAB 11/8/17, effective 12/13/17; **ARC 4335C**, IAB 3/13/19, effective 4/17/19]

567—22.106(455B) Annual Title V emissions inventory.

22.106(1) *Emissions fee.* Fees shall be paid as set forth in 567—Chapter 30.

22.106(2) *Emissions inventory and documentation due dates.* The emissions inventory shall be submitted through the electronic format specified by the department.

An owner or operator shall, by March 31, submit documentation of actual emissions for the previous calendar year.

The department shall calculate the total statewide Title V emissions for the prior calendar year and make this information available to the public no later than April 30 of each year.

22.106(3) *Correction of errors.* If an owner or operator, or the department, finds an error in a Title V emissions inventory, the owner or operator shall submit to the department revised forms making the necessary corrections to the Title V emissions inventory. Corrected forms shall be submitted as soon as possible after the errors are discovered or upon notification by the department.

[**ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; **ARC 4335C**, IAB 3/13/19, effective 4/17/19]

567—22.107(455B) Title V permit processing procedures.

22.107(1) *Action on application.*

a. *Conditions for action on application.* A permit, permit modification, or renewal may be issued only if all of the following conditions have been met:

(1) The permitting authority has received a complete application for a permit, permit modification, or permit renewal, except that a complete application need not be received before issuance of a general permit under rule 567—22.109(455B);

(2) Except for modifications qualifying for minor permit modification procedures under rule 22.112(455B), the permitting authority has complied with the requirements for public participation under subrule 22.107(6);

(3) The permitting authority has complied with the requirements for notifying and responding to affected states under subrule 22.107(7);

(4) The conditions of the permit provide for compliance with all applicable requirements and the requirements of this chapter;

(5) The administrator has received a copy of the proposed permit and any notices required under subrule 22.107(7), and has not objected to issuance of the permit under subrule 22.107(7) within the time period specified therein;

(6) If the administrator has properly objected to the permit pursuant to the provisions of 40 CFR 70.8(d) as amended to July 21, 1992, or subrule 22.107(7), then the permitting authority may issue a permit only after the administrator's objection has been resolved; and

(7) No permit for a solid waste incineration unit combusting municipal waste subject to the provisions of Section 129(e) of the Act may be issued by an agency, instrumentality or person that is also responsible, in whole or part, for the design and construction or operation of the unit.

b. Time for action on application. The permitting authority shall take final action on each complete permit application (including a request for permit modification or renewal) within 18 months of receiving a complete application, except in the following instances:

(1) When otherwise provided under Title V or Title IV of the Act for the permitting of affected sources under the acid rain program.

(2) In the case of initial permit applications, the permitting authority may take up to three years from the effective date of the program to take final action on an application.

(3) Any complete permit applications containing an early reduction demonstration under Section 112(i)(5) of the Act shall be acted upon within nine months of receipt of the complete application.

c. Prioritization of applications. The director shall give priority to action on Title V applications involving construction or modification for which a construction permit pursuant to subrule 22.1(1) or Title I of the Act, Parts C and D, is also required. The director also shall give priority to action on Title V applications involving early reduction of hazardous air pollutants pursuant to 567—paragraph 23.1(4)*"d."*

d. Completeness of applications. The department shall promptly provide notice to the applicant of whether the application is complete. Unless the permitting authority requests additional information or otherwise notifies the applicant of incompleteness within 60 days of receipt of an application, the application shall be deemed complete. If, while processing an application that has been determined to be complete, the permitting authority determines that additional information is necessary to evaluate or take final action on that application, the permitting authority may request in writing such information and set a reasonable deadline for a response. The source's ability to operate without a permit, as set forth in rule 567—22.104(455B), shall be in effect from the date the application is determined to be complete until the final permit is issued, provided that the applicant submits any requested additional information by the deadline specified by the permitting authority. For modifications processed through minor permit modification procedures, a completeness determination shall not be required.

e. Decision to deny a permit application. The director shall decide to issue or deny the permit. The director shall notify the applicant as soon as practicable that the application has been denied. Upon denial of the permit the provisions of paragraph 22.107(1)*"d"* shall no longer be applicable. The new application shall be regarded as an entirely separate application containing all the required information and shall not depend on references to any documents contained in the previous denied application.

f. Fact sheet. A draft permit and fact sheet shall be prepared by the permitting authority. The fact sheet shall include the rationale for issuance or denial of the permit; a brief description of the type of facility; a summary of the type and quantity of air pollutants being emitted; a brief summary of the legal and factual basis for the draft permit conditions, including references to applicable statutes and rules; a description of the procedures for reaching final decision on the draft permit including the comment period, the address where comments will be received, and procedures for requesting a hearing and the nature of the hearing; and the name and telephone number for a person to contact for additional information. The permitting authority shall provide the fact sheet to EPA and to any other person who requests it.

g. *Relation to construction permits.* The submittal of a complete application shall not affect the requirement that any source have a construction permit under Title I of the Act and subrule 22.1(1).

22.107(2) *Confidential information.* If a source has submitted information with an application under a claim of confidentiality to the department, the source shall also submit a copy of such information directly to the administrator. Requests for confidentiality must comply with 561—Chapter 2.

22.107(3) *Duty to supplement or correct application.* Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date the source filed a complete application but prior to release of a draft permit. Applicants who have filed a complete application shall have 60 days following notification by the department to file any amendments. Any MACT determinations in permit applications will be evaluated based on the standards, limitations or levels of technology existing on the date the initial application is deemed complete.

22.107(4) *Certification of truth, accuracy, and completeness.* Any application form, report, or compliance certification submitted pursuant to these rules shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under these rules shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

22.107(5) *Early reduction application evaluation.* Hazardous air pollutant early reduction application evaluation review shall follow the procedures established in 567—paragraph 23.1(4)*"d."*

22.107(6) *Public notice and public participation.*

a. The permitting authority shall provide public notice and an opportunity for public comments, including an opportunity for a hearing, before taking any of the following actions: issuance, denial or renewal of a permit; or significant modification or revocation or reissuance of a permit.

b. Notice shall be given by posting of the notice, including the draft permit, for the duration of the public comment period on a public website identified by the permitting authority and designed to give general public notice. Notice also shall be given to persons on a mailing list developed by the permitting authority, including those who request in writing to be on the list. The department may use other means if necessary to ensure adequate notice to the affected public.

c. The public notice shall include the following:

(1) Identification of the Title V source.

(2) Name and address of the permittee.

(3) Name and address of the permitting authority processing the permit.

(4) The activity or activities involved in the permit action.

(5) The emissions change involved in any permit modification.

(6) The air pollutants or contaminants to be emitted.

(7) The time and place of any possible public hearing.

(8) A statement that any person may submit written and signed comments, or may request a public hearing, or both, on the proposed permit. A statement of procedures to request a public hearing shall be included.

(9) The name, address, and telephone number of a person from whom additional information may be obtained. Information entitled to confidential treatment pursuant to Section 114(c) of the Act or state law shall not be released pursuant to this provision. However, the contents of a Title V permit shall not be entitled to protection under Section 114(c) of the Act.

(10) Locations where copies of the permit application and the proposed permit may be reviewed, including the closest department office, and the times at which they shall be available for public inspection.

d. At least 30 days shall be provided for public comment. Notice of any public hearing shall be given at least 30 days in advance of the hearing.

e. Any person may request a public hearing. A request for a public hearing shall be in writing and shall state the person's interest in the subject matter and the nature of the issues proposed to be raised at

the hearing. The director shall hold a public hearing upon finding, on the basis of requests, a significant degree of relevant public interest in a draft permit. A public hearing also may be held at the director's discretion.

f. The director shall keep a record of the commenters and of the issues raised during the public participation process and shall prepare written responses to all comments received. At the time a final decision is made, the record and copies of the director's responses shall be made available to the public.

g. The permitting authority shall provide notice and opportunity for participation by affected states as provided by subrule 22.107(7).

22.107(7) *Permit review by EPA and affected states.*

a. *Transmission of information to the administrator.* Except as provided in subrule 22.107(2) or waived by the administrator, the director shall provide to the administrator a copy of each permit application or modification application, including any attachments and compliance plans; each proposed permit; and each final permit. For purposes of this subrule, the application information may be submitted in a computer-readable format compatible with the administrator's national database management system.

b. *Review by affected states.* The director shall provide notice of each draft permit to any affected state on or before the time that public notice is provided to the public pursuant to subrule 22.107(6), except to the extent that subrule 22.112(3) requires the timing of the notice to be different. If the director refuses to accept a recommendation of any affected state, submitted during the public or affected state review period, then the director shall notify the administrator and the affected state in writing. The notification shall include the director's reasons for not accepting the recommendation(s). The director shall not be required to accept recommendations that are not based on applicable requirements.

c. *EPA objection.* No permit for which an application must be transmitted to the administrator shall be issued if the administrator objects in writing to its issuance as not in compliance with the applicable requirements within 45 days after receiving a copy of the proposed permit and necessary supporting information under 22.107(7)*"a."* Within 90 days after the date of an EPA objection made pursuant to this rule, the director shall submit a response to the objection, if the objection has not been resolved.

22.107(8) *Public petitions to the administrator regarding Title V permits.*

a. If the administrator does not object to a proposed permit, any person may petition the administrator within 60 days after the expiration of the administrator's 45-day review period to make an objection pursuant to 40 CFR 70.8(d) as amended to July 21, 1992.

b. Any person who petitions the administrator pursuant to the provisions of 40 CFR 70.8(d) as amended to July 21, 1992, shall notify the department by certified mail of such petition immediately, and in no case more than 10 days following the date the petition is submitted to EPA. Such notice shall include a copy of the petition submitted to EPA and a separate written statement detailing the grounds for the objection(s) and whether the objection(s) was raised during the public comment period. A petition for review shall not stay the effectiveness of a permit or its requirements if the permit was issued after the end of the 45-day EPA review period and prior to the administrator's objection.

c. If the administrator objects to the permit as a result of a petition filed pursuant to 40 CFR 70.8(d) as amended to July 21, 1992, then the director shall not issue a permit until the administrator's objection has been resolved. However, if the director has issued a permit prior to receipt of the administrator's objection, and the administrator modifies, terminates, or revokes such permit, consistent with the procedures in 40 CFR 70.7 as amended to July 21, 1992, then the director may thereafter issue only a revised permit that satisfies the administrator's objection. In any case, the source shall not be in violation of the requirement to have submitted a timely and complete application.

22.107(9) *A Title V permit application may be denied if:*

a. The director finds that a source is not in compliance with any applicable requirement; or

b. An applicant knowingly submits false information in a permit application.

22.107(10) *Retention of permit records.* The director shall keep all records associated with each permit for a minimum of five years.

[**ARC 3679C**, IAB 3/14/18, effective 4/18/18]

567—22.108(455B) Permit content. Each Title V permit shall include the following elements:

22.108(1) Enforceable emission limitations and standards. Each permit issued pursuant to this chapter shall include emissions limitations and standards, including those operational requirements and limitations that ensure compliance with all applicable requirements at the time of permit issuance.

a. The permit shall specify and reference the origin of and authority for each term or condition and identify any difference in form as compared to the applicable requirement upon which the term or condition is based.

b. The permit shall state that, where an applicable requirement of the Act is more stringent than an applicable requirement of regulations promulgated under Title IV of the Act, both provisions shall be incorporated into the permit and shall be enforceable by the administrator.

c. If an applicable implementation plan allows a determination of an alternative emission limit at a Title V source, equivalent to that contained in the plan, to be made in the permit issuance, renewal, or significant modification process, and the state elects to use such process, then any permit containing such equivalency determination shall contain provisions to ensure that any resulting emissions limit has been demonstrated to be quantifiable, accountable, enforceable, and based on replicable procedures.

d. If an early reduction demonstration is approved as part of the Title V permit application, the permit shall include enforceable alternative emissions limitations for the source reflecting the reduction which qualified the source for the compliance extension.

e. Fugitive emissions from a source shall be included in the permit in the same manner as stack emissions, regardless of whether the source category in question is included in the list of sources contained in the definition of major source.

f. For all major sources, all applicable requirements for all relevant emissions units in the major source shall be included in the permit.

22.108(2) Permit duration. The permit shall specify a fixed term not to exceed five years except:

a. Permits issued to Title IV affected sources shall have a fixed term of five years.

b. Permits issued to solid waste incineration units combusting municipal waste subject to standards under Section 129(e) of the Act shall have a term not to exceed 12 years. Such permits shall be reviewed every five years.

22.108(3) Monitoring. Each permit shall contain the following requirements with respect to monitoring:

a. All emissions monitoring and analysis procedures or test methods required under the applicable requirements, including any procedures and methods promulgated pursuant to Section 114(a)(3) or 504(b) of the Act;

b. Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of record keeping designed to serve as monitoring), periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to subrule 22.108(5). Such monitoring shall be determined by application of the "Periodic Monitoring Guidance" (as amended through October 24, 2012) available from the department;

c. As necessary, requirements concerning the use, maintenance, and, where appropriate, installation of monitoring equipment or methods; and

d. As required, Compliance Assurance Monitoring (CAM) consistent with 40 CFR Part 64 (as amended through October 22, 1997).

22.108(4) Record keeping. With respect to record keeping, the permit shall incorporate all applicable record-keeping requirements and require, where applicable, the following:

a. Records of required monitoring information that include the following:

(1) The date, place as defined in the permit, and time of sampling or measurements;

(2) The date(s) the analyses were performed;

(3) The company or entity that performed the analyses;

(4) The analytical techniques or methods used;

(5) The results of such analyses; and

(6) The operating conditions as existing at the time of sampling or measurement; and

b. Retention of records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart and other recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.

22.108(5) Reporting. With respect to reporting, the permit shall incorporate all applicable reporting requirements and shall require the following:

a. Submittal of reports of any required monitoring at least every six months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with subrule 22.107(4).

b. Prompt reporting of deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. The director shall define "prompt" in relation to the degree and type of deviation likely to occur and the applicable requirements.

22.108(6) Risk management plan. Pursuant to Section 112(r)(7)(E) of the Act, if the source is required to develop and register a risk management plan pursuant to Section 112(r) of the Act, the permit shall state the requirement for submission of the plan to the air quality bureau of the department. The permit shall also require filing the plan with appropriate authorities and an annual certification to the department that the plan is being properly implemented.

22.108(7) A permit condition prohibiting emissions exceeding any allowances that the affected source lawfully holds under Title IV of the Act or the regulations promulgated thereunder.

a. No permit revision shall be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement.

b. No limit shall be placed on the number of allowances held by the Title IV affected source. The Title IV affected source may not, however, use allowances as a defense to noncompliance with any other applicable requirement.

c. Any such allowances shall be accounted for according to the procedures established in regulations promulgated under Title IV of the Act.

d. Any permit issued pursuant to the requirements of these rules and Title V of the Act to a unit subject to the provisions of Title IV of the Act shall include conditions prohibiting all of the following:

(1) Annual emissions of sulfur dioxide in excess of the number of allowances to emit sulfur dioxide held by the owners or operators of the unit or the designated representative of the owners or operators.

(2) Exceedences of applicable emission rates.

(3) The use of any allowance prior to the year for which it was allocated.

(4) Contravention of any other provision of the permit.

22.108(8) Severability clause. The permit shall contain a severability clause to ensure the continued validity of the various permit requirements in the event of a challenge to any portions of the permit.

22.108(9) Other provisions. The Title V permit shall contain provisions stating the following:

a. The permittee must comply with all conditions of the Title V permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for a permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

b. Need to halt or reduce activity not a defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.

c. The permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

d. The permit does not convey any property rights of any sort, or any exclusive privilege.

e. The permittee shall furnish to the director, within a reasonable time, any information that the director may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee also shall furnish to the director copies of records required to be kept by the permit or, for information claimed

to be confidential, the permittee shall furnish such records directly to the administrator of EPA along with a claim of confidentiality.

22.108(10) Fees. The permit shall include a provision to ensure that the Title V permittee pays fees to the director pursuant to rule 567—30.4(455B).

22.108(11) Emissions trading. A provision of the permit shall state that no permit revision shall be required, under any approved economic incentives, marketable permits, emissions trading and other similar programs or processes for changes that are provided for in the permit.

22.108(12) Terms and conditions for reasonably anticipated operating scenarios identified by the source in its application and as approved by the director. Such terms and conditions:

a. Shall require the source, contemporaneously with making a change from one operating scenario to another, to record in a log at the permitted facility a record of the scenario under which it is operating; and

b. Must ensure that the terms and conditions of each such alternative scenario meet all applicable requirements and the requirements of the department's rules.

22.108(13) Terms and conditions, if the permit applicant requests them, for the trading of emissions increases and decreases in the permitted facility, to the extent that the applicable requirements provide for trading such increases and decreases without a case-by-case approval of each emissions trade. Such terms and conditions:

a. Shall include all terms required under subrules 22.108(1) to 22.108(13) and subrule 22.108(15) to determine compliance;

b. Must meet all applicable requirements of the Act and regulations promulgated thereunder and all requirements of this chapter; and

c. May extend the permit shield described in subrule 22.108(18) to all terms and conditions that allow such increases and decreases in emissions.

22.108(14) Federally enforceable requirements.

a. All terms and conditions in a Title V permit, including any provisions designed to limit a source's potential to emit, are enforceable by the administrator and citizens under the Act.

b. Notwithstanding paragraph *"a"* of this subrule, the director shall specifically designate as not being federally enforceable under the Act any terms and conditions included in the permit that are not required under the Act or under any of its applicable requirements. Terms and conditions so designated are not subject to the requirements of 40 CFR 70.7 or 70.8 (as amended through July 21, 1992).

22.108(15) Compliance requirements. All Title V permits shall contain the following elements with respect to compliance:

a. Consistent with the provisions of subrules 22.108(3) to 22.108(5), compliance certification, testing, monitoring, reporting, and record-keeping requirements sufficient to ensure compliance with the terms and conditions of the permit. Any documents, including reports, required by a permit shall contain a certification by a responsible official that meets the requirements of subrule 22.107(4).

b. Inspection and entry provisions which require that, upon presentation of proper credentials, the permittee shall allow the director or the director's authorized representative to:

(1) Enter upon the permittee's premises where a Title V source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;

(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;

(3) Inspect, at reasonable times, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and

(4) Sample or monitor, at reasonable times, substances or parameters for the purpose of ensuring compliance with the permit or other applicable requirements.

c. A schedule of compliance consistent with subparagraphs 22.105(2)*"h"* and *"j"* and subrule 22.105(3).

d. Progress reports, consistent with an applicable schedule of compliance and with the provisions of paragraphs 22.105(2)*"h"* and *"j,"* to be submitted at least every six months, or more frequently if

specified in the applicable requirement or by the department in the permit. Such progress reports shall contain the following:

(1) Dates for achieving the activities, milestones or compliance required in the schedule of compliance, and dates when such activities, milestones or compliance were achieved; and

(2) An explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

e. Requirements for compliance certification with terms and conditions contained in the permit, including emission limitations, standards, or work practices. Permits shall include each of the following:

(1) The frequency of submissions of compliance certifications, which shall not be less than annually.

(2) The means to monitor the compliance of the source with its emissions limitations, standards, and work practices, in accordance with the provisions of all applicable department rules.

(3) A requirement that the compliance certification include: the identification of each term or condition of the permit that is the basis of the certification; the compliance status; whether compliance was continuous or intermittent; the method(s) used for determining the compliance status of the source, currently and over the reporting period consistent with all applicable department rules; and other facts as the director may require to determine the compliance status of the source.

(4) A requirement that all compliance certifications be submitted to the administrator and the director.

f. Such additional provisions as the director may require.

g. Such additional provisions as may be specified pursuant to Sections 114(a)(3) and 504(b) of the Act.

h. If there is a federal implementation plan applicable to the source, a provision that compliance with the federal implementation plan is required.

22.108(16) Emergency provisions.

a. For the purposes of a Title V permit, an "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error.

b. An emergency constitutes an affirmative defense to an action brought for noncompliance with such technology-based emission limitations if the conditions of paragraph 22.108(16)*"c"* are met.

c. Requirements for affirmative defense. The affirmative defense of emergency shall be demonstrated by the source through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An emergency occurred and that the permittee can identify the cause(s) of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emissions standards or other requirements of the permit; and

(4) The permittee submitted notice of the emergency to the director by certified mail within two working days of the time when emission limitations were exceeded due to the emergency. This notice fulfills the requirement of paragraph 22.108(5)*"b."* This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

d. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency has the burden of proof.

e. This provision is in addition to any emergency or upset provision contained in any applicable requirement.

22.108(17) Permit reopenings.

a. A Title V permit issued to a major source shall require that revisions be made to incorporate applicable standards and regulations adopted by the administrator pursuant to the Act, provided that:

(1) The reopening and revision on this ground is not required if the permit has a remaining term of less than three years;

(2) The reopening and revision on this ground is not required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions have been extended pursuant to 40 CFR 70.4(b)(10)(i) or (ii) as amended through October 6, 2009; or

(3) The additional applicable requirements are implemented in a general permit that is applicable to the source and the source receives approval for coverage under that general permit.

b. The revisions shall be made as expeditiously as practicable, but not later than 18 months after the promulgation of such standards and regulations. Any permit revision required pursuant to this subrule shall be treated as a permit renewal.

22.108(18) Permit shield.

a. The director may expressly include in a Title V permit a provision stating that compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance, provided that:

(1) Such applicable requirements are included and are specifically identified in the permit; or

(2) The director, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof.

b. A Title V permit that does not expressly state that a permit shield exists shall be presumed not to provide such a shield.

c. A permit shield shall not alter or affect the following:

(1) The provisions of Section 303 of the Act (emergency orders), including the authority of the administrator under that section;

(2) The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;

(3) The applicable requirements of the acid rain program, consistent with Section 408(a) of the Act;

(4) The ability of the department or the administrator to obtain information from the facility pursuant to Section 114 of the Act.

22.108(19) Emission trades. For emission trades at facilities solely for the purpose of complying with a federally enforceable emissions cap that is established in the permit independent of otherwise applicable requirements, permit applications under this provision are required to include proposed replicable procedures and proposed permit terms that ensure the emission trades are quantifiable and enforceable.

[**ARC 0330C**, IAB 9/19/12, effective 10/24/12; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17]

567—22.109(455B) General permits.

22.109(1) *Applicability.* The director may issue a general permit for multiple sources that contain a number of operations and processes which emit pollutants with similar characteristics and that have substantially similar requirements regarding emissions, operations, monitoring and record keeping. General permits shall not be issued to Title IV affected sources except as provided in regulations promulgated by the administrator under Title IV of the Act.

22.109(2) *Issuance of general permits.* General permits may be issued by the director and codified in this chapter following notice and opportunity for public participation consistent with the procedures contained in subrule 22.107(6). Public participation shall be provided for a new general permit, for any revision of an existing general permit, and for renewal of an existing general permit. Permit review by the administrator and affected states shall be provided consistent with subrule 22.107(7). Each general permit shall identify criteria by which sources may qualify to operate under the general permit and shall comply with all requirements applicable to other Title V permits.

22.109(3) *Applications.* Any source that would qualify for a general permit must apply for either (a) coverage under the terms of the general permit or (b) an individual Title V permit. Applications for

authority to operate under the terms of a general permit shall be made on the "General Permit Application Form" and shall specify the general permit concerned by citing the subrule containing that general permit. These applications may deviate from the Title V individual permit application but shall include all information necessary to determine qualification for, and to ensure compliance with, the general permit. If a source is later determined not to qualify for the terms and conditions of the general permit, then the source shall be subject to enforcement action for operation without a Title V operating permit.

22.109(4) *General permit content.* A general permit shall include all of the following:

a. The terms and conditions required for all sources authorized to operate under the permit;

b. Emission limitations and standards, including those operational requirements and limitations that ensure compliance with all applicable requirements at the time of the permit issuance;

c. A compliance plan;

d. Monitoring, record keeping, and reporting requirements to ensure compliance with the terms and conditions of the general permit. These requirements shall ensure the use of consistent terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable emissions limitations, standards, and other requirements contained in the general permit;

e. The requirement to submit at least every six months the results of any required monitoring;

f. References to the authority for the term or condition;

g. A provision specifying permit duration as a fixed term not to exceed five years;

h. A severability clause provision pursuant to subrule 22.108(8);

i. A provision for payment of fees pursuant to subrule 22.108(10);

j. A provision for emissions trading pursuant to subrules 22.108(11) and 22.108(13);

k. Other provisions pursuant to subrule 22.108(9);

l. Statement that the Title V permit is to be kept at the site of the source as well as at the corporate offices; and

m. The process for individual sources to apply for coverage under the general permit.

22.109(5) *Action on general permit application.*

a. Once the director has issued a general permit, any source which is a member of the class of sources covered by the general permit may apply to the director for authority to operate under the general permit.

b. Review of a general permit application. The director shall grant the conditions and terms of a general permit to all sources that apply and qualify under the identified criteria.

c. The director may grant a source's request for authorization to operate under a general permit without repeating the public participation procedures followed in subrule 22.109(2). However, such a grant shall not be a final permit action for purposes of judicial review.

22.109(6) *General permit renewal.* The director shall review and may renew general permits every five years. A source's authorization to operate under a general permit shall expire when the general permit expires regardless of when the authorization began during the five-year period.

22.109(7) *Relationship to individual permits.* Any source covered by a general permit may request to be excluded from coverage by applying for an individual Title V permit. Coverage under the general permit shall terminate on the date the individual Title V permit is issued.

22.109(8) *Permit shield for general permit.* Each general permit issued under this chapter shall specifically identify all federal, state, and local air pollution control requirements applicable to the source at the time the permit is issued. The permit shall state that compliance with the conditions of the permit shall be deemed compliance with any applicable requirements as of the date of permit issuance. Any permit under this chapter that does not expressly state that a permit shield exists shall be presumed not to provide such a shield. Notwithstanding the above provisions, the source shall be subject to enforcement action for operation without a permit if the source is later determined not to qualify for the conditions and terms of the general permit.

22.109(9) *Revocations of authority to operate.*

a. The director may require any source or a class of sources authorized to operate under a general permit to individually apply for and obtain a Title V permit at any time if:

(1) The source is not in compliance with the terms and conditions of the general permit;

(2) The director has determined that the emissions from the source or class of sources is contributing significantly to ambient air quality standard violations and that these emissions are not adequately addressed by the terms and conditions of the general permit; or

(3) The director has information which indicates that the cumulative effects on human health and the environment from the sources covered under the general permit are unacceptable.

b. The director shall provide written notice to all sources operating under that general permit of the proposed revocation of that general permit. Such notice shall include an explanation of the basis for the proposed action.

567—22.110(455B) Changes allowed without a Title V permit revision (off-permit revisions).

22.110(1) A source with a Title V permit may make Section 502(b)(10) changes to the permitted installation/facility without a Title V permit revision if:

a. The changes are not major modifications under any provision of any program required by Section 110 of the Act, modifications under Section 111 of the Act, modifications under Section 112 of the Act, or major modifications of this chapter;

b. The changes do not exceed the emissions allowable under the permit (whether expressed therein as a rate of emissions or in terms of total emissions);

c. The changes are not modifications under any provision of Title I of the Act and the changes do not exceed the emissions allowable under the permit (whether expressed therein as a rate of emissions or in terms of total emissions);

d. The changes are not subject to any requirement under Title IV of the Act (revisions affecting Title IV permitting are addressed in rules 567—22.140(455B) through 567—22.144(455B));

e. The changes comply with all applicable requirements; and

f. For each such change, the permitted source provides to the department and the administrator by certified mail, at least 30 days in advance of the proposed change, a written notification, including the following, which shall be attached to the permit by the source, the department, and the administrator:

(1) A brief description of the change within the permitted facility,

(2) The date on which the change will occur,

(3) Any change in emission as a result of the change,

(4) The pollutants emitted subject to the emissions trade,

(5) If the emissions trading provisions of the state implementation plan are invoked, then the Title V permit requirements with which the source shall comply; a description of how the emission increases and decreases will comply with the terms and conditions of the Title V permit;

(6) A description of the trading of emissions increases and decreases for the purpose of complying with a federally enforceable emissions cap as specified in and in compliance with the Title V permit; and

(7) Any permit term or condition no longer applicable as a result of the change.

22.110(2) Such changes do not include changes that would violate applicable requirements or contravene federally enforceable permit terms and conditions that are monitoring (including test methods), record keeping, reporting, or compliance certification requirements.

22.110(3) Notwithstanding any other part of this rule, the director may, upon review of a notice, require a stationary source to apply for a Title V permit if the change does not meet the requirements of subrule 22.110(1).

22.110(4) The permit shield provided in subrule 22.108(18) shall not apply to any change made pursuant to this rule. Compliance with the permit requirements that the source will meet using the emissions trade shall be determined according to requirements of the state implementation plan authorizing the emissions trade.

567—22.111(455B) Administrative amendments to Title V permits.

22.111(1) An administrative permit amendment is a permit revision that does any of the following:

a. Corrects typographical errors;

b. Identifies a change in the name, address, or telephone number of any person identified in the permit, or provides a similar minor administrative change at the source;

c. Requires more frequent monitoring or reporting by the permittee; or

d. Allows for a change in ownership or operational control of a source where the director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the director.

22.111(2) Administrative permit amendments to portions of permits containing provisions pursuant to Title IV of the Act shall be governed by regulations promulgated by the administrator under Title IV of the Act.

22.111(3) The director shall take no more than 60 days from receipt of a request for an administrative permit amendment to take final action on such request, and may incorporate such changes without providing notice to the public or affected states provided that the director designates any such permit revisions as having been made pursuant to this rule.

22.111(4) The director shall submit to the administrator a copy of each Title V permit revised under this rule.

22.111(5) The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request.

567—22.112(455B) Minor Title V permit modifications.

22.112(1) Minor Title V permit modification procedures may be used only for those permit modifications that satisfy all of the following:

a. Do not violate any applicable requirement;

b. Do not involve significant changes to existing monitoring, reporting, or record-keeping requirements in the Title V permit;

c. Do not require or change a case-by-case determination of an emission limitation or other standard, or an increment analysis;

d. Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed in order to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include any federally enforceable emissions caps which the source would assume to avoid classification as a modification under any provision of Title I of the Act; and an alternative emissions limit approved pursuant to regulations promulgated under Section 112(i)(5) of the Act;

e. Are not modifications under any provision of Title I of the Act; and

f. Are not required to be processed as a significant modification under rule 567—22.113(455B).

22.112(2) An application for minor permit revision shall be on the minor Title V modification application form and shall include at least the following:

a. A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs;

b. The source's suggested draft permit;

c. Certification by a responsible official, pursuant to subrule 22.107(4), that the proposed modification meets the criteria for use of minor permit modification procedures and a request that such procedures be used; and

d. Completed forms to enable the department to notify the administrator and affected states as required by subrule 22.107(7).

22.112(3) The department shall notify the administrator and affected states within five working days of receipt of a complete permit modification application. Notification shall be in accordance with the provisions of subrule 22.107(7). The department shall promptly send to the administrator any notification required by subrule 22.107(7).

22.112(4) The director shall not issue a final Title V permit modification until after the administrator's 45-day review period or until the administrator has notified the director that the administrator will not object to issuance of the Title V permit modification, whichever is first. Within 90 days of the director's receipt of an application under the minor permit modification procedures, or

15 days after the end of the administrator's 45-day review period provided for in subrule 22.107(7), whichever is later, the director shall:

a. Issue the permit modification as proposed;

b. Deny the permit modification application;

c. Determine that the requested permit modification does not meet the minor permit modification criteria and should be reviewed under the significant modification procedures; or

d. Revise the draft permit modification and transmit to the administrator the proposed permit modification, as required by subrule 22.107(7).

22.112(5) Source's ability to make change. The source may make the change proposed in its minor permit modification application immediately after it files the application. After the source makes the change allowed by the preceding sentence, and until the director takes any of the actions specified in paragraphs 22.112(4)*"a"* to *"c,"* the source must comply with both the applicable requirements governing the change and the proposed permit terms and conditions. During this time, the source need not comply with the existing permit terms and conditions it seeks to modify. However, if the source fails to comply with its proposed permit terms and conditions during this time period, the existing permit terms and conditions it seeks to modify may be enforced against it.

22.112(6) Permit shield. The permit shield under subrule 22.108(18) shall not extend to minor Title V permit revisions.

567—22.113(455B) Significant Title V permit modifications.

22.113(1) Significant Title V modification procedures shall be used for applications requesting Title V permit modifications that do not qualify as minor Title V modifications or as administrative amendments. These include, but are not limited to, all significant changes in monitoring permit terms, every relaxation of reporting or record-keeping permit terms, and any change in the method of measuring compliance with existing requirements.

22.113(2) Significant Title V permit modifications shall meet all requirements of this chapter, including those for applications, public participation, review by affected states, and review by the administrator, as those requirements that apply to Title V permit issuance and renewal.

22.113(3) Unless the director determines otherwise, review of significant Title V permit modification applications shall be completed within nine months of receipt of a complete application.

22.113(4) For a change that is subject to the requirements for a significant permit modification (see rule 567—22.113(455B)), the permittee shall submit to the department an application for a significant permit modification not later than three months after commencing operation of the changed source unless the existing Title V permit would prohibit such construction or change in operation, in which event the operation of the changed source may not commence until the department revises the permit.

567—22.114(455B) Title V permit reopenings.

22.114(1) Each issued Title V permit shall include provisions specifying the conditions under which the permit may be reopened and revised prior to the expiration of the permit. A permit shall be reopened and revised under any of the following circumstances:

a. The department receives notice that the administrator has granted a petition for disapproval of a permit pursuant to 40 CFR 70.8(d) as amended to July 21, 1992, provided that the reopening may be stayed pending judicial review of that determination;

b. The department or the administrator determines that the Title V permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the Title V permit;

c. Additional applicable requirements under the Act become applicable to a Title V source, provided that the reopening on this ground is not required if the permit has a remaining term of less than three years, the effective date of the requirement is later than the date on which the permit is due to expire, or the additional applicable requirements are implemented in a general permit that is applicable to the source and the source receives approval for coverage under that general permit. Such a reopening shall be complete not later than 18 months after promulgation of the applicable requirement.

d. Additional requirements, including excess emissions requirements, become applicable to a Title IV affected source under the acid rain program. Upon approval by the administrator, excess emissions offset plans shall be deemed to be incorporated into the permit.

e. The department or the administrator determines that the permit must be revised or revoked to ensure compliance by the source with the applicable requirements.

22.114(2) Proceedings to reopen and reissue a Title V permit shall follow the procedures applicable to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists.

22.114(3) A notice of intent shall be provided to the Title V source at least 30 days in advance of the date the permit is to be reopened, except that the director may provide a shorter time period in the case of an emergency.

22.114(4) Within 90 days of receipt of a notice from the administrator that cause exists to reopen a permit, the director shall forward to the administrator and the source a proposed determination of termination, modification, revocation, or reissuance of the permit, as appropriate.

567—22.115(455B) Suspension, termination, and revocation of Title V permits.

22.115(1) Permits may be terminated, modified, revoked, or reissued for cause. The following examples shall be considered cause for the suspension, modification, revocation, or reissuance of a Title V permit:

a. The director has reasonable cause to believe that the permit was obtained by fraud or misrepresentation.

b. The person applying for the permit failed to disclose a material fact required by the permit application form or the rules applicable to the permit, of which the applicant had or should have had knowledge at the time the application was submitted.

c. The terms and conditions of the permit have been or are being violated.

d. The permittee has failed to pay the Title V permit fees.

e. The permittee has failed to pay an administrative, civil or criminal penalty imposed for violations of the permit.

22.115(2) If the director suspends, terminates or revokes a Title V permit under this rule, the notice of such action shall be served on the applicant or permittee by certified mail, return receipt requested. The notice shall include a statement detailing the grounds for the action sought, and the proceeding shall in all other respects comply with the requirements of rule 561—7.16(17A,455A).

567—22.116(455B) Title V permit renewals.

22.116(1) An application for Title V permit renewal shall be subject to the same procedural requirements that apply to initial permit issuance, including those for public participation and review by the administrator and affected states.

22.116(2) Except as provided in rule 567—22.104(455B), permit expiration terminates a source's right to operate unless a timely and complete application for renewal has been submitted in accordance with rule 567—22.105(455B).

567—22.117 to **22.119** Reserved.

567—22.120(455B) Acid rain program—definitions. The terms used in rules 567—22.120(455B) through 567—22.147(455B) shall have the meanings set forth in Title IV of the Clean Air Act, 42 U.S.C. 7401, et seq., as amended through November 15, 1990, and in this rule. The definitions set forth in 40 CFR Part 72 as amended through March 28, 2011, and 40 CFR Part 76 as amended through October 15, 1999, are adopted by reference.

"40 CFR Part 72," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 72, or the cited provision therein, as amended through March 28, 2011.

"40 CFR Part 73," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 73, or the cited provision therein, as amended through April 28, 2006.

"40 CFR Part 74," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 74, or the cited provision therein, as amended through April 28, 2006.

"40 CFR Part 75," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 75, or the cited provision therein, as amended through August 30, 2016.

"40 CFR Part 76," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 76, or the cited provision therein, as amended through October 15, 1999.

"40 CFR Part 77," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 77, or the cited provision therein, as amended through May 12, 2005.

"40 CFR Part 78," or any cited provision therein, shall mean 40 Code of Federal Regulations Part 78, or the cited provision therein, as amended through August 8, 2011.

"Acid rain permit" means the legally binding written document, or portion of such document, issued by the department (following an opportunity for appeal as set forth in 561—Chapter 7, as adopted by reference at 567—Chapter 7), including any permit revisions, specifying the acid rain program requirements applicable to an affected source, to each affected unit at an affected source, and to the owner and operators and the designated representative of the affected source or the affected unit.

"Department" means the department of natural resources and is the state acid rain permitting authority.

"Draft acid rain permit" means the version of the acid rain permit, or the acid rain portion of a Title V operating permit, that the department offers for public comment.

"Electronic format," "electronic submittal," and *"electronic submittal format"* mean a software, Internet-based, or other electronic means specified by the department for submitting information or fees to the department related to, but not limited to, applications, certifications, determination requests, emissions inventories, forms, notifications, payments, permit applications and registrations. References to these information submittal methods in rules 567—22.120(455B) through 567—22.146(455B) may, as specified by the department, include electronic submittal.

"Permit revision" means a permit modification, fast-track modification, administrative permit amendment, or automatic permit amendment, as provided in rules 567—22.140(455B) through 567—22.144(455B).

"Proposed acid rain permit" means the version of the acid rain permit that the department submits to the Administrator after the public comment period, but prior to completion of the EPA permit review under 40 CFR 70.8(c) as amended through July 21, 1992.

"Title V operating permit" means a permit issued under rules 567—22.100(455B) through 567—22.116(455B) implementing Title V of the Act.

"Ton" or *"tonnage"* means any short ton (i.e., 2,000 pounds). For purposes of determining compliance with the acid rain emissions limitations and reduction requirements, total tons for a year shall be calculated as the sum of all recorded hourly emissions (or the tonnage equivalent of the recorded hourly emissions) in accordance with rule 567—25.2(455B), with any remaining fraction of a ton equal to or greater than 0.50 ton deemed to equal one ton and any fraction of a ton less than 0.50 ton deemed not equal to a ton.

[**ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—22.121(455B) Measurements, abbreviations, and acronyms. Measurements, abbreviations, and acronyms used in rules 567—22.120(455B) to 567—22.147(455B) are defined as follows:

"ASTM" means American Society for Testing and Materials.

"Btu" means British thermal unit.

"CFR" means Code of Federal Regulations.

"DOE" means Department of Energy.

"EPA" means Environmental Protection Agency.

"mmBtu" means million Btu.

"MWe" means megawatt electrical.

"SO_2" means sulfur dioxide.

567—22.122(455B) Applicability.

22.122(1) Each of the following units shall be an affected unit, and any source that includes such a unit shall be an affected source, subject to the requirements of the acid rain program:

a. A unit listed in Table 1 of 40 CFR 73.10(a).

b. An existing unit that is identified in Table 2 or 3 of 40 CFR 73.10, and any other existing utility unit, except a unit under subrule 22.122(2).

c. A utility unit, except a unit under subrule 22.122(2), that:

(1) Is a new unit;

(2) Did not serve a generator with a nameplate capacity greater than 25 MWe on November 15, 1990, but serves such a generator after November 15, 1990;

(3) Was a simple combustion turbine on November 15, 1990, but adds or uses auxiliary firing after November 15, 1990;

(4) Was an exempt cogeneration facility under paragraph 22.122(2)*"d"* but during any three-calendar-year period after November 15, 1990, sold, to a utility power distribution system, an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hrs electric output, on a gross basis;

(5) Was an exempt qualifying facility under paragraph 22.122(2)*"e"* but, at any time after the later of November 15, 1990, or the date the facility commences commercial operation, fails to meet the definition of qualifying facility;

(6) Was an exempt independent power production facility under paragraph 22.122(2)*"f"* but, at any time after the later of November 15, 1990, or the date the facility commences commercial operation, fails to meet the definition of independent power production facility; or

(7) Was an exempt solid waste incinerator under paragraph 22.122(2)*"g"* but during any three-calendar-year period after November 15, 1990, consumes 20 percent or more (on a Btu basis) fossil fuel.

(8) Is a coal-fired substitution unit that is designated in a substitution plan that was not approved and not active as of January 1, 1995, or is a coal-fired compensating unit.

22.122(2) The following types of units are not affected units subject to the requirements of the acid rain program:

a. A simple combustion turbine that commenced operation before November 15, 1990.

b. Any unit that commenced commercial operation before November 15, 1990, and that did not, as of November 15, 1990, and does not currently, serve a generator with a nameplate capacity of greater than 25 MWe.

c. Any unit that, during 1985, did not serve a generator that produced electricity for sale and that did not, as of November 15, 1990, and does not currently, serve a generator that produces electricity for sale.

d. A cogeneration facility which:

(1) For a unit that commenced construction on or prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 MWe-hrs actual electric output on an annual basis to any utility power distribution system for sale (on a gross basis). If the purpose of construction is not known, it will be presumed to be consistent with the actual operation from 1985 through 1987. However, if in any three-calendar-year period after November 15, 1990, such unit sells to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hrs actual electric output (on a gross basis), that unit shall be an affected unit, subject to the requirements of the acid rain program; or

(2) For units that commenced construction after November 15, 1990, supplies equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 MWe-hrs actual electric output on an annual basis to any utility power distribution system for sale (on a gross basis). However, if in any three-calendar-year period after November 15, 1990, such unit sells to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than

219,000 MWe-hrs actual electric output (on a gross basis), that unit shall be an affected unit, subject to the requirements of the acid rain program.

e. A qualifying facility that:

(1) Has, as of November 15, 1990, one or more qualifying power purchase commitments to sell at least 15 percent of its total planned net output capacity; and

(2) Consists of one or more units designated by the owner or operator with total installed net output capacity not exceeding 130 percent of the total planned net output capacity. If the emissions rates of the units are not the same, the administrator may exercise discretion to designate which units are exempt.

f. An independent power production facility that:

(1) Has, as of November 15, 1990, one or more qualifying power purchase commitments to sell at least 15 percent of its total planned net output capacity; and

(2) Consists of one or more units designated by the owner or operator with total installed net output capacity not exceeding 130 percent of its total planned net output capacity. If the emissions rates of the units are not the same, the administrator may exercise discretion to designate which units are exempt.

g. A solid waste incinerator, if more than 80 percent (on a Btu basis) of the annual fuel consumed at such incinerator is other than fossil fuels. For a solid waste incinerator which began operation before January 1, 1985, the average annual fuel consumption of nonfossil fuels for calendar years 1985 through 1987 must be greater than 80 percent for such an incinerator to be exempt. For a solid waste incinerator which began operation after January 1, 1985, the average annual fuel consumption of nonfossil fuels for the first three years of operation must be greater than 80 percent for such an incinerator to be exempt. If, during any three-calendar-year period after November 15, 1990, such incinerator consumes 20 percent or more (on a Btu basis) fossil fuel, such incinerator will be an affected source under the acid rain program.

h. A nonutility unit.

22.122(3) A certifying official of any unit may petition the administrator for a determination of applicability under 40 CFR 72.6(c). The administrator's determination of applicability shall be binding upon the department, unless the petition is found to have contained significant errors or omissions.

567—22.123(455B) Acid rain exemptions.

22.123(1) *New unit exemption.* The new unit exemption, as specified in 40 CFR §72.7, except for 40 CFR §72.7(c)(1)(i), is adopted by reference. This exemption applies to new utility units.

22.123(2) *Retired unit exemption.* The retired unit exemption, as specified in 40 CFR §72.8, is adopted by reference. This exemption applies to any affected unit that is permanently retired.

22.123(3) *Industrial utility-unit exemption.* The industrial utility-unit exemption, as specified in 40 CFR §72.14, is adopted by reference. This exemption applies to any noncogeneration utility unit.

567—22.124(455B) Retired units exemption. Rescinded IAB 9/9/98, effective 10/14/98.

567—22.125(455B) Standard requirements.

22.125(1) *Permit requirements.*

a. The designated representative of each affected source and each affected unit at the source shall:

(1) Submit a complete acid rain permit application under this chapter in accordance with the deadlines specified in rule 567—22.128(455B);

(2) Submit in a timely manner any supplemental information that the department determines is necessary in order to review an acid rain permit application and issue or deny an acid rain permit.

b. The owners and operators of each affected source and each affected unit at the source shall:

(1) Operate the unit in compliance with a complete acid rain permit application or a superseding acid rain permit issued by the department; and

(2) Have an acid rain permit.

22.125(2) *Monitoring requirements.*

a. The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as

provided in rule 567—25.2(455B) and Section 407 of the Act and regulations implementing Section 407 of the Act.

b. The emissions measurements recorded and reported in accordance with rule 567—25.2(455B) and Section 407 of the Act and regulations implementing Section 407 of the Act shall be used to determine compliance by the unit with the acid rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the acid rain program.

c. The requirements of rule 567—25.2(455B) and regulations implementing Section 407 of the Act shall not affect the responsibility of the owners and operators to monitor emissions of other pollutants or other emissions characteristics at the unit under other applicable requirements of the Act and other provisions of the operating permit for the source.

22.125(3) *Sulfur dioxide requirements.*

a. The owners and operators of each source and each affected unit at the source shall:

(1) Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit; and

(2) Comply with the applicable acid rain emissions limitation for sulfur dioxide.

b. Each ton of sulfur dioxide emitted in excess of the acid rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act.

c. An affected unit shall be subject to the requirements under paragraph 22.125(3)*"a"* as follows: starting January 1, 2000, an affected unit under paragraph 22.122(1)*"b"*; or starting on the later of January 1, 2000, or the deadline for monitor certification under rule 567—25.2(455B), an affected unit under paragraph 22.122(1)*"c."*

d. Allowances shall be held in, deducted from, or transferred among allowance tracking system accounts in accordance with the acid rain program.

e. An allowance shall not be deducted, in order to comply with the requirements under paragraph 22.125(3)*"a,"* prior to the calendar year for which the allowance was allocated.

f. An allowance allocated by the administrator under the acid rain program is a limited authorization to emit sulfur dioxide in accordance with the acid rain program. No provision of the acid rain program, the acid rain permit application, the acid rain permit, or the written exemption under rules 567—22.123(455B) and 567—22.124(455B) and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization.

g. An allowance allocated by the administrator under the acid rain program does not constitute a property right.

22.125(4) *Nitrogen oxides requirements.* The owners and operators of the source and each affected unit at the source shall comply with the applicable acid rain emission limitation for nitrogen oxides, as specified in 40 CFR Sections 76.5 and 76.7; 76.6; and 76.8, 76.11, 76.12, and 76.15; or by alternative emission limitations provided for by 40 CFR 76.10, as long as the alternative emission limitation has been petitioned and demonstrated according to 40 CFR 76.14 and approved by the department.

22.125(5) *Excess emissions requirements.*

a. The designated representative of an affected unit that has excess emissions in any calendar year shall submit a proposed offset plan to the administrator, as required under 40 CFR Part 77, and submit a copy to the department.

b. The owners and operators of an affected unit that has excess emissions in any calendar year shall:

(1) Pay to the administrator without demand the penalty required, and pay to the administrator upon demand the interest on that penalty, as required by 40 CFR Part 77; and

(2) Comply with the terms of an approved offset plan, as required by 40 CFR Part 77.

22.125(6) *Record-keeping and reporting requirements.*

a. Unless otherwise provided, the owners and operators of the source and each affected unit at the source shall keep on site at the source each of the following documents for a period of five years from the date the document is created. This period may be extended for cause, at any time prior to the end of five years, in writing by the administrator or the department.

(1) The certificate of representation for the designated representative for the source and each affected unit at the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site at the source beyond such five-year period until such documents are superseded because of the submission of a new certificate of representation changing the designated representative.

(2) All emissions monitoring information, in accordance with rule 567—25.2(455B).

(3) Copies of all reports, compliance certifications, and other submissions and all records made or required under the acid rain program.

(4) Copies of all documents used to complete an acid rain permit application and any other submission under the acid rain program or to demonstrate compliance with the requirements of the acid rain program.

b. The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the acid rain program, including those under rules 567—22.146(455B) and 567—22.147(455B) and rule 567—25.2(455B).

22.125(7) *Liability.*

a. Any person who knowingly violates any requirement or prohibition of the acid rain program, a complete acid rain permit application, an acid rain permit, or a written exemption under rules 567—22.123(455B) or 567—22.124(455B), including any requirement for the payment of any penalty owed to the United States, shall be subject to enforcement by the administrator pursuant to Section 113(c) of the Act and by the department pursuant to Iowa Code section 455B.146.

b. Any person who knowingly makes a false, material statement in any record, submission, or report under the acid rain program shall be subject to criminal enforcement by the administrator pursuant to Section 113(c) of the Act and 18 U.S.C. 1001 and by the department pursuant to Iowa Code section 455B.146.

c. No permit revision shall excuse any violation of the requirements of the acid rain program that occurs prior to the date that the revision takes effect.

d. Each affected source and each affected unit shall meet the requirements of the acid rain program.

e. Any provision of the acid rain program that applies to an affected source (including a provision applicable to the designated representative of an affected source) shall also apply to the owners and operators of such source and of the affected units at the source.

f. Any provision of the acid rain program that applies to an affected unit (including a provision applicable to the designated representative of an affected unit) shall also apply to the owners and operators of such unit. Except as provided under rule 567—22.132(455B) (Phase II repowering extension plans), Section 407 of the Act and regulations implementing Section 407 of the Act, and except with regard to the requirements applicable to units with a common stack under rule 567—25.2(455B), the owners and operators and the designated representative of one affected unit shall not be liable for any violation by any other affected unit of which they are not owners or operators or the designated representative and that is located at a source of which they are not owners or operators or the designated representative.

g. Each violation of a provision of rules 567—22.120(455B) to 567—22.146(455B) and 40 CFR Parts 72, 73, 75, 76, 77, and 78 and regulations implementing Sections 407 and 410 of the Act by an affected source or affected unit, or by an owner or operator or designated representative of such source or unit, shall be a separate violation of the Act.

22.125(8) *Effect on other authorities.* No provision of the acid rain program, an acid rain permit application, an acid rain permit, or a written exemption under rule 567—22.123(455B) or 567—22.124(455B) shall be construed as:

a. Except as expressly provided in Title IV of the Act, exempting or excluding the owners and operators and, to the extent applicable, the designated representative of an affected source or affected unit from compliance with any other provision of the Act, including the provisions of Title I of the Act relating to applicable National Ambient Air Quality Standards or State Implementation Plans;

b. Limiting the number of allowances a unit can hold; provided that the number of allowances held by the unit shall not affect the source's obligation to comply with any other provisions of the Act;

c. Requiring a change of any kind in any state law regulating electric utility rates and charges, affecting any state law regarding such state rule, or limiting such state rule, including any prudence review requirements under such state law;

d. Modifying the Federal Power Act or affecting the authority of the Federal Energy Regulatory Commission under the Federal Power Act; or

e. Interfering with or impairing any program for competitive bidding for power supply in a state in which such program is established.

567—22.126(455B) Designated representative—submissions.

22.126(1) The designated representative shall submit a certificate of representation, and any superseding certificate of representation, to the administrator in accordance with Subpart B of 40 CFR Part 72, and, concurrently, shall submit a copy to the department. Whenever the term "designated representative" is used in this rule, the term shall be construed to include the alternate designated representative.

22.126(2) Each submission under the acid rain program shall be submitted, signed, and certified by the designated representative for all sources on behalf of which the submission is made.

22.126(3) In each submission under the acid rain program, the designated representative shall certify by signature:

a. The following statement, which shall be included verbatim in such submission: "I am authorized to make this submission on behalf of the owners and operators of the affected source or affected units for which the submission is made."

b. The following statement, which shall be included verbatim in such submission: "I certify under penalty of law that I have personally examined, and am familiar with, the statements and information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false statements and information or omitting required statements and information, including the possibility of fine or imprisonment."

22.126(4) The department will accept or act on a submission made on behalf of owners or operators of an affected source and an affected unit only if the submission has been made, signed, and certified in accordance with subrules 22.126(2) and 22.126(3).

22.126(5) The designated representative of a source shall serve notice on each owner and operator of the source and of an affected unit at the source:

a. By the date of submission, of any acid rain program submissions by the designated representative;

b. Within ten business days of receipt of a determination, of any written determination by the administrator or the department; and

c. Provided that the submission or determination covers the source or the unit.

22.126(6) The designated representative of a source shall provide each owner and operator of an affected unit at the source a copy of any submission or determination under subrule 22.126(5), unless the owner or operator expressly waives the right to receive such a copy.

567—22.127(455B) Designated representative—objections.

22.127(1) Except as provided in 40 CFR 72.23, no objection or other communication submitted to the administrator or the department concerning the authorization, or any submission, action or inaction, of the designated representative shall affect any submission, action, or inaction of the designated representative, or the finality of any decision by the department, under the acid rain program. In the event of such communication, the department is not required to stay any submission or the effect of any action or inaction under the acid rain program.

22.127(2) The department will not adjudicate any private legal dispute concerning the authorization or any submission, action, or inaction of any designated representative, including private legal disputes concerning the proceeds of allowance transfers.

567—22.128(455B) Acid rain applications—requirement to apply.

22.128(1) *Duty to apply.* The designated representative of any source with an affected unit shall submit a complete acid rain permit application by the applicable deadline in subrules 22.128(2) and 22.128(3), and the owners and operators of such source and any affected unit at the source shall not operate the source or unit without a permit that states its acid rain program requirements.

22.128(2) *Deadlines.*

a. For any source with an existing unit described under paragraph 22.122(1)*"b,"* the designated representative shall submit a complete acid rain permit application governing such unit to the department on or before January 1, 1996.

b. For any source with a new unit described under subparagraph 22.122(1)*"c"*(1), the designated representative shall submit a complete acid rain permit application governing such unit to the department at least 24 months before the later of January 1, 2000, or the date on which the unit commences operation.

c. For any source with a unit described under subparagraph 22.122(1)*"c"*(2), the designated representative shall submit a complete acid rain permit application governing such unit to the department at least 24 months before the later of January 1, 2000, or the date on which the unit begins to serve a generator with a nameplate capacity greater than 25 MWe.

d. For any source with a unit described under subparagraph 22.122(1)*"c"*(3), the designated representative shall submit a complete acid rain permit application governing such unit to the department at least 24 months before the later of January 1, 2000, or the date on which the auxiliary firing commences operation.

e. For any source with a unit described under subparagraph 22.122(1)*"c"*(4), the designated representative shall submit a complete acid rain permit application governing such unit to the department before the later of January 1, 1998, or March 1 of the year following the three-calendar-year period in which the unit sold to a utility power distribution system an annual average of more than one-third of its potential electrical output capacity and more than 219,000 MWe-hrs actual electric output (on a gross basis).

f. For any source with a unit described under subparagraph 22.122(1)*"c"*(5), the designated representative shall submit a complete acid rain permit application governing such unit to the department before the later of January 1, 1998, or March 1 of the year following the calendar year in which the facility fails to meet the definition of qualifying facility.

g. For any source with a unit described under subparagraph 22.122(1)*"c"*(6), the designated representative shall submit a complete acid rain permit application governing such unit to the department before the later of January 1, 1998, or March 1 of the year following the calendar year in which the facility fails to meet the definition of an independent power production facility.

h. For any source with a unit described under subparagraph 22.122(1)*"c"*(7), the designated representative shall submit a complete acid rain permit application governing such unit to the department before the later of January 1, 1998, or March 1 of the year following the three-calendar-year period in which the incinerator consumed 20 percent or more fossil fuel (on a Btu basis).

i. For a Phase II unit with a Group 1 or a Group 2 boiler, the designated representative shall submit a complete permit application and compliance plan for NO_x emissions to the department no later than January 1, 1998.

22.128(3) *Duty to reapply.* The designated representative shall submit a complete acid rain permit application for each source with an affected unit at least six months prior to the expiration of an existing acid rain permit governing the unit.

22.128(4) *Submission of copies.* One copy of all permit applications shall be presented or mailed to the air quality bureau of the department of natural resources. Alternatively, the designated representative may, as specified by the department, submit the application through electronic submittal.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 4335C**, IAB 3/13/19, effective 4/17/19; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—22.129(455B) Information requirements for acid rain permit applications. A complete acid rain permit application shall be submitted on a form approved by the department, which includes the following elements:

22.129(1) Identification of the affected source for which the permit application is submitted;

22.129(2) Identification of each affected unit at the source for which the permit application is submitted;

22.129(3) A complete compliance plan for each unit, in accordance with rules 567—22.131(455B) and 567—22.132(455B);

22.129(4) The standard requirements under rule 567—22.125(455B); and

22.129(5) If the unit is a new unit, the date that the unit has commenced or will commence operation and the deadline for monitor certification.

567—22.130(455B) Acid rain permit application shield and binding effect of permit application.

22.130(1) Once a designated representative submits a timely and complete acid rain permit application, the owners and operators of the affected source and the affected units covered by the permit application shall be deemed in compliance with the requirement to have an acid rain permit under paragraph 22.125(1)*"b"* and subrule 22.128(1); provided that any delay in issuing an acid rain permit is not caused by the failure of the designated representative to submit in a complete and timely fashion supplemental information, as required by the department, necessary to issue a permit.

22.130(2) Prior to the date on which an acid rain permit is issued as a final agency action subject to judicial review, an affected unit governed by and operated in accordance with the terms and requirements of a timely and complete acid rain permit application shall be deemed to be operating in compliance with the acid rain program.

22.130(3) A complete acid rain permit application shall be binding on the owners and operators and the designated representative of the affected source and the affected units covered by the permit application and shall be enforceable as an acid rain permit from the date of submission of the permit application until the issuance or denial of such permit as a final agency action subject to judicial review.

567—22.131(455B) Acid rain compliance plan and compliance options—general.

22.131(1) For each affected unit included in an acid rain permit application, a complete compliance plan shall include:

a. For sulfur dioxide emissions, a certification that, as of the allowance transfer deadline, the designated representative will hold allowances in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide from the unit. The compliance plan may also specify, in accordance with rule 567—22.131(455B), one or more of the acid rain compliance options.

b. For nitrogen oxides emissions, a certification that the unit will comply with the applicable limitation established by subrule 22.125(4) or shall specify one or more acid rain compliance options, in accordance with Section 407 of the Act, and 40 CFR Section 76.9.

22.131(2) The compliance plan may include a multiunit compliance option under rule 567—22.132(455B) or Section 407 of the Act or regulations implementing Section 407.

a. A plan for a compliance option that includes units at more than one affected source shall be complete only if:

(1) Such plan is signed and certified by the designated representative for each source with an affected unit governed by such plan; and

(2) A complete permit application is submitted covering each unit governed by such plan.

b. The department's approval of a plan under paragraph 22.131(2)*"a"* that includes units in more than one state shall be final only after every permitting authority with jurisdiction over any such unit has approved the plan with the same modifications or conditions, if any.

22.131(3) Conditional approval. In the compliance plan, the designated representative of an affected unit may propose, in accordance with rules 567—22.131(455B) and 567—22.132(455B), any acid rain compliance option for conditional approval; provided that an acid rain compliance option under Section

407 of the Act may be conditionally proposed only to the extent provided in regulations implementing Section 407 of the Act.

a. To activate a conditionally approved acid rain compliance option, the designated representative shall notify the department in writing that the conditionally approved compliance option will actually be pursued beginning January 1 of a specified year. If the conditionally approved compliance option includes a plan described in paragraph 22.131(2)*"a,"* the designated representative of each source governed by the plan shall sign and certify the notification. Such notification shall be subject to the limitations on activation under rule 567—22.132(455B) and regulations implementing Section 407 of the Act.

b. The notification under paragraph 22.131(3)*"a"* shall specify the first calendar year and the last calendar year for which the conditionally approved acid rain compliance option is to be activated. A conditionally approved compliance option shall be activated, if at all, before the date of any enforceable milestone applicable to the compliance option. The date of activation of the compliance option shall not be a defense against failure to meet the requirements applicable to that compliance option during each calendar year for which the compliance option is activated.

c. Upon submission of a notification meeting the requirements of paragraphs 22.131(3)*"a"* and *"b,"* the conditionally approved acid rain compliance option becomes binding on the owners and operators and the designated representative of any unit governed by the conditionally approved compliance option.

d. A notification meeting the requirements of paragraphs 22.131(3)*"a"* and *"b"* will revise the unit's permit in accordance with rule 567—22.143(455B) (administrative permit amendment).

22.131(4) Termination of compliance option.

a. The designated representative for a unit may terminate an acid rain compliance option by notifying the department in writing that an approved compliance option will be terminated beginning January 1 of a specified year. Such notification shall be subject to the limitations on termination under rule 567—22.132(455B) and regulations implementing Section 407 of the Act. If the compliance option includes a plan described in paragraph 22.131(2)*"a,"* the designated representative for each source governed by the plan shall sign and certify the notification.

b. The notification under paragraph 22.131(4)*"a"* shall specify the calendar year for which the termination will take effect.

c. Upon submission of a notification meeting the requirements of paragraphs 22.131(4)*"a"* and *"b,"* the termination becomes binding on the owners and operators and the designated representative of any unit governed by the acid rain compliance option to be terminated.

d. A notification meeting the requirements of paragraphs 22.131(4)*"a"* and *"b"* will revise the unit's permit in accordance with rule 567—22.143(455B) (administrative permit amendment).

567—22.132(455B) Repowering extensions. Rescinded IAB 4/8/98, effective 5/13/98.

567—22.133(455B) Acid rain permit contents—general.

22.133(1) Each acid rain permit (including any draft acid rain permit) will contain the following elements:

a. All elements required for a complete acid rain permit application under rule 567—22.129(455B), as approved or adjusted by the department;

b. The applicable acid rain emissions limitation for sulfur dioxide; and

c. The applicable acid rain emissions limitation for nitrogen oxides.

22.133(2) Each acid rain permit is deemed to incorporate the definitions of terms under rule 567—22.120(455B).

567—22.134(455B) Acid rain permit shield. Each affected unit operated in accordance with the acid rain permit that governs the unit and that was issued in compliance with Title IV of the Act, as provided in rules 567—22.120(455B) to 567—22.146(455B), rule 567—25.2(455B), or 40 CFR Parts 72, 73, 75,

76, 77, and 78, and the regulations implementing Section 407 of the Act, shall be deemed to be operating in compliance with the acid rain program, except as provided in paragraph 22.125(7)*"f."*

567—22.135(455B) Acid rain permit issuance procedures—general. The department will issue or deny all acid rain permits in accordance with rules 567—22.100(455B) to 567—22.116(455B), including the completeness determination, draft permit, administrative record, statement of basis, public notice and comment period, public hearing, proposed permit, permit issuance, permit revision, and appeal procedures as amended by rules 567—22.135(455B) to 567—22.145(455B).

567—22.136(455B) Acid rain permit issuance procedures—completeness. The department will submit a written notice of application completeness to the administrator within ten working days following a determination by the department that the acid rain permit application is complete.

567—22.137(455B) Acid rain permit issuance procedures—statement of basis.

22.137(1) The statement of basis will briefly set forth significant factual, legal, and policy considerations on which the department relied in issuing or denying the draft acid rain permit.

22.137(2) The statement of basis will include the reasons, and supporting authority, for approval or disapproval of any compliance options requested in the permit application, including references to applicable statutory or regulatory provisions and to the administrative record.

22.137(3) The department will submit to the administrator a copy of the draft acid rain permit and the statement of basis and all other relevant portions of the Title V operating permit that may affect the draft acid rain permit.

567—22.138(455B) Issuance of acid rain permits.

22.138(1) Proposed permit. After the close of the public comment and EPA 45-day review period (pursuant to subrules 22.107(6) and 22.107(7)), the department will address any objections by the administrator, incorporate all necessary changes and issue or deny the acid rain permit.

22.138(2) The department will submit the proposed acid rain permit or denial of a proposed acid rain permit to the administrator in accordance with rules 567—22.100(455B) to 567—22.116(455B), the provisions of which shall be treated as applying to the issuance or denial of a proposed acid rain permit.

22.138(3) Following the administrator's review of the proposed acid rain permit or denial of a proposed acid rain permit, the department, or under 40 CFR 70.8(c) as amended to July 21, 1992, the administrator, will incorporate any required changes and issue or deny the acid rain permit in accordance with rules 567—22.133(455B) and 567—22.134(455B).

22.138(4) No acid rain permit including a draft or proposed permit shall be issued unless the administrator has received a certificate of representation for the designated representative of the source in accordance with Subpart B of 40 CFR Part 72.

22.138(5) Permit issuance deadline and effective date.

a. On or before December 31, 1997, the department will issue an acid rain permit to each affected source whose designated representative submitted a timely and complete acid rain permit application by January 1, 1996, in accordance with rule 567—22.126(455B) and meets the requirements of rules 567—22.135(455B) to 567—22.139(455B) and rules 567—22.100(455B) to 567—22.116(455B).

b. Nitrogen oxides. Not later than January 1, 1999, the department will reopen the acid rain permit to add the acid rain program nitrogen oxides requirements; provided that the designated representative of the affected source submitted a timely and complete acid rain permit application for nitrogen oxides in accordance with rule 567—22.126(455B). Such reopening shall not affect the term of the acid rain portion of a Title V operating permit.

c. Each acid rain permit issued in accordance with paragraph 22.138(5)*"a"* shall take effect by the later of January 1, 2000, or, where the permit governs a unit under paragraph 22.122(1)*"c,"* the deadline for monitor certification under rule 567—25.2(455B).

d. Each acid rain permit shall have a term of five years commencing on its effective date.

e. An acid rain permit shall be binding on any new owner or operator or designated representative of any source or unit governed by the permit.

22.138(6) Each acid rain permit shall contain all applicable acid rain requirements, shall be a portion of the Title V operating permit that is complete and segregable from all other air quality requirements, and shall not incorporate information contained in any other documents, other than documents that are readily available.

22.138(7) Invalidation of the acid rain portion of a Title V operating permit shall not affect the continuing validity of the rest of the Title V operating permit, nor shall invalidation of any other portion of the Title V operating permit affect the continuing validity of the acid rain portion of the permit.

567—22.139(455B) Acid rain permit appeal procedures.

22.139(1) Appeals of the acid rain portion of a Title V operating permit issued by the department that do not challenge or involve decisions or actions of the administrator under 40 CFR Parts 72, 73, 75, 76, 77, and 78 and Sections 407 and 410 of the Act and regulations implementing Sections 407 and 410 shall be conducted according to the procedures in Iowa Code chapter 17A and 561—Chapter 7, as adopted by reference at 567—Chapter 7. Appeals of the acid rain portion of such a permit that challenge or involve such decisions or actions of the administrator shall follow the procedures under 40 CFR Part 78 and Section 307 of the Act. Such decisions or actions include, but are not limited to, allowance allocations, determinations concerning alternative monitoring systems, and determinations of whether a technology is a qualifying repowering technology.

22.139(2) No administrative appeal or judicial appeal of the acid rain portion of a Title V operating permit shall be allowed more than 30 days following respective issuance of the acid rain portion of the permit that is subject to administrative appeal or issuance of the final agency action subject to judicial appeal.

22.139(3) The administrator may intervene as a matter of right in any state administrative appeal of an acid rain permit or denial of an acid rain permit.

22.139(4) No administrative appeal concerning an acid rain requirement shall result in a stay of the following requirements:

a. The allowance allocations for any year during which the appeal proceeding is pending or is being conducted;

b. Any standard requirement under rule 567—22.125(455B);

c. The emissions monitoring and reporting requirements applicable to the affected units at an affected source under rule 567—25.2(455B);

d. Uncontested provisions of the decision on appeal; and

e. The terms of a certificate of representation submitted by a designated representative under Subpart B of 40 CFR Part 72.

22.139(5) The department will serve written notice on the administrator of any state administrative or judicial appeal concerning an acid rain provision of any Title V operating permit or denial of an acid rain portion of any Title V operating permit within 30 days of the filing of the appeal.

22.139(6) The department will serve written notice on the administrator of any determination or order in a state administrative or judicial proceeding that interprets, modifies, voids, or otherwise relates to any portion of an acid rain permit. Following any such determination or order, the administrator will have an opportunity to review and veto the acid rain permit or revoke the permit for cause in accordance with subrules 22.107(7) and 22.107(8).

567—22.140(455B) Permit revisions—general.

22.140(1) Rules 567—22.140(455B) to 567—22.145(455B) shall govern revisions to any acid rain permit issued by the department.

22.140(2) A permit revision may be submitted for approval at any time. No permit revision shall affect the term of the acid rain permit to be revised. No permit revision shall excuse any violation of an acid rain program requirement that occurred prior to the effective date of the revision.

22.140(3) The terms of the acid rain permit shall apply while the permit revision is pending.

22.140(4) Any determination or interpretation by the state (including the department or a state court) modifying or voiding any acid rain permit provision shall be subject to review by the administrator in accordance with 40 CFR 70.8(c) as amended to July 21, 1992, as applied to permit modifications, unless the determination or interpretation is an administrative amendment approved in accordance with rule 567—22.143(455B).

22.140(5) The standard requirements of rule 567—22.125(455B) shall not be modified or voided by a permit revision.

22.140(6) Any permit revision involving incorporation of a compliance option that was not submitted for approval and comment during the permit issuance process, or involving a change in a compliance option that was previously submitted, shall meet the requirements for applying for such compliance option under rule 567—22.132(455B) and Section 407 of the Act and regulations implementing Section 407 of the Act.

22.140(7) For permit revisions not described in rules 567—22.141(455B) and 567—22.142(455B), the department may, in its discretion, determine which of these rules is applicable.

567—22.141(455B) Permit modifications.

22.141(1) Permit modifications shall follow the permit issuance requirements of rules 567—22.135(455B) to 567—22.139(455B) and subrules 22.113(2) and 22.113(3).

22.141(2) For purposes of applying subrule 22.141(1), a permit modification shall be treated as an acid rain permit application, to the extent consistent with rules 567—22.140(455B) to 567—22.145(455B).

22.141(3) The following permit revisions are permit modifications:

a. Relaxation of an excess emission offset requirement after approval of the offset plan by the administrator;

b. Incorporation of a final nitrogen oxides alternative emissions limitation following a demonstration period;

c. Determinations concerning failed repowering projects under subrule 22.132(6); and

d. At the option of the designated representative submitting the permit revision, the permit revisions listed in subrule 22.142(2).

567—22.142(455B) Fast-track modifications.

22.142(1) Fast-track modifications shall follow the following procedures:

a. The designated representative shall serve a copy of the fast-track modification on the administrator, the department, and any person entitled to a written notice under subrules 22.107(6) and 22.107(7). Within five business days of serving such copies, the designated representative shall also give public notice by publication in a newspaper of general circulation in the area where the source is located or in a state publication designed to give general public notice.

b. The public shall have a period of 30 days, commencing on the date of publication of the notice, to comment on the fast-track modification. Comments shall be submitted in writing to the air quality bureau of the department and to the designated representative.

c. The designated representative shall submit the fast-track modification to the department on or before commencement of the public comment period.

d. Within 30 days of the close of the public comment period, the department will consider the fast-track modification and the comments received and approve, in whole or in part or with changes or conditions as appropriate, or disapprove the modification. A fast-track modification shall be effective immediately upon issuance, in accordance with subrule 22.113(2) as applied to significant modifications.

22.142(2) The following permit revisions are, at the option of the designated representative submitting the permit revision, either fast-track modifications under this rule or permit modifications under rule 567—22.141(455B):

a. Incorporation of a compliance option that the designated representative did not submit for approval and comment during the permit issuance process;

b. Addition of a nitrogen oxides averaging plan to a permit; and

c. Changes in a repowering plan, nitrogen oxides averaging plan, or nitrogen oxides compliance deadline extension.

567—22.143(455B) Administrative permit amendment.

22.143(1) Administrative amendments shall follow the procedures set forth at rule 567—22.111(455B). The department will submit the revised portion of the permit to the administrator within ten working days after the date of final action on the request for an administrative amendment.

22.143(2) The following permit revisions are administrative amendments:

a. Activation of a compliance option conditionally approved by the department; provided that all requirements for activation under subrule 22.131(3) and rule 567—22.132(455B) are met;

b. Changes in the designated representative or alternative designated representative; provided that a new certificate of representation is submitted to the administrator in accordance with Subpart B of 40 CFR Part 72;

c. Correction of typographical errors;

d. Changes in names, addresses, or telephone or facsimile numbers;

e. Changes in the owners or operators; provided that a new certificate of representation is submitted within 30 days to the administrator and the department in accordance with Subpart B of 40 CFR Part 72;

f. Termination of a compliance option in the permit; provided that all requirements for termination under subrule 22.131(4) shall be met and this procedure shall not be used to terminate a repowering plan after December 31, 1999;

g. Changes in the date, specified in a new unit's acid rain permit, of commencement of operation or the deadline for monitor certification; provided that they are in accordance with rule 567—22.125(455B);

h. The addition of or change in a nitrogen oxides alternative emissions limitation demonstration period; provided that the requirements of regulations implementing Section 407 of the Act are met; and

i. Incorporation of changes that the administrator has determined to be similar to those in paragraphs *"a"* through *"h"* of this subrule.

567—22.144(455B) Automatic permit amendment. The following permit revisions shall be deemed to amend automatically, and become a part of the affected unit's acid rain permit by operation of law without any further review:

22.144(1) Upon recordation by the administrator under 40 CFR Part 73, all allowance allocations to, transfers to, and deductions from an affected unit's allowance tracking system account; and

22.144(2) Incorporation of an offset plan that has been approved by the administrator under 40 CFR Part 77.

567—22.145(455B) Permit reopenings.

22.145(1) As provided in rule 567—22.114(455B), the department will reopen an acid rain permit for cause, including whenever additional requirements become applicable to any affected unit governed by the permit.

22.145(2) In reopening an acid rain permit for cause, the department will issue a draft permit changing the provisions, or adding the requirements, for which the reopening was necessary. The draft permit shall be subject to the requirements of rules 567—22.135(455B) to 567—22.139(455B).

22.145(3) Any reopening of an acid rain permit shall not affect the term of the permit.

567—22.146(455B) Compliance certification—annual report.

22.146(1) Applicability and deadline. For each calendar year in which a unit is subject to the acid rain emissions limitations, the designated representative of the source at which the unit is located shall submit to the administrator and the department, within 60 days after the end of the calendar year, an annual compliance certification report for the unit in compliance with 40 CFR 72.90.

22.146(2) The submission of complete compliance certifications in accordance with subrule 22.146(1) and rule 567—25.2(455B) shall be deemed to satisfy the requirement to submit compliance

certifications under paragraph 22.108(15)*"e"* with regard to the acid rain portion of the source's Title V operating permit.

567—22.147(455B) Compliance certification—units with repowering extension plans. Rescinded IAB 4/8/98, effective 5/13/98.

567—22.148(455B) Sulfur dioxide opt-ins. The department adopts by reference the provisions of 40 CFR Part 74, Acid Rain Opt-Ins.

567—22.149 to **22.199** Reserved.

567—22.200(455B) Definitions for voluntary operating permits. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.201(455B) Eligibility for voluntary operating permits. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.202(455B) Requirement to have a Title V permit. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.203(455B) Voluntary operating permit applications. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.204(455B) Voluntary operating permit fees. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.205(455B) Voluntary operating permit processing procedures. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.206(455B) Permit content. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.207(455B) Relation to construction permits. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.208(455B) Suspension, termination, and revocation of voluntary operating permits. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.209(455B) Change of ownership for facilities with voluntary operating permits. Rescinded **ARC 1913C**, IAB 3/18/15, effective 4/22/15.

567—22.210 to **22.299** Reserved.

567—22.300(455B) Operating permit by rule for small sources. Except as provided in subrule 22.300(11), any source which otherwise would be required to obtain a Title V operating permit may instead register for an operation permit by rule for small sources. Sources which comply with the requirements contained in this rule will be deemed to have an operating permit by rule for small sources. Sources which comply with this rule will be considered to have federally enforceable limits so that their potential emissions are less than the major source thresholds for regulated air pollutants and hazardous air pollutants as defined in rule 567—22.100(455B).

22.300(1) *Definitions for operating permit by rule for small sources.* For the purposes of rule 567—22.300(455B), the definitions shall be the same as the definitions found at rule 567—22.100(455B).

22.300(2) *Registration for operating permit by rule for small sources.*

a. Except as provided in subrules 22.300(3) and 22.300(11), any person who owns or operates a stationary source and meets the following criteria may register for an operating permit by rule for small sources:

(1) The potential to emit air contaminants is equal to or in excess of the threshold for a major stationary source of regulated air pollutants or hazardous air pollutants, and

(2) For every 12-month rolling period, the actual emissions of the stationary source are less than or equal to the emission limitations specified in subrule 22.300(6).

b. Eligibility for an operating permit by rule for small sources does not eliminate the source's responsibility to meet any and all applicable federal requirements including, but not limited to, a maximum achievable control technology (MACT) standard.

c. Nothing in this rule shall prevent any stationary source which has had a Title V operating permit from qualifying to comply with this rule in the future in lieu of maintaining an application for a Title V operating permit or upon rescission of a Title V operating permit if the owner or operator demonstrates that the stationary source is in compliance with the emissions limitations in subrule 22.300(6).

d. The department reserves the right to require proof that the expected emissions from the stationary source, in conjunction with all other emissions, will not prevent the attainment or maintenance of the ambient air quality standards specified in 567—Chapter 28.

22.300(3) *Exceptions to eligibility.*

a. Any affected source subject to the provisions of Title IV of the Act or any solid waste incinerator unit required to obtain a Title V operating permit under Section 129(e) of the Act is not eligible for an operating permit by rule for small sources.

b. Sources which meet the registration criteria established in 22.300(2)*"a"* and meet all applicable requirements of rule 567—22.300(455B), and are subject to a standard or other requirement under 567—subrule 23.1(2) (standards of performance for new stationary sources) or Section 111 of the Act are eligible for an operating permit by rule for small sources. These sources shall be required to obtain a Title V operating permit when the exemptions specified in subrule 22.102(1) or 22.102(2) no longer apply.

c. Sources which meet the registration criteria established in 22.300(2)*"a"* and meet all applicable requirements of rule 567—22.300(455B), and are subject to a standard or other requirement under 567—subrule 23.1(3) (emissions standards for hazardous air pollutants), 567—subrule 23.1(4) (emissions standards for hazardous air pollutants for source categories) or Section 112 of the Act are eligible for an operating permit by rule for small sources. These sources shall be required to obtain a Title V operating permit when the exemptions specified in subrule 22.102(1) or 22.102(2) no longer apply.

22.300(4) *Stationary source with de minimus emissions.* Stationary sources with de minimus emissions must submit the standard registration form and must meet and fulfill all registration and reporting requirements as found in 22.300(8). Only the record-keeping and reporting provisions listed in 22.300(4)*"b"* shall apply to a stationary source with de minimus emissions or operations as specified in 22.300(4)*"a"*:

a. *De minimus emission and usage limits.* For the purpose of this rule a stationary source with de minimus emissions means:

(1) In every 12-month rolling period, the stationary source emits less than or equal to the following quantities of emissions:

1. 5 tons per year of a regulated air pollutant (excluding HAPs), and
2. 2 tons per year of a single HAP, and
3. 5 tons per year of any combination of HAPs.

(2) In every 12-month rolling period, at least 90 percent of the stationary source's emissions are associated with an operation for which the throughput is less than or equal to one of the quantities specified in paragraphs "1" to "9" below:

1. 1,400 gallons of any combination of solvent-containing materials but no more than 550 gallons of any one solvent-containing material, provided that the materials do not contain the following:

methyl chloroform (1,1,1-trichloroethane), methylene chloride (dichloromethane), tetrachloroethylene (perchloroethylene), or trichloroethylene;

2. 750 gallons of any combination of solvent-containing materials where the materials contain the following: methyl chloroform (1,1,1-trichloroethane), methylene chloride (dichloromethane), tetrachloroethylene (per- chloroethylene), or trichloroethylene, but not more than 300 gallons of any one solvent-containing material;

3. 365 gallons of solvent-containing material used at a paint spray unit(s);

4. 4,400,000 gallons of gasoline dispensed from equipment with Phase I and II vapor recovery systems;

5. 470,000 gallons of gasoline dispensed from equipment without Phase I and II vapor recovery systems;

6. 1,400 gallons of gasoline combusted;

7. 16,600 gallons of diesel fuel combusted;

8. 500,000 gallons of distillate oil combusted; or

9. 71,400,000 cubic feet of natural gas combusted.

b. Record keeping for de minimis sources. Upon registration with the department the owner or operator of a stationary source eligible to register for an operating permit by rule for small sources shall comply with all applicable record-keeping requirements of this rule. The record-keeping requirements of this rule shall not replace any record-keeping requirement contained in a construction permit or in a local, state, or federal rule or regulation.

(1) De minimis sources shall always maintain an annual log of each raw material used and its amount. The annual log and all related material safety data sheets (MSDS) for all materials shall be maintained for a period of not less than the most current five years. The annual log will begin on the date the small source operating permit application is submitted, then on an annual basis, based on a calendar year.

(2) Within 30 days of a written request by the state or the U.S. EPA, the owner or operator of a stationary source not maintaining records pursuant to subrule 22.300(7) shall demonstrate that the stationary source's emissions or throughput is not in excess of the applicable quantities set forth in paragraph *"a"* above.

22.300(5) *Provision for air pollution control equipment.* The owner or operator of a stationary source may take into account the operation of air pollution control equipment on the capacity of the source to emit an air contaminant if the equipment is required by federal, state, or local air pollution control agency rules and regulations or permit terms and conditions that are federally enforceable. The owner or operator of the stationary source shall maintain and operate such air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

22.300(6) *Emission limitations.*

a. No stationary source subject to this rule shall emit in every 12-month rolling period more than the following quantities of emissions:

(1) 50 percent of the major source thresholds for regulated air pollutants (excluding hazardous air pollutants), and

(2) 5 tons per year of a single hazardous air pollutant, and

(3) 12.5 tons per year of any combination of hazardous air pollutants.

b. The owner or operator of a stationary source subject to this rule shall obtain any necessary permits prior to commencing any physical or operational change or activity which will result in actual emissions that exceed the limits specified in paragraph *"a"* of this subrule.

22.300(7) *Record-keeping requirements for non-de minimis sources.* Upon registration with the department the owner or operator of a stationary source eligible to register for an operating permit by rule for small stationary sources shall comply with all applicable record-keeping requirements in this rule. The record-keeping requirements of this rule shall not replace any record-keeping requirement contained in any operating permit, a construction permit, or in a local, state, or federal rule or regulation.

a. A stationary source previously covered by the provisions in 22.300(4) shall comply with the applicable provisions of subrule 22.300(7) (record-keeping requirements) and subrule 22.300(8)

(reporting requirements) if the stationary source exceeds the quantities specified in paragraph 22.300(4)*"a."*

b. The owner or operator of a stationary source subject to this rule shall keep and maintain records, as specified in 22.300(7)*"c"* below, for each permitted emission unit and each piece of emission control equipment sufficient to determine actual emissions. Such information shall be maintained on site for five years, and be made available to local, state, or U.S. EPA staff upon request.

c. Record-keeping requirements for emission units and emission control equipment. Record-keeping requirements for emission units are specified below in 22.300(7)*"c"*(1) through 22.300(7)*"c"*(4). Record-keeping requirements for emission control equipment are specified in 22.300(7)*"c"*(5).

(1) Coating/solvent emission unit. The owner or operator of a stationary source subject to this rule that contains a coating/solvent emission unit not permitted under 22.8(1) (permit by rule for spray booths) or uses a coating, solvent, ink or adhesive shall keep and maintain the following records:

1. A current list of all coatings, solvents, inks and adhesives in use. This list shall include: material safety data sheets (MSDS), manufacturer's product specifications, and material VOC content reports for each solvent (including solvents used in cleanup and surface preparation), coating, ink, and adhesive used showing at least the product manufacturer, product name and code, VOC and hazardous air pollutant content;

2. A description of any equipment used during and after coating/solvent application, including type, make and model; maximum design process rate or throughput; and control device(s) type and description (if any);

3. A monthly log of the consumption of each solvent (including solvents used in cleanup and surface preparation), coating, ink, and adhesive used; and

4. All purchase orders, invoices, and other documents to support information in the monthly log.

(2) Organic liquid storage unit. The owner or operator of a stationary source subject to this rule that contains an organic liquid storage unit shall keep and maintain the following records:

1. A monthly log identifying the liquid stored and monthly throughput; and

2. Information on the tank design and specifications including control equipment.

(3) Combustion emission unit. The owner or operator of a stationary source subject to this rule that contains a combustion emission unit shall keep and maintain the following records:

1. Information on equipment type, make and model, maximum design process rate or maximum power input/output, minimum operating temperature (for thermal oxidizers) and capacity and all source test information; and

2. A monthly log of fuel type, fuel usage, fuel heating value (for nonfossil fuels; in terms of Btu/lb or Btu/gal), and percent sulfur for fuel oil and coal.

(4) General emission unit. The owner or operator of a stationary source subject to this rule that contains an emission unit not included in subparagraph (1), (2), or (3) above shall keep and maintain the following records:

1. Information on the process and equipment including the following: equipment type, description, make and model; and maximum design process rate or throughput;

2. A monthly log of operating hours and each raw material used and its amount; and

3. Purchase orders, invoices, or other documents to support information in the monthly log.

(5) Emission control equipment. The owner or operator of a stationary source subject to this rule that contains emission control equipment shall keep and maintain the following records:

1. Information on equipment type and description, make and model, and emission units served by the control equipment;

2. Information on equipment design including, where applicable: pollutant(s) controlled; control effectiveness; and maximum design or rated capacity; other design data as appropriate including any available source test information and manufacturer's design/repair/maintenance manual; and

3. A monthly log of hours of operation including notation of any control equipment breakdowns, upsets, repairs, maintenance and any other deviations from design parameters.

22.300(8) *Registration and reporting requirements.*

a. Duty to apply. Any person who owns or operates a source otherwise required to obtain a Title V operating permit and which would be eligible for an operating permit by rule for small sources must either register for an operating permit by rule for small sources or apply for a Title V operating permit. Any source determined not to be eligible for an operating permit by rule for small sources, and operating without a valid Title V operating permit, shall be subject to enforcement action for operation without a Title V operating permit, except as provided for in the application shield provisions contained in rule 567—22.104(455B). For each source registering for an operating permit by rule for small sources, the owner or operator or designated representative, where applicable, shall present or mail to the Air Quality Bureau, Iowa Department of Natural Resources, 502 East 9th Street, Des Moines, Iowa 50319, one original and one copy of a timely and complete registration form in accordance with this rule.

(1) Timely registration. Each source registering for an operating permit by rule for small sources shall submit a registration form:

1. By August 1, 1996, if the source became subject to rule 567—22.101(455B) on or before August 1, 1995, unless otherwise required to obtain a Title V permit under rule 567—22.101(455B).

2. Within 12 months of becoming subject to rule 567—22.101(455B) (the requirement to obtain a Title V operating permit) for a new source or a source which would otherwise become subject to the Title V permit requirement after August 1, 1995.

(2) Complete registration form. To be deemed complete the registration form must provide all information required pursuant to 22.300(8)*"b."*

(3) Duty to supplement or correct registration. Any registrant who fails to submit any relevant facts or who has submitted incorrect information in an operating permit by rule for small sources registration shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, the registrant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete registration.

(4) Certification of truth, accuracy, and completeness. Any registration form, report, or supplemental information submitted pursuant to these rules shall contain certification by a responsible official of truth, accuracy, and completeness. This certification and any other certification required under these rules shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

b. At the time of registration for an operating permit by rule for small sources each owner or operator of a stationary source shall submit to the department a standard registration form and required attachments. To register for an operating permit by rule for small sources, applicants shall complete the registration form and supply all information required by the filing instructions. The information submitted must be sufficient to evaluate the source, its registration, predicted actual emissions from the source; and to determine whether the source is subject to the exceptions listed in subrule 22.300(3). The standard registration form and attachments shall require that the following information be provided:

(1) Identifying information, including company name and address (or plant or source name if different from the company name), owner's name and responsible official, and telephone number and names of plant site manager or contact;

(2) A description of source processes and products;

(3) The following emissions-related information shall be submitted to the department on the standard registration form:

1. The total actual emissions of each regulated air pollutant. Actual emissions shall be reported for one contiguous 12-month period within the 18 months preceding submission of the registration to the department;

2. Identification and description of each emission unit with the potential to emit a regulated air pollutant;

3. Identification and description of air pollution control equipment;

4. Limitations on source operations affecting emissions or any work practice standards, where applicable, for all regulated pollutants;

5. Fugitive emissions sources shall be included in the registration form in the same manner as stack emissions if the source is one of the source categories defined as a stationary source category in rule 567—22.100(455B).

(4) Requirements for certification. Facilities which claim to meet the requirements set forth in this rule to qualify for an operating permit by rule for small sources must submit to the department, with a complete registration form, a written statement as follows:

"I certify that all equipment at the facility with a potential to emit any regulated pollutant is included in the registration form, and submitted to the department as required in 22.300(8)*"b."* I understand that the facility will be deemed to have been granted an operating permit by rule for small sources under the terms of rule 567—22.300(455B) only if all applicable requirements of rule 567—22.300(455B) are met and if the registration is not denied by the director under rule 567—22.300(11). This certification is based on information and belief formed after reasonable inquiry; the statements and information in the document are true, accurate, and complete." The certification must be signed by one of the following individuals.

For corporations, a principal executive officer of at least the level of vice president, or a responsible official as defined at rule 567—22.100(455B).

For partnerships, a general partner.

For sole proprietorships, the proprietor.

For municipal, state, county, or other public facilities, the principal executive officer or the ranking elected official.

22.300(9) *Construction permits issued after registration for an operating permit by rule for small sources.* This rule shall not relieve any stationary source from complying with requirements pertaining to any otherwise applicable construction permit, or to replace a condition or term of any construction permit, or any provision of a construction permitting program. This does not preclude issuance of any construction permit with conditions or terms necessary to ensure compliance with this rule.

a. If the issuance of a construction permit acts to make the source no longer eligible for an operating permit by rule for small sources, the source shall, within 12 months of issuance of the construction permit, submit an application for a Title V operating permit.

b. If the issuance of a construction permit does not prevent the source from continuing to be eligible to operate under an operating permit by rule for small sources, the source shall, within 30 days of issuance of a construction permit, provide to the department the information as listed in 22.300(8)*"b"* for the new or modified source.

22.300(10) *Violations.*

a. Failure to comply with any of the applicable provisions of this rule shall constitute a violation of this rule.

b. A stationary source subject to this rule shall be subject to applicable federal requirements for a major source, including rules 567—22.101(455B) to 567—22.116(455B) when the conditions specified in either subparagraph (1) or (2) below, occur:

(1) Commencing on the first day following every 12-month rolling period in which the stationary source exceeds a limit specified in subrule 22.300(6), or

(2) Commencing on the first day following every 12-month rolling period in which the owner or operator cannot demonstrate that the stationary source is in compliance with the limits in subrule 22.300(6).

22.300(11) *Suspension, termination, and revocation of an operating permit by rule for small sources.*

a. Registrations may be terminated, modified, revoked, or reissued for cause. The following examples shall be considered cause for the suspension, modification, revocation, or reissuance of an operating permit by rule for small sources:

(1) The director has reasonable cause to believe that the operating permit by rule for small sources was obtained by fraud or misrepresentation.

(2) The person registering for the operating permit by rule for small sources failed to disclose a material fact required by the registration form or the rules applicable to the operating permit by rule for

small sources, of which the applicant had or should have had knowledge at the time the registration form was submitted.

(3) The terms and conditions of the operating permit by rule for small sources have been or are being violated.

(4) The owner or operator of the source has failed to pay an administrative, civil or criminal penalty for violations of the operating permit by rule for small sources.

b. If the director suspends, terminates or revokes an operating permit by rule for small sources under this rule, the notice of such action shall be served on the applicant by certified mail, return receipt requested. The notice shall include a statement detailing the grounds for the action sought, and the proceeding shall in all other respects comply with the requirements of rule 561—7.16(17A,455A).

22.300(12) *Change of ownership.* The new owner shall notify the department in writing no later than 30 days after the change of ownership of equipment covered by an operating permit by rule for small sources. The notification to the department shall be mailed to Air Quality Bureau, Iowa Department of Natural Resources, 502 East 9th Street, Des Moines, Iowa 50319, and shall include the following information:

a. The date of ownership change; and

b. The name, address and telephone number of the responsible official, the contact person and the owner of the equipment both before and after the change of ownership.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 1913C**, IAB 3/18/15, effective 4/22/15; **ARC 4335C**, IAB 3/13/19, effective 4/17/19]

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◊ Two or more ARCs

1 Effective date of 22.1(455B) [DEQ, 3.1] delayed by the Administrative Rules Review Committee 70 days from June 21, 1978. The Administrative Rules Review Committee at the August 15, 1978 meeting delayed 22.1 [DEQ, 3.1] under provisions of 67GA, SF244, §19. (See HJR 6, 1/22/79).

2 Effective date of 22.100(455B), definition of "12-month rolling period"; 22.200(455B); 22.201(1)*"a," "b,"*; 22.201(2)*"a"*; 22.206(2)*"c,"* delayed 70 days by the Administrative Rules Review Committee at its meeting held October 10, 1995; delay lifted by this Committee December 13, 1995, effective December 14, 1995.

3 Effective date of 22.300 delayed 70 days by the Administrative Rules Review Committee at its meeting held June 11, 1996; delay lifted by this Committee at its meeting held June 12, 1996, effective June 12, 1996.

4 Effective date of 22.1(2), unnumbered introductory paragraphs and paragraphs *"g"* and *"i,"* delayed 70 days by the Administrative Rules Review Committee at its meeting held March 9, 2001.

CHAPTER 23
EMISSION STANDARDS FOR CONTAMINANTS

[Prior to 7/1/83, DEQ Ch 4]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—23.1(455B) Emission standards.

23.1(1) *In general.* The federal standards of performance for new stationary sources (new source performance standards) shall be applicable as specified in subrule 23.1(2). The federal standards for hazardous air pollutants (national emission standards for hazardous air pollutants) shall be applicable as specified in subrule 23.1(3). The federal standards for hazardous air pollutants for source categories (national emission standards for hazardous air pollutants for source categories) shall be applicable as specified in subrule 23.1(4). The federal emission guidelines (emission guidelines) shall be applicable as specified in subrule 23.1(5). Compliance with emission standards specified elsewhere in this chapter shall be in accordance with 567—Chapter 21.

23.1(2) *New source performance standards.* The federal standards of performance for new stationary sources, as defined in 40 Code of Federal Regulations Part 60 as amended or corrected through November 14, 2018, are adopted by reference, except § 60.530 through § 60.539b (Part 60, Subpart AAA), and shall apply to the following affected facilities. The corresponding 40 CFR Part 60 subpart designation is in parentheses. An earlier date for adoption by reference may be included with the subpart designation in parentheses. Reference test methods (Appendix A), performance specifications (Appendix B), determination of emission rate change (Appendix C), quality assurance procedures (Appendix F) and the general provisions (Subpart A) of 40 CFR Part 60 also apply to the affected facilities.

a. *Fossil fuel-fired steam generators.* A fossil fuel-fired steam generating unit of more than 250 million Btu heat input for which construction, reconstruction, or modification is commenced after August 17, 1971. Any facility covered under paragraph *"z"* is not covered under this paragraph. (Subpart D as amended through January 20, 2011)

b. *Incinerators.* An incinerator of more than 50 tons per day charging rate. (Subpart E)

c. *Portland cement plants.* Any of the following in a Portland cement plant: kiln; clinker cooler; raw mill system; finish mill system; raw mill dryer; raw material storage; clinker storage; finished product storage; conveyor transfer points; bagging and bulk loading and unloading systems. (Subpart F)

d. *Nitric acid plants.* A nitric acid production unit. Unless otherwise exempted, these standards apply to any nitric acid production unit that commences construction or modification after August 17, 1971, and on or before October 14, 2011. (Subpart G)

e. *Sulfuric acid plants.* A sulfuric acid production unit. (Subpart H)

f. *Hot mix asphalt plants.* Each hot mix asphalt facility that commenced construction or modification after June 11, 1973. For the purpose of this paragraph, a hot mix asphalt facility is comprised only of any combination of the following: dryers; systems for screening, handling, storing, and weighing hot aggregate; systems for loading, transferring, and storing mineral filler; systems for mixing hot mix asphalt; and the loading, transfer, and storage systems associated with emission control systems. (Subpart I)

g. *Petroleum refineries.* Rescinded IAB 3/18/15, effective 4/22/15.

h. *Secondary lead smelters.* Rescinded IAB 3/18/15, effective 4/22/15.

i. *Secondary brass and bronze ingot production plants.* Any of the following at a secondary brass and bronze ingot production plant; reverberatory and electric furnaces of 1000/kilograms (2205 pounds) or greater production capacity and blast (cupola) furnaces of 250 kilograms per hour (550 pounds per hour) or greater production capacity. (Subpart M)

j. *Iron and steel plants.* A basic oxygen process furnace. (Subpart N)

k. *Sewage treatment plants.* An incinerator which burns the sludge produced by municipal sewage treatment plants. (Subpart O of 40 CFR 60 and Subpart E of 40 CFR 503.)

l. *Steel plants.* Either of the following at a steel plant: electric arc furnaces and dust-handling equipment, the construction, modification, or reconstruction of which commenced after October 21, 1974, and on or before August 17, 1983. (Subpart AA)

m. *Primary copper smelters.* Rescinded IAB 3/18/15, effective 4/22/15.

n. *Primary zinc smelters.* Rescinded IAB 3/18/15, effective 4/22/15.

o. *Primary lead smelter.* Rescinded IAB 3/18/15, effective 4/22/15.

p. *Primary aluminum reduction plants.* Rescinded IAB 3/18/15, effective 4/22/15.

q. *Wet process phosphoric acid plants in the phosphate fertilizer industry.* A wet process phosphoric acid plant, which includes any combination of the following: reactors, filters, evaporators and hotwells. (Subpart T)

r. *Superphosphoric acid plants in the phosphate fertilizer industry.* A superphosphoric acid plant which includes any combination of the following: evaporators, hotwells, acid sumps, and cooling tanks. (Subpart U)

s. *Diammonium phosphate plants in the phosphate fertilizer industry.* A granular diammonium phosphate plant which includes any combination of the following: reactors, granulators, dryers, coolers, screens and mills. (Subpart V)

t. *Triple super phosphate plants in the phosphate fertilizer industry.* A triple super phosphate plant which includes any combination of the following: mixers, curing belts (dens), reactors, granulators, dryers, cookers, screens, mills and facilities which store run-of-pile triple superphosphate. (Subpart W)

u. *Granular triple superphosphate storage facilities in the phosphate fertilizer industry.* A granular triple superphosphate storage facility which includes any combination of the following: storage or curing piles, conveyors, elevators, screens and mills. (Subpart X)

v. *Coal preparation plants.* Any of the following at a coal preparation plant which processes more than 200 tons per day: thermal dryers; pneumatic coal cleaning equipment (air tables); coal processing and conveying equipment (including breakers and crushers); coal storage systems; and coal transfer and loading systems. (Subpart Y)

w. *Ferroalloy production.* Any of the following: electric submerged arc furnaces which produce silicon metal, ferrosilicon, calcium silicon, silicomanganese zirconium, ferrochrome silicon, silvery iron, high-carbon ferrochrome, charge chrome, standard ferromanganese, silicomanganese, ferromanganese silicon, or calcium carbide; and dust-handling equipment. (Subpart Z)

x. *Kraft pulp mills.* Any of the following in a kraft pulp mill: digester system; brown stock washer system; multiple effect evaporator system; black liquor oxidation system; recovery furnace; smelt dissolving tank; lime kiln; and condensate stripper system. In pulp mills where kraft pulping is combined with neutral sulfite semichemical pulping, the provisions of the standard of performance are applicable when any portion of the material charged to an affected facility is produced by the kraft pulping operation. (Subpart BB)

y. *Lime manufacturing plants.* A rotary lime kiln or a lime hydrator used in the manufacture of lime at other than a kraft pulp mill. (Subpart HH)

z. *Electric utility steam generating units.* An electric utility steam generating unit that is capable of combusting more than 250 million Btus per hour (73 megawatts) heat input of fossil fuel for which construction or modification or reconstruction is commenced after September 18, 1978, or an electric utility combined cycle gas turbine that is capable of combusting more than 250 million Btus per hour (73 megawatts) heat input. "Electric utility steam generating unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW net-electrical output to any utility power distribution system for sale. Also, any steam supplied to a steam distribution system for the purpose of providing steam to a steam electric generator that would produce electrical energy for sale is considered in determining the electrical energy output capacity of the affected facility. (Subpart Da as amended through January 20, 2011)

aa. *Stationary gas turbines.* Any simple cycle gas turbine, regenerative cycle gas turbine or any gas turbine portion of a combined cycle steam/electric generating system that is not self-propelled. It may, however, be mounted on a vehicle for portability. (Subpart GG)

bb. Petroleum storage vessels. Unless exempted, any storage vessel for petroleum liquids for which the construction, reconstruction, or modification commenced after June 11, 1973, and prior to May 19, 1978, having a storage capacity greater than 151,412 liters (40,000 gallons). (Subpart K)

cc. Petroleum storage vessels. Unless exempted, any storage vessel for petroleum liquids for which the construction, reconstruction, or modification commenced after May 18, 1978, and prior to July 23, 1984, having a storage capacity greater than 151,416 liters (40,000 gallons). (Subpart Ka)

dd. Glass manufacturing plants. Any glass melting furnace. (Subpart CC)

ee. Automobile and light-duty truck surface coating operations at assembly plants. Any of the following in an automobile or light-duty truck assembly plant: prime coat operations, guide coat operations, and topcoat operations. (Subpart MM)

ff. Ammonium sulfate manufacture. Any of the following in the ammonium sulfate industry: ammonium sulfate dryers in the caprolactam by-product, synthetic, and coke oven by-product sectors of the industry. (Subpart PP)

gg. Surface coating of metal furniture. Any metal furniture surface coating operation in which organic coatings are applied. (Subpart EE)

hh. Lead-acid battery manufacturing plants. Any lead-acid battery manufacturing plant which uses any of the following: grid casting, paste mixing, three-process operation, lead oxide manufacturing, lead reclamation, other lead-emitting operations. (Subpart KK)

ii. Phosphate rock plants. Any phosphate rock plant which has a maximum plant production capacity greater than four tons per hour including the following: dryers, calciners, grinders, and ground rock handling and storage facilities, except those facilities producing or preparing phosphate rock solely for consumption in elemental phosphorus production. (Subpart NN)

jj. Graphic arts industry. Publication rotogravure printing. Any publication rotogravure printing press except proof presses. (Subpart QQ)

kk. Industrial surface coating — large appliances. Any surface coating operation in a large appliance surface coating line. (Subpart SS)

ll. Metal coil surface coating. Any of the following at a metal coil surface coating operation: prime coat operation, finish coat operation, and each prime and finish coat operation combined when the finish coat is applied wet-on-wet over the prime coat and both coatings are cured simultaneously. (Subpart TT)

mm. Asphalt processing and asphalt roofing manufacturing. Any saturator, mineral handling and storage facility at asphalt roofing plants; and any asphalt storage tank and any blowing still at asphalt processing plants, petroleum refineries, and asphalt roofing plants. (Subpart UU)

nn. Equipment leaks of volatile organic compounds (VOC) in the synthetic organic chemicals manufacturing industry. Standards for affected facilities in the synthetic organic chemicals manufacturing industry (SOCMI) that commenced construction, reconstruction, or modification after January 5, 1981, and on or before November 7, 2006, are set forth in Subpart VV. Standards for affected SOCMI facilities that commenced construction, reconstruction or modification after November 7, 2006, are set forth in Subpart VVa. The standards apply to pumps, compressors, pressure relief devices, sampling systems, open-ended valves or lines (OEL), valves, and flanges or other connectors which handle VOC. (Subpart VV and Subpart VVa)

oo. Beverage can surface coating. Any beverage can surface coating lines for two-piece steel or aluminum containers in which soft drinks or beer are sold. (Subpart WW)

pp. Bulk gasoline terminals. The total of all loading racks at bulk gasoline terminals which deliver liquid product into gasoline tank trucks. (Subpart XX)

qq. Pressure sensitive tape and label surface coating operations. Any coating line used in the tape manufacture of pressure sensitive tape and label materials. (Subpart RR)

rr. Metallic mineral processing plants. Any ore processing and handling equipment. (Subpart LL)

ss. Synthetic fiber production facilities. Any solvent-spun synthetic fiber process that produces more than 500 megagrams of fiber per year. (Subpart HHH)

tt. Equipment leaks of VOC in petroleum refineries. A compressor and all equipment (defined in 40 CFR, Part 60.591) within a process unit for which the construction, reconstruction, or modification commenced after January 4, 1983. (Subpart GGG)

uu. Flexible vinyl and urethane coating and printing. Each rotogravure printing line used to print or coat flexible vinyl or urethane products. (Subpart FFF)

vv. Petroleum dry cleaners. Petroleum dry-cleaning plant with a total manufacturer's rated dryer capacity equal to or greater than 38 kilograms (84 pounds): petroleum solvent dry-cleaning dryers, washers, filters, stills, and settling tanks. (Subpart JJJ)

ww. Electric arc furnaces and argon-oxygen decarburization vessels constructed after August 17, 1983. Steel plants that produce carbon, alloy, or specialty steels: electric arc furnaces, argon-oxygen decarburization vessels, and dust-handling systems. (Subpart AAa)

xx. Wool fiberglass insulation manufacturing plants. Rotary spin wool fiberglass manufacturing line. (Subpart PPP)

yy. Iron and steel plants. Secondary emissions from basic oxygen process steelmaking facilities for which construction, reconstruction, or modification commenced after January 20, 1983. (Subpart Na)

zz. Equipment leaks of VOC from on-shore natural gas processing plants. A compressor and all equipment defined in 40 CFR, Part 60.631, unless exempted, for which construction, reconstruction, or modification commenced after January 20, 1984. (Subpart KKK)

aaa. On-shore natural gas processing: SO2 emissions. Unless exempted, each sweetening unit and each sweetening unit followed by a sulfur recovery unit for which construction, reconstruction, or modification commenced after January 20, 1984. (Subpart LLL)

bbb. Nonmetallic mineral processing plants. Unless exempted, each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or rail car loading station in fixed or portable nonmetallic mineral processing plants for which construction, reconstruction, or modification commenced after August 31, 1983. (Subpart OOO)

ccc. Industrial-commercial-institutional steam generating units. Unless exempted, each steam generating unit for which construction, reconstruction, or modification commenced after June 19, 1984, and which has a heat input capacity of more than 100 million Btu/hour. (Subpart Db as amended through January 20, 2011)

ddd. Volatile organic liquid storage vessels. Unless exempted, volatile organic liquid storage vessels for which construction, reconstruction, or modification commenced after July 23, 1984. (Subpart Kb)

eee. Rubber tire manufacturing plants. Unless exempted, each undertread cementing operation, each sidewall cementing operation, each tread end cementing operation, each bead cementing operation, each green tire spraying operation, each Michelin-A operation, each Michelin-B operation, and each Michelin-C automatic operation that commences construction or modification after January 20, 1983. (Subpart BBB)

fff. Industrial surface coating: surface coating of plastic parts for business machines. Each spray booth in which plastic parts for use in the manufacture of business machines receive prime coats, color coats, texture coats, or touch-up coats for which construction, modification, or reconstruction begins after January 8, 1986. (Subpart TTT)

ggg. VOC emissions from petroleum refinery wastewater systems. Each individual drain system, each oil-water separator, and each aggregate facility for which construction, modification or reconstruction is commenced after May 4, 1987. (Subpart QQQ)

hhh. Magnetic tape coating facilities. Unless exempted, each coating operation and each piece of coating mix preparation equipment for which construction, modification, or reconstruction is commenced after January 22, 1986. (Subpart SSS)

iii. Polymeric coating of supporting substrates. Unless exempted, each coating operation and any on-site coating mix preparation equipment used to prepare coatings for the polymeric coating of supporting substrates for which construction, modification, or reconstruction begins after April 30, 1987. (Subpart VVV)

jjj. VOC emissions from synthetic organic chemical manufacturing industry air oxidation unit processes. Unless exempted, any air oxidation reactor, air oxidation reactor and recovery system or combination of two or more reactors and the common recovery system used in the production of any

of the chemicals listed in 40 CFR §60.617 for which construction, modification or reconstruction commenced after October 21, 1983. (Subpart III)

kkk. VOC emissions from synthetic organic chemical manufacturing industry distillation operations. Unless exempted, any distillation unit, distillation unit and recovery system or combination of two or more distillation units and the common recovery system used in the production of any of the chemicals listed in 40 CFR §60.667 for which construction, modification or reconstruction commenced after December 30, 1983. (Subpart NNN)

lll. Small industrial-commercial-institutional steam generating units. Each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989, and that has a maximum design heat input capacity of 100 million Btu per hour or less, but greater than or equal to 10 million Btu per hour. (Subpart Dc as amended through January 20, 2011)

mmm. VOC emissions from the polymer manufacturing industry. Each of the following process sections in the manufacture of polypropylene and polyethylene—raw materials preparation, polymerization reaction, material recovery, product finishing, and product storage; each material recovery section of polystyrene manufacturing using a continuous process; each polymerization reaction section of poly(ethylene terephthalate) manufacturing using a continuous process; each material recovery section of poly(ethylene terephthalate) manufacturing using a continuous process that uses dimethyl terephthalate; each raw material section of poly(ethylene terephthalate) manufacturing using a continuous process that uses terephthalic acid; and each group of fugitive emissions equipment within any process unit in the manufacturing of polypropylene, polyethylene, or polystyrene (including expandable polystyrene). The applicability date for construction, modification or reconstruction for polystyrene and poly(ethylene terephthalate) affected facilities and some polypropylene and polyethylene affected facilities is September 30, 1987. For the other polypropylene and polyethylene affected facilities the applicability date for these regulations is January 10, 1989. (Subpart DDD)

nnn. Municipal waste combustors. Unless exempted, a municipal waste combustor with a capacity greater than 225 megagrams per day of municipal solid waste for which construction is commenced after December 20, 1989, and on or before September 20, 1994, and modification or reconstruction is commenced after December 20, 1989, and on or before June 19, 1996. (Subpart Ea)

ooo. Grain elevators. A grain terminal elevator or any grain storage elevator except as provided under 40 CFR 60.304(b), August 31, 1993. A grain terminal elevator means any grain elevator which has a permanent storage capacity of more than 2.5 million U.S. bushels except those located at animal food manufacturers, pet food manufacturers, cereal manufacturers, breweries, and livestock feedlots. A grain storage elevator means any grain elevator located at any wheat flour mill, wet corn mill, dry corn mill (human consumption), rice mill, or soybean oil extraction plant which has a permanent grain storage capacity of 1 million bushels. Any construction, modification, or reconstruction after August 3, 1978, is subject to this paragraph. (Subpart DD)

ppp. Mineral processing plants. Each calciner and dryer at a mineral processing plant unless excluded for which construction, modification, or reconstruction is commenced after April 23, 1986. (Subpart UUU)

qqq. VOC emissions from synthetic organic chemical manufacturing industry reactor processes. Unless exempted, each affected facility that is part of a process unit that produces any of the chemicals listed in 40 CFR §60.707 as a product, coproduct, by-product, or intermediate for which construction, modification, or reconstruction commenced after June 29, 1990. Affected facility is each reactor process not discharging its vent stream into a recovery system, each combination of a reactor process and the recovery system into which its vent stream is discharged, or each combination of two or more reactor processes and the common recovery system into which their vent streams are discharged. (Subpart RRR)

rrr. Municipal solid waste landfills, as defined by 40 CFR 60.751. Each municipal solid waste landfill that commenced construction, reconstruction or modification or began accepting waste on or after May 30, 1991, must comply. (Subpart WWW as amended through April 10, 2000)

sss. Municipal waste combustors. Unless exempted, a municipal waste combustor with a combustion capacity greater than 250 tons per day of municipal solid waste for which construction,

modification or reconstruction is commenced after September 20, 1994, or for which modification or reconstruction is commenced after June 19, 1996. (Subpart Eb)

ttt. Hospital/medical/infectious waste incinerators. Unless exempted, a hospital/medical/infectious waste incinerator for which construction is commenced after June 20, 1996, or for which modification is commenced after March 16, 1998. (Subpart Ec)*

*As of November 24, 2010, the adoption by reference of Part 60 Subpart Ec is rescinded.

uuu. New small municipal waste combustion units. Unless exempted, this standard applies to a small municipal waste combustion unit that commenced construction after August 30, 1999, or small municipal waste combustion units that commenced reconstruction or modification after June 6, 2001. (Part 60, Subpart AAAA)

vvv. Commercial and industrial solid waste incineration. Unless exempted, this standard applies to units for which construction is commenced after November 30, 1999, or for which modification or reconstruction is commenced on or after June 1, 2001. (Part 60, Subpart CCCC, as amended through December 1, 2000)

www. Other solid waste incineration (OSWI) units. Unless exempted, this standard applies to other solid waste incineration (OSWI) units for which construction is commenced after December 9, 2004, or for which modification or reconstruction is commenced on or after June 16, 2006. (Part 60, Subpart EEEE)

xxx. Reserved.

yyy. Stationary compression ignition internal combustion engines. Unless otherwise exempted, these standards apply to each stationary compression ignition internal combustion engine whose construction, modification or reconstruction commenced after July 11, 2005. (Part 60, Subpart IIII)

zzz. Stationary spark ignition internal combustion engines. These standards apply to each stationary spark ignition internal combustion engine whose construction, modification or reconstruction commenced after June 12, 2006. (Part 60, Subpart JJJJ)

aaaa. Stationary combustion turbines. Unless otherwise exempted, these standards apply to stationary combustion turbines with a heat input at peak load equal to or greater than 10 MMBtu per hour, based on the higher heating value of the fuel, that commence construction, modification, or reconstruction after February 18, 2005. (Part 60, Subpart KKKK)

bbbb. Nitric acid plants. Unless otherwise exempted, these standards apply to any nitric acid production unit that commenced construction, reconstruction or modification after October 14, 2011. (Subpart Ga)

cccc. Sewage sludge incineration units. Each sewage sludge incineration (SSI) unit for which construction or reconstruction commenced after October 14, 2010, or for which modification commenced after September 21, 2011, must comply. (Subpart LLLL)

23.1(3) *Emission standards for hazardous air pollutants.* The federal standards for emissions of hazardous air pollutants, 40 Code of Federal Regulations Part 61 as amended or corrected through August 30, 2016, and 40 CFR Part 503 as adopted on August 4, 1999, are adopted by reference, except 40 CFR §61.20 to §61.26, §61.90 to §61.97, §61.100 to §61.108, §61.120 to §61.127, §61.190 to §61.193, §61.200 to §61.205, §61.220 to §61.225, and §61.250 to §61.256, and shall apply to the following affected pollutants and facilities and activities listed below. The corresponding 40 CFR Part 61 subpart designation is in parentheses. Reference test methods (Appendix B), compliance status information requirements (Appendix A), quality assurance procedures (Appendix C) and the general provisions (Subpart A) of Part 61 also apply to the affected activities or facilities.

a. Asbestos. Any of the following involves asbestos emissions: asbestos mills, surfacing of roadways, manufacturing operations, fabricating, insulating, waste disposal, spraying applications and demolition and renovation operations. (Subpart M). Any person subject to notification requirements under this rule shall submit fees as required in 567—Chapter 30.

b. Beryllium. Rescinded IAB 3/18/15, effective 4/22/15.

c. Beryllium rocket motor firing. Rescinded IAB 3/18/15, effective 4/22/15.

d. Mercury. Any of the following involving mercury emissions: mercury ore processing facilities, mercury cell chlor-alkali plants, sludge incineration plants, sludge drying plants, and a combination of sludge incineration plants and sludge drying plants. (Subpart E)

e. Vinyl chloride. Ethylene dichloride purification and the oxychlorination reactor in ethylene dichloride plants. Vinyl chloride formation and purification in vinyl chloride plants. Any of the following involving polyvinyl chloride plants: reactor; stripper; mixing, weighing, and holding containers; monomer recovery system; sources following the stripper(s). Any of the following involving ethylene dichloride, vinyl chloride, and polyvinyl chloride plants: relief valve discharge; fugitive emission sources. (Subpart F)

f. Equipment leaks of benzene (fugitive emission sources). Any pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems which handle benzene. (Subpart J)

g. Equipment leaks of volatile hazardous air pollutants (fugitive emission sources). Any pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems which handle volatile hazardous air pollutants. (Subpart V)

h. Inorganic arsenic emissions from arsenic trioxide and metallic arsenic production facilities. Rescinded IAB 3/18/15, effective 4/22/15.

i. Inorganic arsenic emissions from glass manufacturing plants. Each glass melting furnace (except pot furnaces) that uses commercial arsenic as a raw material. (Subpart N)

j. Inorganic arsenic emissions from primary copper smelters. Rescinded IAB 3/18/15, effective 4/22/15.

k. Benzene emissions from coke by-product recovery plants. Each of the following sources at furnace and foundry coke by-product recovery plants: tar decanters, tar storage tanks, tar-intercepting sumps, flushing-liquor circulation tanks, light-oil sumps, light-oil condensers, light-oil decanters, wash-oil decanters, wash-oil circulation tanks, naphthalene processing, final coolers, final-cooler cooling towers, and the following equipment that is intended to operate in benzene service: pumps, valves, exhausters, pressure relief devices, sampling connection systems, open-ended valves or lines, flanges or other connectors, and control devices or systems required by 40 CFR §61.135.

The provisions of this subpart also apply to benzene storage tanks, BTX storage tanks, light-oil storage tanks, and excess ammonia-liquor storage tanks at furnace coke by-product recovery plants. (Subpart L)

l. Benzene emissions from benzene storage vessels. Unless exempted, each storage vessel that is storing benzene having a specific gravity within the range of specific gravities specified in ASTM D 836-84 for Industrial Grade Benzene, ASTM D 835-85 for Refined Benzene-485, ASTM D 2359-85a for Refined Benzene-535, and ASTM D 4734-87 for Refined Benzene-545. These specifications are incorporated by reference as specified in 40 CFR §61.18. (Subpart Y)

m. Benzene emissions from benzene transfer operations. Unless exempted, the total of all loading racks at which benzene is loaded into tank trucks, rail cars, or marine vessels at each benzene production facility and each bulk terminal. (Subpart BB)

n. Benzene waste operations. Unless exempted, the provisions of this subrule apply to owners and operators of chemical manufacturing plants, coke by-product recovery plants, petroleum refineries, and facilities at which waste management units are used to treat, store, or dispose of waste generated by any of these listed facilities. (Subpart FF)

23.1(4) *Emission standards for hazardous air pollutants for source categories.* The federal standards for emissions of hazardous air pollutants for source categories, 40 Code of Federal Regulations Part 63 as amended or corrected through March 15, 2019, are adopted by reference, except those provisions which cannot be delegated to the states. The corresponding 40 CFR Part 63 subpart designation is in parentheses. An earlier date for adoption by reference may be included with the subpart designation in parentheses. 40 CFR Part 63, Subpart B, incorporates the requirements of Clean Air Act Sections 112(g) and 112(j) and does not adopt standards for a specific affected facility. Test

methods (Appendix A), sources defined for early reduction provisions (Appendix B), and determination of the fraction biodegraded (F_{bio}) in the biological treatment unit (Appendix C) of Part 63 also apply to the affected activities or facilities. For the purposes of this subrule, "hazardous air pollutant" has the same meaning found in rule 567—22.100(455B). For the purposes of this subrule, a "major source" means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants, unless a lesser quantity is established, or in the case of radionuclides, where different criteria are employed. For the purposes of this subrule, an "area source" means any stationary source of hazardous air pollutants that is not a "major source" as defined in this subrule. Paragraph 23.1(4)*"a,"* general provisions (Subpart A) of Part 63, shall apply to owners or operators who are subject to subsequent subparts of 40 CFR Part 63 (except when otherwise specified in a particular subpart or in a relevant standard) as adopted by reference below.

a. General provisions. General provisions apply to owners or operators of affected activities or facilities except when otherwise specified in a particular subpart or in a relevant standard. (Subpart A)

b. Requirements for control technology determinations for major sources in accordance with Clean Air Act Sections 112(g) and 112(j). (40 CFR Part 63, Subpart B)

(1) Section 112(g) requirements. For the purposes of this subparagraph, the definitions shall be the same as the definitions found in 40 CFR 63.2 and 40 CFR 63.41 as amended through December 27, 1996. The owner or operator of a new or reconstructed major source of hazardous air pollutants must apply maximum achievable control technology (MACT) for new sources to the new or reconstructed major source. If the major source in question has been specifically regulated or exempted from regulation under a standard issued pursuant to Section 112(d), Section 112(h), or Section 112(j) of the Clean Air Act and incorporated in another subpart of 40 CFR Part 63, excluded in 40 CFR 63.40(e) and (f), or the owner or operator of such major source has received all necessary air quality permits for such construction or reconstruction project before June 29, 1998, then the major source in question is not subject to the requirements of this subparagraph. The owner or operator of an affected source shall apply for a construction permit as required in 567—paragraph 22.1(1)*"b."* The construction permit application shall contain an application for a case-by-case MACT determination for the major source.

(2) Section 112(j) requirements. The owner or operator of a new or existing major source of hazardous air pollutants which includes one or more stationary sources included in a source category or subcategory for which the U.S. Environmental Protection Agency has failed to promulgate an emission standard within 18 months of the deadline established under CAA 112(d) must submit a MACT application (Parts 1 and 2) in accordance with the provisions of 40 CFR 63.52, as amended through April 5, 2002, by the CAA Section 112(j) deadline. In addition, the owner or operator of a new emission unit may submit an application for a Notice of MACT Approval before construction, as defined in 40 CFR 63.41, in accordance with the provisions of 567—paragraph 22.1(3)*"a."*

c. Reserved.

d. Compliance extensions for early reductions of hazardous air pollutants. Compliance extensions for early reductions of hazardous air pollutants are available to certain owners or operators of an existing source who wish to obtain a compliance extension from a standard issued under Section 112(d) of the Act. (Subpart D)

e. Reserved.

f. Emission standards for organic hazardous air pollutants from the synthetic chemical manufacturing industry. These standards apply to chemical manufacturing process units that are part of a major source. These standards include applicability provisions, definitions and other general provisions that are applicable to Subparts F, G, and H of 40 CFR 63. (Subpart F)

g. Emission standards for organic hazardous air pollutants from the synthetic organic chemical manufacturing industry for process vents, storage vessels, transfer operations, and wastewater. These standards apply to all process vents, storage vessels, transfer racks, and wastewater streams within a source subject to Subpart F of 40 CFR 63. (Subpart G)

h. Emission standards for organic hazardous air pollutants for equipment leaks. These standards apply to emissions of designated organic hazardous air pollutants from specified processes that are located at a plant site that is a major source. Affected equipment includes: pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, surge control vessels, bottoms receivers, instrumentation systems and control devices or systems required by this subpart that are intended to operate in organic hazardous air pollutant service 300 hours or more during the calendar year within a source subject to the provisions of a specific subpart in 40 CFR Part 63. In organic hazardous air pollutant or in organic HAP service means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 5 percent by weight of total organic HAPs as determined according to the provisions of 40 CFR Part 63.161. The provisions of 40 CFR Part 63.161 also specify how to determine that a piece of equipment is not in organic HAP service. (Subpart H)

i. Emission standards for organic hazardous air pollutants for certain processes subject to negotiated regulation for equipment leaks. These standards apply to emissions of designated organic hazardous air pollutants from specified processes (defined in 40 CFR 63.190) that are located at a plant site that is a major source. Subject equipment includes pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems at certain source categories. These standards establish the applicability of Subpart H for sources that are not classified as synthetic organic chemical manufacturing industries. (Subpart I)

j. Emission standards for hazardous air pollutants for polyvinyl chloride and copolymers production. Rescinded IAB 3/18/15, effective 4/22/15.

k. Reserved.

l. Emission standards for coke oven batteries. These standards apply to existing coke oven batteries, including by-product and nonrecovery coke oven batteries and to new coke oven batteries, or as defined in the subpart. (Subpart L)

m. Perchloroethylene air emission standards for dry cleaning facilities (40 CFR Part 63, Subpart M). These standards apply to the owner or operator of each dry cleaning facility that uses perchloroethylene (also known as perc). The specific standards applicable to dry cleaning facilities, including the compliance deadlines, are set out in the federal regulations contained in Subpart M. In general, dry cleaning facilities must meet the following requirements, which are set out in greater detail in Subpart M:

(1) New and existing major source dry cleaning facilities are required to control emissions to the level of the maximum achievable control technology (MACT).

(2) New and existing area source dry cleaning facilities are required to control emissions to the level achieved by generally available control technologies (GACT) or management practices.

(3) New area sources that are located in residential buildings and that commence operation after July 13, 2006, are prohibited from using perc.

(4) New area sources located in residential buildings that commenced operation between December 21, 2005, and July 13, 2006, must eliminate all use of perc by July 27, 2009.

(5) Existing area sources located in residential buildings must eliminate all use of perc by December 21, 2020.

(6) New area sources that are not located in residential buildings are prohibited from operating transfer machines.

(7) Existing area sources that are not located in residential buildings are prohibited from operating transfer machines after July 27, 2008.

(8) All sources must comply with the requirements in Subpart M for emissions control, equipment specifications, leak detection and repair, work practice standards, record keeping and reporting.

n. Emission standards for chromium emissions from hard and decorative chromium electroplating and chromium anodizing tanks. These standards limit the discharge of chromium compound air emissions from existing and new hard chromium electroplating, decorative chromium electroplating, and chromium anodizing tanks at major and area sources. (Subpart N)

o. Emission standards for hazardous air pollutants for ethylene oxide commercial sterilization and fumigation operations. New and existing major source ethylene oxide commercial sterilization and fumigation operations are required to control emissions to the level of the maximum achievable control technology (MACT). New and existing area source ethylene oxide commercial sterilization and fumigation operations are required to control emissions to the level achieved by generally available control technologies (GACT). Certain sources are exempt as described in 40 CFR 63.360. (Subpart O)

p. Emission standards for primary aluminum reduction plants. Rescinded IAB 3/18/15, effective 4/22/15.

q. Emission standards for hazardous air pollutants for industrial process cooling towers. These standards apply to all new and existing industrial process cooling towers that are operated with chromium-based water treatment chemicals on or after September 8, 1994, and are either major sources or are integral parts of facilities that are major sources. (Subpart Q)

r. Emission standards for hazardous air pollutants for sources categories: gasoline distribution: (Stage 1). These standards apply to all existing and new bulk gasoline terminals and pipeline breakout stations that are major sources of hazardous air pollutants or are located at plant sites that are major sources. Bulk gasoline terminals and pipeline breakout stations located within a contiguous area or under common control with a refinery complying with 40 CFR Subpart CC are not subject to 40 CFR Subpart R standards. (Subpart R)

s. Emission standards for hazardous air pollutants for pulp and paper (noncombustion). These standards apply to pulping and bleaching process sources at kraft, soda, sulfite, and stand-alone semichemical pulp mills. Affected sources include pulp mills and integrated mills (mills that manufacture pulp and paper/paperboard) that chemically pulp wood fiber (using kraft, sulfite, soda, or semichemical methods); pulp secondary fiber; pulp nonwood fiber; and mechanically pulp wood fiber. (Subpart S)

t. Emission standards for hazardous air pollutants: halogenated solvent cleaning. These standards require batch vapor solvent cleaning machines and in-line solvent cleaning machines to meet emission standards reflecting the application of maximum achievable control technology (MACT) for major and area sources; area source batch cold cleaning machines are required to achieve generally available control technology (GACT). The subpart regulates the emissions of the following halogenated hazardous air pollutant solvents: methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, and chloroform. (Subpart T)

u. Emission standards for hazardous air pollutants: Group I polymers and resins. Applicable to existing and new major sources that emit organic HAP during the manufacture of one or more elastomers including but not limited to producers of butyl rubber, halobutyl rubber, epichlorohydrin elastomers, ethylene propylene rubber, Hypalon™, neoprene, nitrile butadiene rubber, nitrile butadiene latex, polybutadiene rubber/styrene butadiene rubber by solution, polysulfide rubber, styrene butadiene rubber by emulsion, and styrene butadiene latex. MACT is required for major sources. (Subpart U)

v. Reserved.

w. Emission standards for hazardous air pollutants for epoxy resins production and nonnylon polyamides production. These standards apply to all existing, new and reconstructed manufacturers of basic liquid epoxy resins and manufacturers of wet strength resins that are located at a plant site that is a major source. (Subpart W)

x. National emission standards for hazardous air pollutants from secondary lead smelting. Rescinded IAB 3/18/15, effective 4/22/15.

y. Emission standards for marine tank vessel loading operations. This standard requires existing and new major sources to control emissions using maximum achievable control technology (MACT) to control hazardous air pollutants (HAP). (Subpart Y)

z. Reserved.

aa. Emission standards for hazardous air pollutants for phosphoric acid manufacturing. These standards apply to all new and existing major sources of phosphoric acid manufacturing. Affected processes include, but are not limited to, wet process phosphoric acid process lines, superphosphoric

acid process lines, phosphate rock dryers, phosphate rock calciners, and purified phosphoric acid process lines. (Subpart AA)

ab. Emission standards for hazardous air pollutants for phosphate fertilizers production. These standards apply to all new and existing major sources of phosphate fertilizer production plants. Affected processes include, but are not limited to, diammonium and monoammonium phosphate process lines, granular triple superphosphate process lines, and granular triple superphosphate storage buildings. (Subpart BB)

ac. National emission standards for hazardous air pollutants: petroleum refineries. Rescinded IAB 3/18/15, effective 4/22/15.

ad. Emission standards for hazardous air pollutants for off-site waste and recovery operations. This rule applies to major sources of HAP emissions which receive certain wastes, used oil, and used solvents from off-site locations for storage, treatment, recovery, or disposal at the facility. Maximum achievable control technology (MACT) is required to reduce HAP emissions from tanks, surface impoundments, containers, oil-water separators, individual drain systems and other material conveyance systems, process vents, and equipment leaks. Regulated entities include but are not limited to businesses that operate any of the following: hazardous waste treatment, storage, and disposal facilities; Resource Conservation and Recovery Act (RCRA) exempt hazardous wastewater treatment facilities other than publicly owned treatment works; used solvent recovery plants; RCRA exempt hazardous waste recycling operations; used oil re-refineries. The regulations also apply to federal agency facilities that operate any of the waste management or recovery operations. (Subpart DD)

ae. Emission standards for magnetic tape manufacturing operations. These standards apply to major sources performing magnetic tape manufacturing operations. (Subpart EE)

af. Reserved.

ag. National emission standards for hazardous air pollutants for source categories: aerospace manufacturing and rework facilities. These standards apply to major sources involved in the manufacture, repair, or rework of aerospace components and assemblies, including but not limited to airplanes, helicopters, missiles, and rockets for civil, commercial, or military purposes. Hazardous air pollutants regulated under this standard include chromium, cadmium, methylene chloride, toluene, xylene, methyl ethyl ketone, ethylene glycol, and glycol ethers. (Subpart GG)

ah. Emission standards for hazardous air pollutants for oil and natural gas production. These standards apply to all new and existing major sources of oil and natural gas production. Affected sources include, but are not limited to, processing of liquid or gaseous hydrocarbons, such as ethane, propane, butane, pentane, natural gas, and condensate extracted from field natural gas. (Subpart HH)

ai. Emission standards for hazardous air pollutants for shipbuilding and ship repair (surface coating) operations. Rescinded IAB 3/18/15, effective 4/22/15.

aj. Emission standards for hazardous air pollutants for hazardous air pollutant (HAP) emissions from wood furniture manufacturing operations. These standards apply to each facility that is engaged, either in part or in whole, in the manufacture of wood furniture or wood furniture components and that is located at a plant site that is a major source. (Subpart JJ)

ak. Emission standards for hazardous air pollutants for the printing and publishing industry. Existing and new major sources are required to control hazardous air pollutants (HAP) using the maximum achievable control technology (MACT). Affected units are publication rotogravure, product and packaging rotogravure, and wide-web flexographic printing. (Subpart KK)

al. Emission standards for hazardous air pollutants for primary aluminum reduction plants. Rescinded IAB 3/18/15, effective 4/22/15.

am. Emission standards for hazardous air pollutants for chemical recovery combustion sources at kraft, soda, sulfite, and stand-alone semichemical pulp mills. (Part 63, Subpart MM)

an. Reserved.

ao. Emission standards for tanks – level 1. These provisions apply when another paragraph under this rule references the use of this paragraph for such air emission control. These air emission standards are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general

provisions (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Part 63, Subpart OO)

ap. Emission standards for containers. These provisions apply when another paragraph under this rule references the use of this paragraph for such air emission control. These air emission standards are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general provisions (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Part 63, Subpart PP)

aq. Emission standards for surface impoundments. These provisions apply when another paragraph under this rule references the use of this paragraph for such air emission control. These air emission standards are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general provisions (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Part 63, Subpart QQ)

ar. Emission standards for individual drain systems. These provisions apply when another paragraph under this rule references the use of this paragraph for such air emission control. These air emission standards are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general provisions (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Part 63, Subpart RR)

as. Emission standards for closed vent systems, control devices, recovery devices and routing to a fuel gas system or a process. These provisions apply when another paragraph under this rule references the use of this paragraph for such air emission control. These air emission standards are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general provisions, (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Subpart SS)

at. Emission standards for equipment leaks—control level 1. These provisions apply to the control of air emissions from equipment leaks for which another paragraph under this rule references the use of this paragraph for such emission control. These air emission standards for equipment leaks are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general provisions, (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Subpart TT)

au. Emission standards for equipment leaks—control level 2 standards. These provisions apply to the control of air emissions from equipment leaks for which another paragraph under this rule references the use of this paragraph for such air emission control. These air emission standards for equipment leaks are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general provisions, (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Subpart UU)

av. Emission standards for oil-water separators and organic-water separators. These provisions apply when another paragraph under this rule references the use of this paragraph for such air emission control. These air emission standards are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general provisions (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Part 63, Subpart VV)

aw. Emission standards for storage vessels (tanks)—control level 2. These provisions apply to the control of air emissions from storage vessels for which another paragraph under this rule references the use of this paragraph for such air emission control. These air emission standards for storage vessels are placed here for administrative convenience and only apply to those owners and operators of facilities subject to the referencing paragraph. The provisions of paragraph 23.1(4)*"a,"* general provisions, (Subpart A), do not apply to this paragraph except as specified in a referencing paragraph. (Subpart WW)

ax. Emission standards for ethylene manufacturing process units: heat exchange systems and waste operations. This standard applies to hazardous air pollutants (HAPs) from heat exchange systems and waste streams at new and existing ethylene production units. (Part 63, Subpart XX)

ay. Emission standards for hazardous air pollutants: generic maximum achievable control technology (Generic MACT). These standards apply to new and existing major sources of acetal resins (AR) production, acrylic and modacrylic fiber (AMF) production, hydrogen fluoride (HF) production, polycarbonate (PC) production, carbon black production, cyanide chemicals manufacturing, ethylene production, and Spandex production. Affected processes include, but are not limited to, producers of homopolymers and copolymers of alternating oxymethylene units, acrylic fiber, modacrylic fiber synthetics composed of acrylonitrile (AN) units, hydrogen fluoride and polycarbonate. (Subpart YY)

az. to *bb.* Reserved.

bc. Emission standards for hazardous air pollutants for steel pickling—HCL process facilities and hydrochloric acid regeneration plants. Rescinded IAB 3/18/15, effective 4/22/15.

bd. Emission standards for hazardous air pollutants for mineral wool production. These standards apply to all new and existing major sources of mineral wool production. Affected processes include, but are not limited to, cupolas and curing ovens. (Subpart DDD)

be. Emission standards for hazardous air pollutants from hazardous waste combustors. These standards apply to all hazardous waste combustors: hazardous waste incinerators, hazardous waste burning cement kilns, hazardous waste burning lightweight aggregate kilns, hazardous waste solid fuel boilers, hazardous waste liquid fuel boilers, and hazardous waste hydrochloric acid production furnaces, except as specified in Subpart EEE. Both area sources and major sources are subject to this subpart as of April 19, 1996, and are subject to the requirement to apply for and obtain a Title V permit. (Part 63, Subpart EEE)

bf. Reserved.

bg. Emission standards for hazardous air pollutants for pharmaceutical manufacturing. These standards apply to producers of finished dosage forms of drugs, for example, tablets, capsules, and solutions, that contain an active ingredient generally, but not necessarily, in association with inactive ingredients. Pharmaceuticals include components whose intended primary use is to furnish pharmacological activity or other direct effect in the diagnosis, cure, mitigation, treatment, or prevention of disease, or to affect the structure or any function of the body of humans or other animals. The regulations do not apply to research and development facilities. (Subpart GGG)

bh. Emission standards for hazardous air pollutants for natural gas transmission and storage. These standards apply to all new and existing major sources of natural gas transmission and storage. Natural gas transmission and storage facilities are those that transport or store natural gas prior to its entering the pipeline to a local distribution company. Affected sources include, but are not limited to, mains, valves, meters, boosters, regulators, storage vessels, dehydrators, compressors and delivery systems. (Subpart HHH)

bi. Emission standards for hazardous air pollutants for flexible polyurethane foam production. These standards apply to producers of slabstock, molded, and rebond flexible polyurethane foam. The regulations do not apply to processes dedicated exclusively to the fabrication (i.e., gluing or otherwise bonding foam pieces together) of flexible polyurethane foam or to research and development. (Subpart III)

bj. Emission standards for hazardous air pollutants: Group IV polymers and resins. Applicable to existing and new major sources that emit organic HAP during the manufacture of the following polymers and resins: acrylonitrile butadiene styrene resin (ABS), styrene acrylonitrile resin (SAN), methyl methacrylate acrylonitrile butadiene styrene resin (MABS), methyl methacrylate butadiene styrene resin (MBS), polystyrene resin, poly (ethylene terephthalate) resin (PET), and nitrile resin. MACT is required for major sources. (Subpart JJJ)

bk. Reserved.

bl. Emission standards for hazardous air pollutants for Portland cement manufacturing operations. These standards apply to all new and existing major and area sources of Portland cement manufacturing unless exempted. Cement kiln dust (CKD) storage facilities, including CKD piles and

landfills, are excluded from this standard. Affected processes include, but are not limited to, all cement kilns and in-line kiln/raw mills, unless they burn hazardous waste. (Subpart LLL)

bm. Emission standards for hazardous air pollutants for pesticide active ingredient production. These standards apply to all new and existing major sources of pesticide active ingredient production that manufacture organic pesticide active ingredients (PAI), including herbicides, insecticides and fungicides. Affected processes include, but are not limited to, processing equipment, connected piping and ducts, associated storage vessels, pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves and connectors. Exempted sources include research and development facilities, storage vessels already subject to another 40 CFR Part 63 NESHAP, production of ethylene, storm water from segregated sewers, water from fire-fighting and deluge systems (including testing of such systems) and various spills. (Subpart MMM)

bn. Emission standards for hazardous air pollutants for wool fiberglass manufacturing. These standards apply to all new and existing major sources of wool fiberglass manufacturing. Affected processes include, but are not limited to, all glass-melting furnaces, rotary spin (RS) manufacturing lines that produce bonded building insulation, flame attenuation (FA) manufacturing lines producing bonded pipe insulation and new FA manufacturing lines producing bonded heavy-density products. (Subpart NNN)

bo. Emission standards for hazardous air pollutants for amino/phenolic resins production. These standards apply to new or existing facilities that own or operate an amino or phenolic resins production unit. (Part 63, Subpart OOO)

bp. Emission standards for hazardous air pollutants for polyether polyols production. These standards apply to all new and existing major sources of polyether polyols. Polyether polyols are compounds formed through polymerization of ethylene oxide, propylene oxide or other cyclic ethers with compounds having one or more reactive hydrogens to form polyethers. Affected processes include, but are not limited to, storage vessels, process vents, heat exchange systems, equipment leaks and wastewater operations. (Subpart PPP)

bq. Emission standards for hazardous air pollutants for primary copper smelting. Rescinded IAB 3/18/15, effective 4/22/15.

br. Emission standards for hazardous air pollutants for secondary aluminum production. (Part 63, Subpart RRR)

bs. Reserved.

bt. Emission standards for hazardous air pollutants for primary lead smelting. Rescinded IAB 3/18/15, effective 4/22/15.

bu. Emission standards for hazardous air pollutants for petroleum refineries: catalytic cracking units, catalytic reforming units, and sulfur recovery units. Rescinded IAB 2/15/17, effective 3/22/17.

bv. Emission standards for hazardous air pollutants publicly owned treatment works (POTW). (Part 63, Subpart VVV)

bw. Reserved.

bx. Emission standards for hazardous air pollutants for ferroalloys production: ferromanganese and silicomanganese. Rescinded IAB 3/14/18, effective 4/18/18.

by. and *bz.* Reserved.

ca. Emission standards for hazardous air pollutants: municipal solid waste landfills. This standard applies to existing and new municipal solid waste (MSW) landfills. (Part 63, Subpart AAAA)

cb. No change.

cc. Emission standards for hazardous air pollutants for the manufacturing of nutritional yeast. (Part 63, Subpart CCCC)

cd. Emission standards for hazardous air pollutants for plywood and composite wood products (formerly plywood and particle board manufacturing). These standards apply to new and existing major sources with equipment used to manufacture plywood and composite wood products. This equipment includes dryers, refiners, blenders, formers, presses, board coolers, and other process units associated with the manufacturing process. This also includes coating operations, on-site storage and wastewater

treatment. However, only certain process units (defined in the federal rule) are subject to control or work practice requirements. (Part 63, Subpart DDDD)

ce. Emission standards for hazardous air pollutants for organic liquids distribution (non-gasoline). These standards apply to new and existing major source organic liquids distribution (non-gasoline) operations, which are carried out at storage terminals, refineries, crude oil pipeline stations, and various manufacturing facilities. (Part 63, Subpart EEEE)

cf. Emission standards for hazardous air pollutants for miscellaneous organic chemical manufacturing (MON). These standards establish emission limits and work practice standards for new and existing major sources with miscellaneous organic chemical manufacturing process units, wastewater treatment and conveyance systems, transfer operations, and associated ancillary equipment. (Part 63, Subpart FFFF)

cg. Emission standards for hazardous air pollutants for solvent extraction for vegetable oil production. (Part 63, Subpart GGGG)

ch. Emission standards for hazardous air pollutants for wet-formed fiberglass mat production. This standard applies to wet-formed fiberglass mat production plants that are major sources of hazardous air pollutants. These plants may be stand-alone facilities or located with asphalt roofing and processing facilities. (Part 63, Subpart HHHH)

ci. Emission standards for hazardous air pollutants for surface coating of automobiles and light-duty trucks. These standards apply to new, reconstructed, or existing affected sources, as defined in the standard, that are located at a facility which applies topcoat to new automobile or new light-duty truck bodies or body parts for new automobiles or new light-duty trucks and that is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants. Additional applicability criteria and exemptions from these standards may apply. (Part 63, Subpart IIII)

cj. Emission standards for hazardous air pollutants: paper and other web coating. This standard applies to a facility that is engaged in the coating of paper, plastic film, metallic foil, and other web surfaces located at a major source of hazardous air pollutant (HAP) emissions. (Part 63, Subpart JJJJ)

ck. Emission standards for hazardous air pollutants for surface coating of metal cans. These standards apply to a metal can surface coating operation that uses at least 5,700 liters (1,500 gallons (gal)) of coatings per year and is a major source, is located at a major source, or is part of a major source of hazardous air pollutant emissions. Coating operations located at an area source are not subject to this rule. Additional applicability criteria and exemptions from these standards may apply. (Part 63, Subpart KKKK)

cl. Reserved.

cm. Emission standards for hazardous air pollutants for surface coating of miscellaneous metal parts and products. These standards apply to miscellaneous metal parts and products surface coating facilities that are a major source, are located at a major source, or are part of a major source of hazardous air pollutant emissions. A miscellaneous metal parts and products surface coating facility that is located at an area source is not subject to this standard. Certain sources are exempt as described in the standard. (Part 63, Subpart MMMM)

cn. Emission standards for hazardous air pollutants: surface coating of large appliances. This standard applies to a facility that applies coatings to large appliance parts or products, and is a major source, is located at a major source, or is part of a major source of emissions of hazardous air pollutants (HAPs). The large appliances source category includes facilities that apply coatings to large appliance parts or products. Large appliances include "white goods" such as ovens, refrigerators, freezers, dishwashers, laundry equipment, trash compactors, water heaters, comfort furnaces, electric heat pumps and most HVAC equipment intended for any application. (Part 63, Subpart NNNN)

co. Emission standards for hazardous air pollutants for printing, coating, and dyeing of fabrics and other textiles. These standards apply to new and existing facilities with fabric or other textile coating, printing, slashing, dyeing, or finishing operations, or group of such operations, that are a major source of hazardous air pollutants or are part of a facility that is a major source of hazardous air pollutants. Coating, printing, slashing, dyeing, or finishing operations located at an area source are not subject to

this standard. Several exclusions from this source category are listed in the standard. (Part 63, Subpart OOOO)

cp. Emission standards for surface coating of plastic parts and products. These standards apply to new and existing major sources with equipment used to coat plastic parts and products. The surface coating application process includes drying/curing operations, mixing or thinning operations, and cleaning operations. Coating materials include, but are not limited to, paints, stains, sealers, topcoats, basecoats, primers, inks, and adhesives. (Part 63, Subpart PPPP)

cq. Emission standards for hazardous air pollutants for surface coating of wood building products. These standards establish emission limitations, operating limits, and work practice requirements for wood building products surface coating facilities that use at least 1,100 gallons of coatings per year and are a major source, are located at a major source, or are part of a major source of hazardous air pollutant emissions. Wood building products surface coating facilities located at an area source are not subject to this standard. Several exclusions from this source category are listed in the standard. (Part 63, Subpart QQQQ)

cr. Emission standards for hazardous air pollutants: surface coating of metal furniture. This standard applies to a metal furniture surface coating facility that is a major source, is located at a major source, or is part of a major source of HAP emissions. A metal furniture surface coating facility is one that applies coatings to metal furniture or components of metal furniture. Metal furniture means furniture or components that are constructed either entirely or partially from metal. (Part 63, Subpart RRRR)

cs. Emission standards for hazardous air pollutants: surface coating of metal coil. This standard requires that all new and existing "major" air toxics sources in the metal coil coating industry meet specific emission limits. Metal coil coating is the process of applying a coating (usually protective or decorative) to one or both sides of a continuous strip of sheet metal. Industries using coated metal include: transportation, building products, appliances, can manufacturing, and packaging. Other products using coated metal coil include measuring tapes, ventilation systems for walls and roofs, lighting fixtures, office filing cabinets, cookware, and sign stock material. (Part 63, Subpart SSSS)

ct. Emission standards for hazardous air pollutants for leather finishing operations. This standard applies to a new or existing leather finishing operation that is a major source of hazardous air pollutants (HAPs) emissions or that is located at, or is part of, a major source of HAP emissions. In general, a leather finishing operation is a single process or group of processes used to adjust and improve the physical and aesthetic characteristics of the leather surface through multistage application of a coating comprised of dyes, pigments, film-forming materials, and performance modifiers dissolved or suspended in liquid carriers. (Part 63, Subpart TTTT)

cu. Emission standards for hazardous air pollutants for cellulose products manufacturing. This standard applies to a new or existing cellulose products manufacturing operation that is located at a major source of HAP emissions. Cellulose products manufacturing includes both the miscellaneous viscose processes source category and the cellulose ethers production source category. (Part 63, Subpart UUUU)

cv. Emission standards for hazardous air pollutants for boat manufacturing. (Part 63, Subpart VVVV)

cw. Emission standards for hazardous air pollutants: reinforced plastic composites production. This standard applies to a new or an existing reinforced plastic composites production facility that is located at a major source of HAP emissions. (Part 63, Subpart WWWW)

cx. Emission standards for hazardous air pollutants: rubber tire manufacturing. This standard applies to a rubber tire manufacturing facility that is located at, or is a part of, a major source of hazardous air pollutant (HAP) emissions. Rubber tire manufacturing includes the production of rubber tires and/or the production of components integral to rubber tires, the production of tire cord, and the application of puncture sealant. (Part 63, Subpart XXXX)

cy. Emission standards for hazardous air pollutants for stationary combustion turbines. These standards apply to stationary combustion turbines which are located at a major source of hazardous air pollutant emissions. Several subcategories have been defined within the stationary combustion turbine

source category. Each subcategory has distinct requirements as specified in the standards. These standards do not apply to stationary combustion turbines located at an area source of hazardous air pollutant emissions. (Part 63, Subpart YYYY)

cz. Emission standards for stationary reciprocating internal combustion engines. These standards apply to new and existing major sources and to new and existing area sources with stationary reciprocating internal combustion engines (RICE). For purposes of these standards, stationary RICE means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. (Part 63, Subpart ZZZZ)

da. Emission standards for hazardous air pollutants for lime manufacturing plants. These standards regulate hazardous air pollutant emissions from new and existing lime manufacturing plants that are major sources, are colocated with major sources, or are part of major sources. Additional applicability criteria and exemptions from these standards may apply. (Part 63, Subpart AAAAA)

db. Emission standards for hazardous air pollutants: semiconductor manufacturing. These standards apply to new and existing major sources with semiconductor manufacturing. (Part 63, Subpart BBBBB)

dc. Emission standards for hazardous air pollutants for coke ovens: pushing, quenching, and battery stacks. This standard applies to a new or existing coke oven battery at a plant that is a major source of HAP emissions. (Part 63, Subpart CCCCC)

dd. Emission standards for industrial, commercial and institutional boilers and process heaters. These standards apply to new and existing major sources with industrial, commercial or institutional boilers and process heaters. (Part 63, Subpart DDDDD)*

*As of April 15, 2009, the adoption by reference of Part 63, Subpart DDDDD, is rescinded. On July 30, 2007, the United States Court of Appeals for the District of Columbia Circuit issued its mandate vacating 40 CFR Part 63, Subpart DDDDD, in its entirety, and requiring EPA to repromulgate final standards for industrial, commercial or institutional boilers and process heaters at new and existing major sources.

de. Emission standards for hazardous air pollutants for iron and steel foundaries. These standards apply to each new or existing iron and steel foundary that is a major source of hazardous air pollutant emissions. A new affected source is an iron and steel foundary for which construction or reconstruction began after December 23, 2002. An existing affected source is an iron and steel foundary for which construction or reconstruction began on or before December 23, 2002. (Part 63, Subpart EEEEE)

df. Emission standards for hazardous air pollutants for integrated iron and steel manufacturing. These standards apply to affected sources at an integrated iron and steel manufacturing facility that is, or is part of, a major source of hazardous air pollutant emissions. The affected sources are each new or existing sinter plant, blast furnace, and basic oxygen process furnace (BOPF) shop at an integrated iron and steel manufacturing facility that is, or is part of, a major source of hazardous air pollutant emissions. (Part 63, Subpart FFFFF)

dg. Emission standards for hazardous air pollutants: site remediation. These standards apply to new and existing major sources with certain types of site remediation activity on the source's property or on a contiguous property. These standards control hazardous air pollutant (HAP) emissions at major sources where remediation technologies and practices are used at the site to clean up contaminated environmental media (e.g., soil, groundwater, or surface water) or certain stored or disposed materials that pose a reasonable potential threat to contaminate environmental media.

Some site remediations already regulated by rules established under the Comprehensive Environmental Response and Compensation Liability Act (CERCLA) or the Resource Conservation and Recovery Act (RCRA) are not subject to these standards, as specified in Subpart GGGGG. There are also exemptions for short-term remediation and for certain leaking underground storage tanks, as specified in Subpart GGGGG. (Part 63, Subpart GGGGG)

dh. Emission standards for hazardous air pollutants for miscellaneous coating manufacturing. These standards establish emission limits and work practice requirements for new and existing miscellaneous coating manufacturing operations, including, but not limited to, process vessels,

storage tanks, wastewater, transfer operations, equipment leaks, and heat exchange systems. (Part 63, Subpart HHHHH)

di. Emission standards for mercury emissions from mercury cell chlor-alkali plants. These standards apply to the chlorine production source category. This source category contains the mercury cell chlor-alkali plant subcategory and includes all plants engaged in the manufacture of chlorine and caustic in mercury cells. These standards define two affected sources: mercury cell chlor-alkali production facilities and mercury recovery facilities. (Part 63, Subpart IIIII)

dj. Emission standards for hazardous air pollutants for brick and structural clay products manufacturing. Rescinded IAB 2/15/17, effective 3/22/17.

dk. Emission standards for hazardous air pollutants for clay ceramics manufacturing. Rescinded IAB 2/15/17, effective 3/22/17.

dl. Emission standards for hazardous air pollutants: asphalt processing and asphalt roofing manufacturing. This standard applies to an existing or new asphalt processing or asphalt roofing manufacturing facility that is a major source of hazardous air pollutants (HAPs) emissions, or is located at, or is part of a major source of HAP emissions. (Part 63, Subpart LLLLL)

dm. Emission standards for hazardous air pollutants: flexible polyurethane foam fabrication operations. This standard applies to a new or existing source at a flexible polyurethane foam fabrication facility. The standard defines two affected sources (units or collections of units to which a given standard or limit applies) corresponding to the two subcategories, loop slitter adhesive use or flame lamination. (Part 63, Subpart MMMMM)

dn. Emission standards for hazardous air pollutants: hydrochloric acid production. This standard applies to a new or existing HCl production facility that produces a liquid HCl product at a concentration of 30 weight percent or greater during its normal operations and is located at, or is part of, a major source of HAP. This does not include HCl production facilities that only occasionally produce liquid HCl product at a concentration of 30 weight percent or greater. (Part 63, Subpart NNNNN)

do. Reserved.

dp. Emission standards for hazardous air pollutants: engine test cells/stands. This standard applies to an engine test cell/stand that is located at a major source of HAP emissions. An engine test cell/stand is any apparatus used for testing uninstalled stationary or uninstalled mobile engines. (Part 63, Subpart PPPPP)

dq. Emission standards for hazardous air pollutants for friction materials manufacturing facilities. This standard applies to a new or existing friction materials manufacturing facility that is (or is part of) a major source of hazardous air pollutants (HAPs) emissions. Friction materials manufacturing facilities produce friction materials for use in brake and clutch assemblies. (Part 63, Subpart QQQQQ)

dr. Emission standards for hazardous air pollutants: taconite iron ore processing. Rescinded IAB 3/18/15, effective 4/22/15.

ds. Emission standards for hazardous air pollutants for refractory products manufacturing. This standard applies to a new or existing refractory products manufacturing facility that is, is located at, or is part of, a major source of hazardous air pollutant (HAP) emissions. (Part 63, Subpart SSSSS)

dt. Emission standards for hazardous air pollutants: primary magnesium refining. Rescinded IAB 3/18/15, effective 4/22/15.

du. Reserved.

dv. Reserved.

dw. Emission standards for hazardous air pollutants for hospital ethylene oxide sterilizer area sources. This standard applies to a hospital that is an area source for hazardous air pollutant emissions and that owns or operates a new or existing ethylene oxide sterilization facility. (Part 63, Subpart WWWWW)

dx. Reserved.

dy. Emission standards for hazardous air pollutants for electric arc furnace steelmaking area sources. This standard applies to new or existing electric arc furnace (EAF) steelmaking facilities that are area sources for hazardous air pollutant emissions. (Part 63, Subpart YYYYY)

dz. Emission standards for hazardous air pollutants for iron and steel foundry area sources. This standard applies to new or existing iron and steel foundries that are area sources for hazardous air pollutant emissions. (Part 63, Subpart ZZZZZ)

ea. Reserved.

eb. Emission standards for hazardous air pollutants for gasoline distribution area sources: bulk terminals, bulk plants and pipeline facilities. This standard applies to new and existing bulk gasoline terminals, pipeline breakout stations, pipeline pumping stations and bulk gasoline plants that are area sources for hazardous air pollutant emissions. (Part 63, Subpart BBBBBB)

ec. Emmission standards for hazardous air pollutants for area sources: gasoline dispensing facilities. This standard applies to new and existing gasoline dispensing facilities (GDF) that are area sources for hazardous air pollutant emissions. The affected equipment includes each gasoline cargo tank during delivery of product to GDF and also includes each storage tank. The equipment used for refueling of motor vehicles is not covered under these standards. (Part 63, Subpart CCCCCC)

ed. Reserved.

ee. Reserved.

ef. Reserved.

eg. Reserved.

eh. Emission standards for hazardous air pollutants for area sources: paint stripping and miscellaneous surface coating operations. This standard applies to new or existing area sources of hazardous air pollutant emissions that engage in any of the following activities: (1) paint stripping operations that use methylene chloride (MeCl)-containing paint stripping formulations; (2) spray application of coatings to motor vehicles or mobile equipment; or (3) spray application of coatings to plastic or metal substrate with coatings that contain compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni) or cadmium (Cd). (Part 63, Subpart HHHHHH)

ei. Reserved.

ej. Emission standards for hazardous air pollutants for area sources: industrial, commercial, and institutional boilers. This standard applies to new and existing industrial, commercial and institutional boilers that are area sources for hazardous air pollutant emissions. (Part 63, Subpart JJJJJJ)

ek. Reserved.

el. Emission standards for hazardous air pollutants for acrylic and modacrylic fibers production area sources. This standard applies to acrylic and modacrylic fibers production plants that are area sources for hazardous air pollutant emissions. (Part 63, Subpart LLLLLL)

em. Emission standards for hazardous air pollutants for carbon black production area sources. This standard applies to carbon black production plants that are area sources for hazardous air pollutants. (Part 63, Subpart MMMMMM)

en. Emission standards for hazardous air pollutants for chemical manufacturing of chromium compounds area sources. This standard applies to plants that produce chromium compounds and are area sources for hazardous air pollutants. (Part 63, Subpart NNNNNN)

eo. Emission standards for hazardous air pollutants for flexible polyurethane foam production and fabrication area sources. This standard applies to plants that produce flexible polyurethane foam or rebond foam, and plants that fabricate polyurethane foam, that are area sources for hazardous air pollutants. This standard applies to both new and existing area sources. An affected source is existing if construction or reconstruction commenced on or before April 4, 2007. An affected source is new if construction or reconstruction commenced after April 4, 2007. (Part 63, Subpart OOOOOO)

ep. Emission standards for hazardous air pollutants for lead acid battery manufacturing area sources. This standard applies to lead acid battery manufacturing plants that are area sources for hazardous air pollutants. Affected sources include all grid casting facilities, paste mixing facilities, three-process operation facilities, lead oxide manufacturing facilities, lead reclamation facilities, and any other lead-emitting operation that is associated with a lead acid battery manufacturing plant. This standard applies to both new and existing area sources. An affected source is existing if construction or reconstruction commenced on or before April 4, 2007. An affected source is new if construction or reconstruction commenced after April 4, 2007. (Part 63, Subpart PPPPPP)

eq. Emission standards for hazardous air pollutants for wood preserving area sources. This standard applies to wood preserving operations that are area sources for hazardous air pollutants. This standard applies to both new and existing area sources. An affected source is existing if construction or reconstruction commenced on or before April 4, 2007. An affected source is new if construction or reconstruction commenced after April 4, 2007. (Part 63, Subpart QQQQQQ)

er. Emission standards for hazardous air pollutants for clay ceramics manufacturing area sources. This standard applies to any new or existing clay ceramics manufacturing facility with an atomized glaze spray booth or kiln that fires glazed ceramic ware, that processes more than 50 tons per year of wet clay, and that is an area source for hazardous air pollutant emissions. (Part 63, Subpart RRRRRR)

es. Emission standards for hazardous air pollutants for glass manufacturing area sources. This standard applies to any new or existing glass manufacturing facility that is an area source for hazardous air pollutant emissions and meets the following criteria: (1) manufactures flat glass, glass containers or pressed and blown glass by melting a mixture of raw materials to produce molten glass and form the molten glass into sheets, containers or other shapes; and (2) uses one or more continuous furnaces to produce glass at a rate of at least 50 tons per year and that contains compounds of one or more "glass manufacturing metal HAP," as defined in 40 CFR 63.11459, as raw materials in a glass manufacturing batch formulation. (Part 63, Subpart SSSSSS)

et. Emissions standards for hazardous air pollutants for secondary nonferrous metals processing area sources. This standard applies to any new or existing secondary nonferrous metals processing facility that is an area source for hazardous air pollutant emissions. This standard applies to all crushing and screening operations at a secondary zinc processing facility and to all furnace melting operations located at any secondary nonferrous metals processing facility. (Part 63, Subpart TTTTTT)

eu. Reserved.

ev. Emission standards for hazardous air pollutants for area sources: chemical manufacturing. This standard applies to chemical manufacturing at new and existing facilities that are area sources for hazardous air pollutant emissions. (Part 63, Subpart VVVVVV)

ew. Emission standards for hazardous air pollutants for area sources: plating and polishing. This standard applies to plating and polishing activities at new and existing facilities that are area sources for hazardous air pollutant emissions. (Part 63, Subpart WWWWWW)

ex. Emission standards for hazardous air pollutants for area sources: metal fabrication and finishing. This standard applies to new and existing facilities in which the primary activity or activities at the facility are metal fabrication and finishing and that are area sources for hazardous air pollutant emissions. (Part 63, Subpart XXXXXX)

ey. Reserved.

ez. Emission standards for hazardous air pollutants for area sources: aluminum, copper, and other nonferrous foundries. This standard applies to aluminum, copper, and other nonferrous foundries at new and existing facilities that are area sources for hazardous air pollutant emissions. (Part 63, Subpart ZZZZZZ)

fa. and *fb.* Reserved.

fc. Emission standards for hazardous air pollutants for area sources: paint and allied products manufacturing. This standard applies to paint and allied products manufacturing at new and existing facilities that are area sources for hazardous air pollutant emissions. (Part 63, Subpart CCCCCCC)

fd. Emission standards for hazardous air pollutants for area sources: prepared feeds manufacturing. This standard applies to prepared feeds manufacturing that produces animal feed products (not including feed for cats or dogs) and uses chromium or manganese compounds at new and existing facilities that are area sources for hazardous air pollutant emissions. (Part 63, Subpart DDDDDDD)

23.1(5) *Emission guidelines.* The emission guidelines and compliance times for existing sources, as defined in 40 Code of Federal Regulations Part 60 as amended through March 21, 2011, shall apply to the following affected facilities. The corresponding 40 CFR Part 60 subpart designation is in parentheses. A different CFR reference and date for adoption by reference may be included with the subpart designation

indicated in the paragraphs of this subrule. The control of the designated pollutants will be in accordance with federal standards established in Sections 111 and 129 of the Act and 40 CFR Part 60, Subpart B (Adoption and Submittal of State Plans for Designated Facilities), and the applicable subpart(s) for the existing source. Reference test methods (Appendix A), performance specifications (Appendix B), determination of emission rate change (Appendix C), quality assurance procedures (Appendix F) and the general provisions (Subpart A) of 40 CFR Part 60 also apply to the affected facilities.

a. Emission guidelines for municipal solid waste landfills (Subpart Cc). Emission guidelines and compliance times for the control of certain designated pollutants from designated municipal solid waste landfills shall be in accordance with federal standards established in Subparts Cc (Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills) and WWW (Standards of Performance for Municipal Solid Waste Landfills) of 40 CFR Part 60 as amended through April 10, 2000.

(1) Definitions. For the purpose of 23.1(5)*"a,"* the definitions have the same meaning given to them in the Act and 40 CFR Part 60, Subparts A (General Provisions), B, and WWW, if not defined in this subparagraph.

"Municipal solid waste landfill" or *"MSW landfill"* means an entire disposal facility in a contiguous geographical space where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes such as commercial solid waste, nonhazardous sludge, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill or a lateral expansion.

(2) Designated facilities.

1. The designated facility to which the emission guidelines apply is each existing MSW landfill for which construction, reconstruction or modification was commenced before May 30, 1991.

2. Physical or operational changes made to an existing MSW landfill solely to comply with an emission guideline are not considered a modification or reconstruction and would not subject an existing MSW landfill to the requirements of 40 CFR Part 60, Subpart WWW (40 CFR 60.750).

3. For MSW landfills subject to rule 567—22.101(455B) only because of applicability to subparagraph 23.1(5)*"a"*(2), the following apply for obtaining and maintaining a Title V operating permit under 567—22.104(455B):The owner or operator of an MSW landfill with a design capacity less than 2.5 million megagrams or 2.5 million cubic meters is not required to obtain an operating permit for the landfill.

The owner or operator of an MSW landfill with a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters on or before June 22, 1998, becomes subject to the requirements of 567—subrule 22.105(1) on September 20, 1998. This requires the landfill to submit a Title V permit application to the Air Quality Bureau, Department of Natural Resources, no later than September 20, 1999.

The owner or operator of a closed MSW landfill does not have to maintain an operating permit for the landfill if either of the following conditions are met: the landfill was never subject to the requirement for a control system under subparagraph 23.1(5)*"a"*(3); or the owner or operator meets the conditions for control system removal specified in 40 CFR § 60.752(b)(2)(v).

(3) Emission guidelines for municipal solid waste landfill emissions.

1. MSW landfill emissions at each MSW landfill meeting the conditions below shall be controlled. A design capacity report must be submitted to the director by November 18, 1997.

The landfill has accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition.

The landfill has a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters. The landfill may calculate design capacity in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report. All calculations used to determine the maximum design capacity must be included in the design capacity report.

The landfill has a nonmethane organic compound (NMOC) emission rate of 50 megagrams per year or more. If the MSW landfill's design capacity exceeds the established thresholds in 23.1(5)*"a"*(3)"1," the NMOC emission rate calculations must be provided with the design capacity report.

2. The planning and installation of a collection and control system shall meet the conditions provided in 40 CFR 60.752(b)(2) at each MSW landfill meeting the conditions in 23.1(5)*"a"*(3)"1."

3. MSW landfill emissions collected through the use of control devices must meet the following requirements, except as provided in 40 CFR 60.24 after approval by the Director and U.S. Environmental Protection Agency.

An open flare designed and operated in accordance with the parameters established in 40 CFR 60.18; a control system designed and operated to reduce NMOC by 98 weight percent; or an enclosed combustor designed and operated to reduce the outlet NMOC concentration to 20 parts per million as hexane by volume, dry basis at 3 percent oxygen, or less.

(4) Test methods and procedures. The following must be used:

1. The calculation of the landfill NMOC emission rate listed in 40 CFR 60.754, as applicable, to determine whether the landfill meets the condition in 23.1(5)*"a"*(3)"3";

2. The operational standards in 40 CFR 60.753;

3. The compliance provisions in 40 CFR 60.755; and

4. The monitoring provisions in 40 CFR 60.756.

(5) Reporting and record-keeping requirements. The record-keeping and reporting provisions listed in 40 CFR 60.757 and 60.758, as applicable, except as provided under 40 CFR 60.24 after approval by the Director and U.S. Environmental Protection Agency, shall be used.

(6) Compliance times.

1. Except as provided for under 23.1(5)*"a"*(6)"2," planning, awarding of contracts, and installation of MSW landfill air emission collection and control equipment capable of meeting the emission guidelines established under 23.1(5)*"a"*(3) shall be accomplished within 30 months after the date the initial NMOC emission rate report shows NMOC emissions greater than or equal to 50 megagrams per year.

2. For each existing MSW landfill meeting the conditions in 23.1(5)*"a"*(3)"1" whose NMOC emission rate is less than 50 megagrams per year on August 20, 1997, installation of collection and control systems capable of meeting emission guidelines in 23.1(5)*"a"*(3) shall be accomplished within 30 months of the date when the condition in 23.1(5)*"a"*(3)"1" is met (i.e., the date of the first annual nonmethane organic compounds emission rate which equals or exceeds 50 megagrams per year).

b. Emission guidelines for hospital/medical/infectious waste incinerators (Subpart Ce). This paragraph contains emission guidelines and compliance times for the control of certain designated pollutants from hospital/medical/infectious waste incinerator(s) (HMIWI) in accordance with Subparts Ce and Ec (Standards of Performance for Hospital/Medical/Infectious Waste Incinerators) of 40 CFR Part 60.*

*As of November 24, 2010, the emission guidelines for hospital/medical/infectious waste incinerators (Subpart Ce) are rescinded.

c. Emission guidelines and compliance schedules for existing commercial and industrial solid waste incineration units that commenced construction on or before November 30, 1999. Emission guidelines and compliance schedules for the control of designated pollutants from affected commercial and industrial solid waste incinerators that commenced construction on or before November 30, 1999, shall be in accordance with requirements established in Subpart III of 40 CFR Part 62 and 40 CFR §62.3916 as adopted through August 24, 2004.

d. Emission guidelines for mercury for coal-fired electric utility steam generating units. Rescinded IAB 10/7/09, effective 11/11/09.

e. Emission guidelines and compliance times for existing sewage sludge incineration units (40 CFR Part 62, Subpart LLL). Emission guidelines and compliance times for control of designated pollutants from affected sewage sludge incineration (SSI) units that commenced construction or reconstruction on or before October 14, 2010, shall be in accordance with federal standards established in Subpart LLL of 40 CFR Part 62, as amended through April 29, 2016.

23.1(6) *Calculation of emission limitations based upon stack height.* This rule sets limits for the maximum stack height credit to be used in ambient air quality modeling for the purpose of setting an emission limitation and calculating the air quality impact of a source. The rule does not limit the actual physical stack height for any source.

For the purpose of this subrule, definitions of "stack," "a stack in existence," "dispersion technique," "nearby" and "excessive concentration" as set forth in 40 CFR §§ 51.100(ff) through (hh), (jj) and (kk) as amended through June 14, 1996, are adopted by reference.

a. "Good engineering practice (GEP) stack height" means the greater of:

(1) Sixty-five meters, measured from the ground level elevation at the base of the stack; or

(2) For stacks in existence on January 12, 1979, and for which the owner and operator had obtained all applicable permits or approvals required under 567—Chapter 22 and 40 CFR § 52.21 as amended through June 13, 2007,

$$H_g = 2.5H$$

provided the owner or operator produces evidence that this equation was actually relied on in establishing an emission limitation;

For all other stacks,

$$H_g = H + 1.5L$$

where:

H_g= good engineering practice stack height, measured from the ground level elevation at the base of the stack,

H = height of nearby structure(s) measured from the ground level elevation at the base of the stack,

L = lesser dimension, height or projected width, of nearby structure(s), provided that the department may require the use of a field study or fluid model to verify GEP stack height for the source; or

(3) The height demonstrated by a fluid model or a field study approved by the department, which ensures that the emissions from a stack do not result in excessive concentrations of any air pollutant as a result of atmospheric downwash, wakes, or eddy effects created by the source itself, nearby structures or nearby terrain features. Public notification of the availability of such study and opportunity for public hearing are required prior to approval by the department.

b. The degree of emission limitation required for control of any air contaminant under this chapter shall not be affected in any manner by:

(1) The consideration of that portion of a stack which exceeds GEP stack height; or

(2) Varying the rate of emission of a pollutant according to atmospheric conditions or ambient concentrations of that pollutant; or

(3) Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combined exhaust gases from several existing stacks into one stack; or other selective handling of exhaust gas streams so as to increase gas plume rise.

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 7565B**, IAB 2/11/09, effective 3/18/09; **ARC 7623B**, IAB 3/11/09, effective 4/15/09; **ARC 8216B**, IAB 10/7/09, effective 11/11/09; **ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 9154B**, IAB 10/20/10, effective 11/24/10 (See Delay note at end of chapter) (See Rescission note at end of chapter); **ARC 0329C**, IAB 9/19/12, effective 10/24/12; **ARC 1014C**, IAB 9/18/13, effective 10/23/13; **ARC 1561C**, IAB 8/6/14, effective 9/10/14; **ARC 1913C**, IAB 3/18/15, effective 4/22/15; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; **ARC 4335C**, IAB 3/13/19, effective 4/17/19; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—23.2(455B) Open burning.

23.2(1) *Prohibition.* No person shall allow, cause or permit open burning of combustible materials, except as provided in 23.2(2) and 23.2(3).

23.2(2) *Variances from rules.* Any person wishing to conduct open burning of materials not exempted in 23.2(3) may make application for a variance as specified in 567—subrule 21.2(1). In addition to requiring the information specified under 567—subrule 21.2(1), the director may require any person applying for a variance from the open burning rules to submit adequate documentation to allow the director to assess whether granting the variance will hinder attainment or maintenance of a National Ambient Air Quality Standard (NAAQS).

23.2(3) *Exemptions.* The open burning exemptions specified in this subrule shall not be construed as exemptions from any other applicable environmental regulations. In particular, the exemptions contained in this subrule do not absolve any person from compliance with the rules for solid waste disposal, including ash disposal, and solid waste permitting contained in 567—Chapters 100 through 130 or the rules for storm water runoff and storm water permitting contained in 567—Chapters 60 and 64. The following shall be permitted unless prohibited by local ordinances or regulations.

a. *Disaster rubbish.* The open burning of rubbish, including landscape waste, for the duration of the community disaster period in cases where an officially declared emergency condition exists. Burning of any structures or demolished structures shall be conducted in accordance with 40 CFR Section 61.145 as amended through January 16, 1991, which is the "Standard for Demolition and Renovation" of the asbestos National Emission Standard for Hazardous Air Pollutants.

b. *Trees and tree trimmings.* The open burning of trees and tree trimmings not originated on the premises provided that the burning site is operated by a local governmental entity, the burning site is fenced and access is controlled, burning is conducted on a regularly scheduled basis and is supervised at all times, burning is conducted only when weather conditions are favorable with respect to surrounding property, and the burning site is limited to areas at least one-quarter mile from any inhabited building unless a written waiver in the form of an affidavit is submitted by the owner of the building to the department and to the local governmental entity prior to the first instance of open burning at the site which occurs after November 13, 1996. The written waiver shall become effective only upon recording in the office of the recorder of deeds of the county in which the inhabited building is located. However, when the open burning of trees and tree trimmings causes air pollution as defined in Iowa Code section 455B.131(3), the department may take appropriate action to secure relocation of the burning operation. Rubber tires shall not be used to ignite trees and tree trimmings.

This exemption shall not apply within the area classified as the PM10 (inhalable) particulate Group II area of Mason City. This Group II area is described as follows: the area in Cerro Gordo County, Iowa, in Lincoln Township including Sections 13, 24 and 25; in Lime Creek Township including Sections 18, 19, 20, 21, 27, 28, 29, 30, 31, 32, 33, 34 and 35; in Mason Township the W ½ of Section 1, Sections 2, 3, 4, 5, 8, 9, the N ½ of Section 11, the NW ¼ of Section 12, the N ½ of Section 16, the N ½ of Section 17 and the portions of Sections 10 and 15 north and west of the line from U.S. Highway 18 south on Kentucky Avenue to 9th Street SE; thence west on 9th Street SE to the Minneapolis and St. Louis railroad tracks; thence south on Minneapolis and St. Louis railroad tracks to 19th Street SE; thence west on 19th Street SE to the section line between Sections 15 and 16.

c. *Flare stacks.* The open burning or flaring of waste gases, providing such open burning or flaring is conducted in compliance with 23.3(2)*"d"* and 23.3(3)*"e."*

d. *Landscape waste.* The disposal by open burning of landscape waste originating on the premises. However, the burning of landscape waste produced in clearing, grubbing and construction operations shall be limited to areas located at least one-fourth mile from any building inhabited by other than the landowner or tenant conducting the open burning. Rubber tires shall not be used to ignite landscape waste.

e. *Recreational fires.* Open fires for cooking, heating, recreation and ceremonies, provided they comply with 23.3(2)*"d."* Burning rubber tires is prohibited from this activity.

f. *Residential waste.* Backyard burning of residential waste at dwellings of four-family units or less. The adoption of more restrictive ordinances or regulations of a governing body of the political subdivision, relating to control of backyard burning, shall not be precluded by these rules.

g. *Training fires.* For purposes of subrule 23.2(3), a "training fire" is a fire set for the purposes of conducting bona fide training of public or industrial employees in firefighting methods. For purposes of this paragraph, "bona fide training" means training that is conducted according to the National Fire Protection Association 1403 Standard of Live Fire Training Evolutions (2002 Edition) or a comparable training fire standard. A training fire may be conducted, provided that all of the following conditions are met:

(1) A training fire on a building is conducted with the building structurally intact.

(2) The training fire does not include the controlled burn of a demolished building.

(3) If the training fire is to be conducted on a building, written notification is provided to the department on DNR Form 542-8010, Notification of an Iowa Training Fire-Demolition or a Controlled Burn of a Demolished Building, and is postmarked or delivered to the director at least ten working days before such action commences.

(4) Notification shall be made in accordance with 40 CFR Section 61.145, "Standard for Demolition and Renovation" of the asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), as amended through January 16, 1991.

(5) All asbestos-containing materials shall be removed prior to the training fire.

(6) Asphalt roofing may be burned in the training fire only if notification to the director contains testing results indicating that none of the layers of asphalt roofing contain asbestos. During each calendar year, each fire department may conduct no more than two training fires on buildings where asphalt roofing has not been removed, provided that for each of those training fires the asphalt roofing material present has been tested to ensure that it does not contain asbestos. Each fire department's limit on the burning of asphalt roofing shall include both training fires and the controlled burning of a demolished building, as specified in 23.2(3)*"j."*

(7) Rubber tires shall not be burned during a training fire.

h. Paper or plastic pesticide containers and seed corn bags. The disposal by open burning of paper or plastic pesticide containers (except those formerly containing organic forms of beryllium, selenium, mercury, lead, cadmium or arsenic) and seed corn bags resulting from farming activities occurring on the premises. Such open burning shall be limited to areas located at least one-fourth mile from any building inhabited by other than the landowner or tenant conducting the open burning, livestock area, wildlife area, or water source. The amount of paper or plastic pesticide containers and seed corn bags that can be disposed of by open burning shall not exceed one day's accumulation or 50 pounds, whichever is less. However, when the burning of paper or plastic pesticide containers or seed corn bags causes a nuisance, the director may take action to secure relocation of the burning operation. Since the concentration levels of pesticide combustion products near the fire may be hazardous, the person conducting the open burning should take precautions to avoid inhalation of the pesticide combustion products.

i. Agricultural structures. The open burning of agricultural structures, provided that the open burning occurs on the premises and, for agricultural structures located within a city or town, at least one-fourth mile from any building inhabited by a person other than the landowner, a tenant, or an employee of the landowner or tenant conducting the open burning unless a written waiver in the form of an affidavit is submitted by the owner of the building to the department prior to the open burning; all chemicals and asphalt roofing are removed; burning is conducted only when weather conditions are favorable with respect to surrounding property; and permission from the local fire chief is secured in advance of the burning. Rubber tires shall not be used to ignite agricultural structures. The asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), as amended through January 16, 1991, requires the burning of agricultural structures to be conducted in accordance with 40 CFR Section 61.145, "Standard for Demolition and Renovation."

For the purposes of this subrule, "agricultural structures" means barns, machine sheds, storage cribs, animal confinement buildings, and homes located on the premises and used in conjunction with crop production, livestock or poultry raising and feeding operations. "Agricultural structures," for asbestos NESHAP purposes, includes all of the above, with the exception of a single residential structure on the premises having four or fewer dwelling units, which has been used only for residential purposes.

j. Controlled burning of a demolished building. A city, as "city" is defined in Iowa Code section 362.2(4), with approval of its council, as "council" is defined in Iowa Code section 362.2(8), may conduct a controlled burn of a demolished building. A city is the only party that may conduct such a burn and is responsible for ensuring that all of the following conditions are met:

(1) *Prohibition.* The controlled burning of a demolished building is prohibited within the city limits of Cedar Rapids, Marion, Hiawatha, Council Bluffs, Carter Lake, Des Moines, West Des Moines, Clive, Windsor Heights, Urbandale, Pleasant Hill, Buffalo, Davenport, Mason City or any other area where area-specific state implementation plans require the control of particulate matter.

(2) *Notification requirements.* For each building proposed to be burned, the city fire department or a city official, on behalf of the city, shall submit to the department a completed notification postmarked at least 10 working days prior to commencing demolition and at least 30 days before the proposed controlled burn commences. Documentation of city council approval shall be submitted with the notification. Information required to be provided shall include: the exact location of the burn site; the approximate distance to the nearest neighboring residence or business; the method used by the city to notify nearby residents of the proposed burn; an explanation of why alternative methods of demolition debris management are not being used; and information required by 40 CFR Section 61.145, "Standard for Demolition and Renovation" of the asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), as amended through January 16, 1991. Notification shall be provided on DNR Form 542-8010, Notification of an Iowa Training Fire-Demolition or a Controlled Burn of a Demolished Building. For burns conducted outside the city limits, the city shall send to the chairperson of the applicable county board a copy of the completed DNR notification form 542-8010 and documentation of city council approval. Notification to the county board shall be postmarked, faxed or sent by electronic mail at least 30 days before the proposed controlled burn commences.

(3) *Asbestos removal requirements.* All asbestos-containing materials shall be removed before the building to be burned is demolished. The department may require proof that any applicable inspection, notification, removal and demolition occurred, or will occur, in accordance with 40 CFR Section 61.145, "Standard for Demolition and Renovation" of the asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP), as amended through January 16, 1991.

(4) *Requirements for asphalt roofing.* During each calendar year, each city shall conduct no more than two controlled burns of a demolished building in which asphalt roofing has not been removed, provided that for each controlled burn of a demolished building the asphalt roofing material present has been tested to ensure that it does not contain asbestos. Each city's limit on the burning of asphalt roofing shall include both the controlled burning of a demolished building and training fires, as specified in paragraph 23.2(3)*"g."*

(5) *Building size limit.* For each proposed controlled burn located within the city limits, more than one demolished building may be included in the burn, provided that the sum total of all building material to be burned at a designated site does not exceed 1700 square feet in size. For a controlled burn site located outside the city limits, the sum total of all building material to be burned, per day, may not exceed 1700 square feet in size. For purposes of this subparagraph, "square feet" includes both finished and unfinished basements and excludes unfinished attics, carports, attached garages, and porches that are not protected from weather.

(6) *Time of day requirements.* The controlled burning of a demolished building may be conducted only between the hours of 6 a.m. and 6 p.m. and only when weather conditions are favorable with respect to surrounding property. The city shall adequately schedule and sufficiently control the burn to ensure that burning is completed by 6 p.m.

(7) *Prohibited materials.* Rubber tires, chemicals, furniture, carpeting, household appliances, vinyl products (such as flooring or siding), trade waste, garbage, rubbish, landscape waste, residential waste, and other nonstructural materials shall not be burned.

(8) *Limits on the number and location of burns.* For burns conducted within the city limits, each city may undertake no more than one controlled burn of demolished building material in every 0.6-mile-radius circle during each calendar year. For burn sites established outside the city limits, each city shall undertake no more than one controlled burn of demolished building material per day. A burn site outside the city limits must be located at least 0.6 of a mile from any building inhabited by a person, as "person" is defined in Iowa Code section 362.2(17).

(9) *Requirements for burn access and supervision.* The city shall control access to all demolished building burn sites. Representatives of the city who are city employees or who are hired by the city shall supervise the burning of demolished building material at all times.

(10) *Record-keeping requirements.* The city shall retain at least one copy of all notifications and supplementary information required to be sent to the department under subparagraph (2). Additionally, the city shall maintain a map of the exact location of each burn site, and supporting documentation

showing the date of each demolished building burn and the square feet of building material burned on each date. All maps, notifications and associated records shall be maintained by the city clerk, as "clerk" is defined in Iowa Code section 362.2(7), for a period of at least three years and shall be made available for inspection by the department upon request.

(11) *Variance from this paragraph.* In accordance with 567—subrules 21.2(1) and 23.2(2), a city may apply for a variance from the specific conditions for controlled burning of a demolished building and may request that the director conduct a review of the ambient air impacts of the request. The director shall approve or deny the request in accordance with 567—subrule 21.2(4).

(12) *Compliance with other applicable environmental regulations.* Compliance with the exemption requirements in this paragraph shall not absolve a city of the responsibility to comply with any other applicable environmental regulations. In particular, a city conducting a controlled burn of a demolished building shall comply with all applicable solid waste disposal, including ash disposal, and solid waste permitting rules contained in 567—Chapters 100 through 130, as well as all applicable storm water discharge and storm water permitting rules contained in 567—Chapters 60 and 64.

23.2(4) *Unavailability of exemptions in certain areas.* Notwithstanding 23.2(2) and 23.2(3)*"b," "d," "f,"* and *"i,"* no person shall allow, cause or permit the open burning of trees or tree trimmings, residential or landscape waste or agricultural structures in the cities of: Cedar Rapids, Marion, Hiawatha, Council Bluffs, Carter Lake, Des Moines, West Des Moines, Clive, Windsor Heights, Urbandale, and Pleasant Hill.

This rule is intended to implement Iowa Code section 455B.133.

567—23.3(455B) Specific contaminants.

23.3(1) *General.* The emission standards contained in this rule shall apply to each source operation unless a performance standard for the process is specified in subrule 23.1(2), in which case the performance standard shall apply.

23.3(2) *Particulate matter.* No person shall cause or allow the emission of particulate matter from any source in excess of the emission standards specified in this chapter, except as provided in 567—Chapter 24.

a. General emission rate.

(1) For sources constructed, modified or reconstructed on or after July 21, 1999, the emission of particulate matter from any process shall not exceed an emission standard of 0.1 grain per dry standard cubic foot (dscf) of exhaust gas, except as provided in 567—21.2(455B), 567—23.1(455B), 567—23.4(455B), and 567—Chapter 24.

(2) For sources constructed, modified or reconstructed prior to July 21, 1999, the emission of particulate matter from any process shall not exceed the amount determined from Table I, or amount specified in a permit if based on an emission standard of 0.1 grain per standard cubic foot of exhaust gas, or established from standards provided in 567—23.1(455B) and 567—23.4(455B).

TABLE I

ALLOWABLE RATE OF EMISSION BASED ON PROCESS WEIGHT RATE*

Process Weight Rate		Emission Rate	Process Weight Rate		Emission Rate
Lb/Hr	Tons/Hr	Lb/Hr	Lb/Hr	Tons/Hr	Lb/Hr
100	0.05	0.55	16,000	8.00	16.5
200	0.10	0.88	18,000	9.00	17.9
400	0.20	1.40	20,000	10.00	19.2
600	0.30	1.83	30,000	15.00	25.2
800	0.40	2.22	40,000	20.00	30.5
1,000	0.50	2.58	50,000	25.00	35.4
1,500	0.75	3.38	60,000	30.00	40.0
2,000	1.00	4.10	70,000	35.00	41.3

Process Weight Rate		Emission Rate	Process Weight Rate		Emission Rate
Lb/Hr	Tons/Hr	Lb/Hr	Lb/Hr	Tons/Hr	Lb/Hr
2,500	1.25	4.76	80,000	40.00	42.5
3,000	1.50	5.38	90,000	45.00	43.6
3,500	1.75	5.96	100,000	50.00	44.6
4,000	2.00	6.52	120,000	60.00	46.3
5,000	2.50	7.58	140,000	70.00	47.8
6,000	3.00	8.56	160,000	80.00	49.0
7,000	3.50	9.49	200,000	100.00	51.2
8,000	4.00	10.4	1,000,000	500.00	69.0
9,000	4.50	11.2	2,000,000	1,000.00	77.6
10,000	5.00	12.0	6,000,000	3,000.00	92.7
12,000	6.00	13.6			

*Interpolation of the data in this table for process weight rates up to 60,000 lb/hr shall be accomplished by the use of the equation

$$E=4.10\ P^{0.67},$$

and interpolation and extrapolation of the data for process weight rates in excess of 60,000 lb/hr shall be accomplished by use of the equation

$$E=55.0\ P^{0.11}—40,$$

where E = rate of emission in lb/hr, and

P = process weight in tons/hr

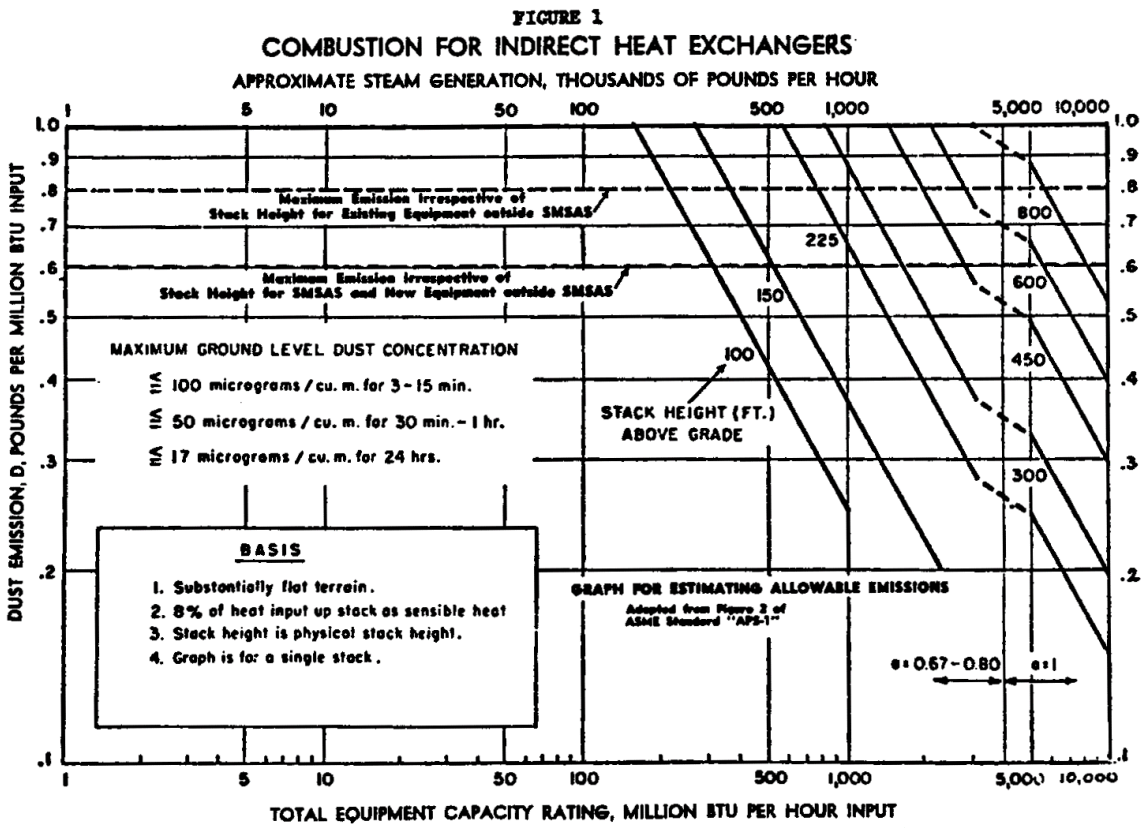
b. Combustion for indirect heating. Emissions of particulate matter from the combustion of fuel for indirect heating or for power generation shall be limited by the ASME Standard APS-1, Second Edition, November, 1968, "Recommended Guide for the Control of Dust Emission—Combustion for Indirect Heat Exchangers." For the purpose of this paragraph, the allowable emissions shall be calculated from equation (15) in that standard, with $Comax^2$=50 micrograms per cubic meter. Allowable emissions from a single stack may be estimated from Figure 1. The maximum ground level dust concentrations designated are above the background level. For plants with 4,000 million Btu/hour input or more, the "a" factor shall be 1.0. In plants with less than 4,000 million Btu/hour input, appropriate "a" factors, less than 1.0, shall be applied. Pertinent correction factors, as specified in the standard, shall be applied for installations with multiple stacks. However, for fuel-burning units in operation on January 13, 1976, the maximum allowable emissions calculated under APS-1 for the facility's equipment configuration on January 13, 1976, shall not be increased even if the changes in the equipment or stack configuration would otherwise allow a recalculation and a higher maximum allowable emission under APS-1.

(1) Outside any standard metropolitan statistical area, the maximum allowable emissions from each stack, irrespective of stack height, shall be 0.8 pounds of particulates per million Btu input.

(2) Inside any standard metropolitan statistical area, the maximum allowable emission from each stack, irrespective of stack height, shall be 0.6 pounds of particulates per million Btu input.

(3) For a new fossil fuel-fired steam generating unit of more than 250 million Btu per hour heat input, 23.1(2)*"a"* shall apply. For a new unit of between 150 million and 250 million (inclusive) Btu per hour heat input, the maximum allowable emissions from such new unit shall be 0.2 pounds of particulates per million Btu of heat input. For a new unit of less than 150 million Btu per hour heat input, the maximum allowable emissions from such new unit shall be 0.6 pounds of particulates per million Btu of heat input.

(4) Measurements of emissions from a particulate source will be made in accordance with the provisions of 567—Chapter 25.



(5) For fuel-burning sources in operation prior to July 29, 1977, which are not subject to 23.1(2) and which significantly impact a primary or secondary particulate standard nonattainment area, the emission limitations specified in this subparagraph apply. A significant impact shall be equal to or exceeding 5 micrograms of particulate matter per cubic meter of air (24-hour average) or 1 microgram of particulate matter per cubic meter of air (annual average) determined by an EPA approved single source dispersion model using allowable emission rates and five-year worst case meteorological conditions. In the case where two or more boilers discharge into a common stack, the applicable stack emission limitation shall be based upon the heat input of the largest operating boiler. The plantwide allowable emission limitation shall be the weighted average of the allowable emission limitations for each stack or the applicable APS-1 plantwide standard as determined under paragraph 23.3(2)*"b,"* whichever is more stringent.

The maximum allowable emission rate for a single stack with a total heat input capacity less than 250 million Btu per hour shall be 0.60 pound of particulate matter per million Btu heat input; the maximum allowable emission rate for a single stack with a total heat input capacity greater than or equal to 250 million Btu per hour and less than 500 million Btu per hour shall be 0.40 pound of particulate matter per million Btu heat input; the maximum allowable emission rate for a single stack with a total heat input capacity greater than or equal to 500 million Btu per hour shall be 0.30 pound of particulate matter per million Btu heat input; except that the maximum allowable emission rate for the stack serving Unit #1 of Iowa Public Service at Port Neal shall be 0.50 pound of particulate matter per million Btu heat input.

All sources regulated under this subparagraph shall demonstrate compliance by October 1, 1981; however, a source is considered to be in compliance with this subparagraph if by October 1, 1981, it is on a compliance schedule to be completed as expeditiously as possible, but no later than December 31, 1982.

c. Fugitive dust.

(1) Attainment and unclassified areas. A person shall take reasonable precautions to prevent particulate matter from becoming airborne in quantities sufficient to cause a nuisance as defined in Iowa Code section 657.1 when the person allows, causes or permits any materials to be handled, transported

or stored or a building, its appurtenances or a construction haul road to be used, constructed, altered, repaired or demolished, with the exception of farming operations or dust generated by ordinary travel on unpaved roads. Ordinary travel includes routine traffic and road maintenance activities such as scarifying, compacting, transporting road maintenance surfacing material, and scraping of the unpaved public road surface. All persons, with the above exceptions, shall take reasonable precautions to prevent the discharge of visible emissions of fugitive dusts beyond the lot line of the property on which the emissions originate. The public highway authority shall be responsible for taking corrective action in those cases where said authority has received complaints of or has actual knowledge of dust conditions which require abatement pursuant to this subrule. Reasonable precautions may include, but not be limited to, the following procedures.

1. Use, where practical, of water or chemicals for control of dusts in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land.

2. Application of suitable materials, such as but not limited to asphalt, oil, water or chemicals on unpaved roads, material stockpiles, race tracks and other surfaces which can give rise to airborne dusts.

3. Installation and use of containment or control equipment, to enclose or otherwise limit the emissions resulting from the handling and transfer of dusty materials, such as but not limited to grain, fertilizer or limestone.

4. Covering, at all times when in motion, open-bodied vehicles transporting materials likely to give rise to airborne dusts.

5. Prompt removal of earth or other material from paved streets or to which earth or other material has been transported by trucking or earth-moving equipment, erosion by water or other means.

6. Reducing the speed of vehicles traveling over on-property surfaces as necessary to minimize the generation of airborne dusts.

(2) Nonattainment areas. Subparagraph (1) notwithstanding, no person shall allow, cause or permit any visible emission of fugitive dust in a nonattainment area for particulate matter to go beyond the lot line of the property on which a traditional source is located without taking reasonable precautions to prevent emission. Traditional source means a source category for which a particulate emission standard has been established in 23.1(2), 23.3(2)*"a,"* 23.3(2)*"b"* or 567—23.4(455B) and includes a quarry operation, haul road or parking lot associated with a traditional source. This paragraph does not modify the emission standard stated in 23.1(2), 23.3(2)*"a,"* 23.3(2)*"b"* or 567—23.4(455B), but rather establishes a separate requirement for fugitive dust from such sources. For guidance on the types of controls which may constitute reasonable precautions, see "Identification of Techniques for the Control of Industrial Fugitive Dust Emissions," [available from the department] adopted by the commission on May 19, 1981.

(3) Reclassified areas. Reasonable precautions implemented pursuant to the nonattainment area provisions of subparagraph (2) shall remain in effect if the nonattainment area is redesignated to either attainment or unclassified after March 6, 1980.

d. Visible emissions. No person shall allow, cause or permit the emission of visible air contaminants into the atmosphere from any equipment, internal combustion engine, premise fire, open fire or stack, equal to or in excess of 40 percent opacity or that level specified in a construction permit, except as provided below and in 567—Chapter 24.

(1) *Residential heating equipment.* Residential heating equipment serving dwellings of four family units or less is exempt.

(2) *Gasoline-powered vehicles.* No person shall allow, cause or permit the emission of visible air contaminants from gasoline-powered motor vehicles for longer than five consecutive seconds.

(3) *Diesel-powered vehicles.* No person shall allow, cause or permit the emission of visible air contaminants from diesel-powered motor vehicles in excess of 40 percent opacity, for longer than five consecutive seconds.

(4) *Diesel-powered locomotives.* No person shall allow, cause or permit the emission of visible air contaminants from diesel-powered locomotives in excess of 40 percent opacity, except for a maximum period of 40 consecutive seconds during acceleration under load, or for a period of four consecutive minutes when a locomotive is loaded after a period of idling.

(5) *Startup and testing.* Initial start and warmup of a cold engine, the testing of an engine for trouble, diagnosis or repair, or engine research and development activities, is exempt.

(6) *Uncombined water.* The provisions of this paragraph shall apply to any emission which would be in violation of these provisions except for the presence of uncombined water, such as condensed water vapor.

23.3(3) *Sulfur compounds.* The provisions of this subrule shall apply to any installation from which sulfur compounds are emitted into the atmosphere.

a. Sulfur dioxide from use of solid fuels.

(1) No person shall allow, cause, or permit the emission of sulfur dioxide into the atmosphere from an existing solid fuel-burning unit, (i.e., a unit which was in operation or for which components had been purchased, or which was under construction prior to September 23, 1970), in an amount greater than 6 pounds, replicated maximum three-hour average, per million Btu of heat input if such unit is located within the following counties: Black Hawk, Clinton, Des Moines, Dubuque, Jackson, Lee, Linn, Lousia, Muscatine and Scott.

(2) No person shall allow, cause, or permit the emission of sulfur dioxide into the atmosphere from an existing solid fuel-burning unit, (i.e., a unit which was in operation or for which components had been purchased, or which was under construction prior to September 23, 1970), in an amount greater than 5 pounds, replicated maximum three-hour average, per million Btu of heat input if such unit is located within the remaining 89 counties of the state not listed in subparagraph 23.3(3)*"a"*(1).

(3) No person shall allow, cause, or permit the emission of sulfur dioxide into the atmosphere from any new solid fuel-burning unit (i.e., a unit which was not in operation or for which components had not been purchased, or which was not under construction prior to September 23, 1970) which has a capacity of 250 million Btu or less per hour heat input, in an amount greater than 6 pounds, replicated maximum three-hour average, per million Btu of heat input.

(4) Subparagraphs (1) through (3) notwithstanding, a fossil fuel-fired steam generator to which 23.1(2)*"a,"* 23.1(2)*"z"* or 23.1(2)*"ccc"* applies shall comply with 23.1(2)*"a,"* 23.1(2)*"z"* or 23.1(2)*"ccc,"* respectively.

b. Sulfur dioxide from use of liquid fuels.

(1) No person shall allow, cause, or permit the combustion of number 1 or number 2 fuel oil exceeding a sulfur content of 0.5 percent by weight.

(2) No person shall allow, cause, or permit the emission of sulfur dioxide into the atmosphere in an amount greater than 2.5 pounds of sulfur dioxide, replicated maximum three-hour average, per million Btu of heat input from a liquid fuel-burning unit.

(3) Notwithstanding this paragraph, a fossil fuel-fired steam generator to which 23.1(2)*"a,"* 23.1(2)*"z"* or 23.1(2)*"ccc"* applies shall comply with 23.1(2)*"a,"* 23.1(2)*"z"* or 23.1(2)*"ccc."*

c. Sulfur dioxide from sulfuric acid manufacture. After January 1, 1975, no person shall allow, cause or permit the emission of sulfur dioxide from an existing sulfuric acid manufacturing plant in excess of 30 pounds of sulfur dioxide, maximum three-hour average, per ton of product calculated as 100 percent sulfuric acid.

d. Acid mist from sulfuric acid manufacture. After January 1, 1974, no person shall allow, cause or permit the emission of acid mist calculated as sulfuric acid from an existing sulfuric acid manufacturing plant in excess of 0.5 pounds, maximum three-hour average, per ton of product calculated as 100 percent sulfuric acid.

e. Other processes capable of emitting sulfur dioxide. After January 1, 1974, no person shall allow, cause or permit the emission of sulfur dioxide from any process, other than sulfuric acid manufacture, in excess of 500 parts per million, based on volume. This paragraph shall not apply to devices which have been installed for air pollution abatement purposes where it is demonstrated by the owner of the source that the ambient air quality standards are not being exceeded.

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 2949C**, IAB 2/15/17, effective 3/22/17]

567—23.4(455B) Specific processes.

23.4(1) *General.* The provisions of this rule shall not apply to those facilities for which performance standards are specified in 23.1(2). The emission standards specified in this rule shall apply and those specified in 23.3(2)*"a"* and 23.3(2)*"b"* shall not apply to each process of the types listed in the following subrules, except as provided below.

EXCEPTION: Whenever the director determines that a process complying with the emission standard prescribed in this section is causing or will cause air pollution in a specific area of the state, the specific emission standard may be suspended and compliance with the provisions of 567—23.3(455B) may be required in such instance.

23.4(2) *Asphalt batching plants.* No person shall cause, allow or permit the operation of an asphalt batching plant in a manner such that the particulate matter discharged to the atmosphere exceeds 0.15 grain per standard cubic foot of exhaust gas.

23.4(3) *Cement kilns.* Cement kilns shall be equipped with air pollution control devices to reduce the particulate matter in the gas discharged to the atmosphere to no more than 0.3 percent of the particulate matter entering the air pollution control device. Regardless of the degree of efficiency of the air pollution control device, particulate matter discharged from such kilns shall not exceed 0.1 grain per standard cubic foot of exhaust gas.

23.4(4) *Cupolas for metallurgical melting.* The emissions of particulate matter from all new foundry cupolas, and from all existing foundry cupolas with a process weight rate in excess of 20,000 pounds per hour, shall not exceed the amount specified in paragraph 23.3(2)*"a,"* except as provided in 567—Chapter 24.

The emissions of particulate matter from all existing foundry cupolas with a process weight rate less than or equal to 20,000 pounds per hour shall not exceed the amount determined from Table II of these rules, except as provided in 567—Chapter 24.

TABLE II
ALLOWABLE EMISSIONS FROM
EXISTING SMALL FOUNDRY CUPOLAS

Process weight rate (lb/hr)	Allowable emission (lb/hr)
1,000	3.05
2,000	4.70
3,000	6.35
4,000	8.00
5,000	9.58
6,000	11.30
7,000	12.90
8,000	14.30
9,000	15.50
10,000	16.65
12,000	18.70
16,000	21.60
18,000	23.40
20,000	25.10

23.4(5) *Electric furnaces for metallurgical melting.* The emissions of particulate matter to the atmosphere from electric furnaces used for metallurgical melting shall not exceed 0.1 grain per standard cubic foot of exhaust gas.

23.4(6) *Sand handling and surface finishing operations in metal processing.* This subrule shall apply to any new foundry or metal processing operation not properly termed a combustion, melting, baking or pouring operation. For purposes of this subrule, a new process is any process which has not started operation, or the construction of which has not been commenced, or the components of which have not been ordered or contracts for the construction of which have not been let on August 1, 1977. No person shall allow, cause or permit the operation of any equipment designed for sand shakeout, mulling, molding, cleaning, preparation, reclamation or rejuvenation or any equipment for abrasive cleaning, shot blasting, grinding, cutting, sawing or buffing in such a manner that particulate matter discharged from any stack exceeds 0.05 grains per dry standard cubic foot of exhaust gas, regardless of the types and number of operations that discharge from the stack.

23.4(7) *Grain handling and processing plants.* The owner or operator of equipment at a permanent installation for the handling or processing of grain, grain products and grain by-products shall not cause, allow or permit the particulate matter discharged to the atmosphere to exceed 0.1 grain per dry standard cubic foot of exhaust gas, except as follows:

a. The particulate matter discharged to the atmosphere from a grain bin vent at a country grain elevator, as "country grain elevator" is defined in 567—subrule 22.10(1), shall not exceed 1.0 grain per dry standard cubic foot of exhaust gas.

b. The particulate matter discharged to the atmosphere from a grain bin vent that was constructed, modified or reconstructed before March 31, 2008, at a country grain terminal elevator, as "country grain terminal elevator" is defined in 567—subrule 22.10(1), or at a grain terminal elevator, as "grain terminal elevator" is defined in 567—subrule 22.10(1), shall not exceed 1.0 grain per dry standard cubic foot of exhaust gas.

c. The particulate matter discharged to the atmosphere from a grain bin vent that is constructed or reconstructed on or after March 31, 2008, at a country grain terminal elevator, as "country grain terminal elevator" is defined in 567—subrule 22.10(1), or at a grain terminal elevator, as "grain terminal elevator" is defined in 567—subrule 22.10(1), shall not exceed 0.1 grain per dry standard cubic foot of exhaust gas.

23.4(8) *Lime kilns.* No person shall cause, allow or permit the operation of a kiln for the processing of limestone such that the particulate matter in the gas discharged to the atmosphere exceeds 0.1 grain per standard cubic foot of exhaust gas.

23.4(9) *Meat smokehouses.* No person shall cause, allow or permit the operation of a meat smokehouse or a group of meat smokehouses, which consume more than ten pounds of wood, sawdust or other material per hour such that the particulate matter discharged to the atmosphere exceeds 0.2 grain per standard cubic foot of exhaust gas.

23.4(10) *Phosphate processing plants.*

a. Phosphoric acid manufacture. No person shall allow, cause or permit the operation of equipment for the manufacture of phosphoric acid that was in existence on October 22, 1974, in a manner that produces more than 0.04 pound of fluoride per ton of phosphorous pentoxide or equivalent input.

b. Diammonium phosphate manufacture. No person shall allow, cause or permit the operation of equipment for the manufacture of diammonium phosphate that was in existence on October 22, 1974, in a manner that produces more than 0.15 pound of fluoride per ton of phosphorous pentoxide or equivalent input.

c. Nitrophosphate manufacture. No person shall allow, cause or permit the operation of equipment for the manufacture of nitrophosphate in a manner that produces more than 0.06 pound of fluoride per ton of phosphorus pentoxide or equivalent input.

d. No person shall allow, cause or permit the operation of equipment for the processing of phosphate ore, rock or other phosphatic material (other than equipment used for the manufacture of phosphoric acid, diammonium phosphate or nitrophosphate) in a manner that the unit emissions of fluoride exceed 0.4 pound of fluoride per ton of phosphorous pentoxide or its equivalent input.

e. Notwithstanding *"a"* through *"d,"* no person shall allow, cause or permit the operation of equipment for the processing of phosphorous ore, rock or other phosphatic material including, but not limited to, phosphoric acid, in a manner that emissions of fluorides exceed 100 pounds per day.

f. "Fluoride" means elemental fluorine and all fluoride compounds as measured by reference methods specified in Appendix A to 40 CFR Part 60 as amended through March 12, 1996.

g. Calculation. The allowable total emission of fluoride shall be calculated by multiplying the unit emission specified above by the expressed design production capacity of the process equipment.

23.4(11) *Portland cement concrete batching plants.* No person shall cause, allow or permit the operation of a Portland cement concrete batching plant such that the particulate matter discharged to the atmosphere exceeds 0.1 grain per standard cubic foot of exhaust gas.

23.4(12) *Incinerators.* A person shall not cause, allow or permit the operation of an incinerator unless provided with appropriate control of emissions of particulate matter and visible air contaminants.

a. *Particulate matter.* A person shall not cause, allow or permit the operation of an incinerator with a rated refuse burning capacity of 1000 or more pounds per hour in a manner such that the particulate matter discharged to the atmosphere exceeds 0.2 grain per standard cubic foot of exhaust gas adjusted to 12 percent carbon dioxide.

A person shall not cause, allow or permit the operation of an incinerator with a rated refuse burning capacity of less than 1000 pounds per hour in a manner such that the particulate matter discharged to the atmosphere exceeds 0.35 grain per standard cubic foot of exhaust gas adjusted to 12 percent carbon dioxide.

b. *Visible emissions.* A person shall not allow, cause or permit the operation of an incinerator in a manner such that it produces visible air contaminants in excess of 40 percent opacity; except that visible air contaminants in excess of 40 percent opacity but less than or equal to 60 percent opacity may be emitted for periods aggregating not more than 3 minutes in any 60-minute period during an operation breakdown or during the cleaning of air pollution control equipment.

23.4(13) *Painting and surface-coating operations.* No person shall allow, cause or permit painting and surface-coating operations in a manner such that particulate matter in the gas discharge exceeds 0.01 grain per standard cubic foot of exhaust gas.

This rule is intended to implement Iowa Code section 455B.133.

567—23.5(455B) Anaerobic lagoons.

23.5(1) Applications for construction permits for animal feeding operations using anaerobic lagoons shall meet the requirements of rules 567—65.9(455B) and 567—65.15(455B) to 567—65.17(455B).

23.5(2) Criteria for approval of industrial anaerobic lagoons constructed or expanded on or after July 1, 1982.

a. Lagoons designed to treat 100,000 gallons per day (gpd) or less shall be located at least 1,250 feet from a residence not owned by the owner of the lagoon or from a public use area other than a public road.

b. Lagoons designed to treat more than 100,000 gallons per day (gpd) shall be located at least 1,875 feet from a residence not owned by the owner of the lagoon or from a public use area other than a public road.

c. The criteria in subrule 23.5(2) shall apply except in situations in which Iowa Code section 455B.134(3)*"e"*(2) is successfully invoked.

d. Compliance with the requirements of subrule 23.5(2) shall not constitute an exemption from compliance with any other applicable environmental regulations. In particular, compliance with these requirements shall not absolve any person from compliance with the requirements set forth in 567—Chapter 64 that are applicable to industrial anaerobic lagoons.

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—23.6(455B) Alternative emission limits (the "bubble concept"). Emission limits for individual emission points included in 567—23.3(455B) (except 23.3(2)*"d,"* 23.3(2)*"b"*(3), and 23.3(3)*"a"*(3))

and 567—23.4(455B) (except 23.4(12)*"b"* and 23.4(6)) may be replaced by alternative emission limits. The alternative emission limits must be consistent with 567—22.7(455B) and 567—subrule 25.1(12). Under this rule, less stringent control limits where costs of emission control are high may be allowed in exchange for more stringent control limits where costs of control are less expensive.

Rules 567—23.3(455B) to 567—23.6(455B) are intended to implement Iowa Code section 455B.133.

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◊ Two or more ARCs

1 Objection, see filed rule [DEQ, 4.2(4)] published IAC Supp. 1/22/77, 3/9/77.

2 Effective date of 23.2(4) delayed 70 days by the Administrative Rules Review Committee on 9/14/83.

[3] 11/24/10 effective date of 23.1(4), introductory paragraph, and 23.1(4) *"ev"* and *"fa"* to *"fd"* delayed 70 days by the Administrative Rules Review Committee at its meeting held November 9, 2010.

[4] Amendment to 23.1(4), introductory paragraph, (ARC 9154B, Item 4) rescinded by Executive Order Number 72 on 4/4/11. Amendment removed and prior language restored IAC Supplement 4/20/11.

CHAPTER 24
EXCESS EMISSION

[Prior to 7/1/86, DEQ Ch 5]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—24.1(455B) Excess emission reporting.

24.1(1) *Excess emission during periods of startup, shutdown, or cleaning of control equipment.* Excess emission during a period of startup, shutdown, or cleaning of control equipment is not a violation of the emission standard if the startup, shutdown or cleaning is accomplished expeditiously and in a manner consistent with good practice for minimizing emissions. Cleaning of control equipment which does not require the shutdown of the process equipment shall be limited to one six-minute period per one-hour period.

24.1(2) *Initial report of excess emission.* An incident of excess emission (other than an incident of excess emission during a period of startup, shutdown, or cleaning) shall be reported to the appropriate regional office of the department within eight hours of, or at the start of the first working day following the onset of the incident. The reporting exemption for an incident of excess emission during startup, shutdown or cleaning does not relieve the owner or operator of a source with continuous monitoring equipment of the obligation of submitting reports required in 567—subrule 25.1(6).

An initial report of excess emission is not required for a source with operational continuous monitoring equipment (as specified in 567—subrule 25.1(1)) if the incident of excess emission continues for less than 30 minutes and does not exceed the applicable emission standard by more than 10 percent or the applicable visible emission standard by more than 10 percent opacity.

The initial report shall be made by electronic mail (E-mail), in person, or by telephone and shall include as a minimum the following:

a. The identity of the equipment or source operation from which the excess emission originated and the associated stack or emission point.

b. The estimated quantity of the excess emission.

c. The time and expected duration of the excess emission.

d. The cause of the excess emission.

e. The steps being taken to remedy the excess emission.

f. The steps being taken to limit the excess emission in the interim period.

24.1(3) *Written report of excess emission.* A written report of an incident of excess emission shall be submitted as a follow-up to all required initial reports to the department within seven days of the onset of the upset condition, and shall include as a minimum the following:

a. The identity of the equipment or source operation point from which the excess emission originated and the associated stack or emission point.

b. The estimated quantity of the excess emission.

c. The time and duration of the excess emission.

d. The cause of the excess emission.

e. The steps that were taken to remedy and to prevent the recurrence of the incident of excess emission.

f. The steps that were taken to limit the excess emission.

g. If the owner claims that the excess emission was due to malfunction, documentation to support this claim.

24.1(4) *Excess emissions.* An incident of excess emission (other than an incident during startup, shutdown or cleaning of control equipment) is a violation. If the owner or operator of a source maintains that the incident of excess emission was due to a malfunction, the owner or operator must show that the conditions which caused the incident of excess emission were not preventable by reasonable maintenance and control measures. Determination of any subsequent enforcement action will be made following review of this report. If excess emissions are occurring, either the control equipment causing the excess emission shall be repaired in an expeditious manner or the process generating the emissions shall be shutdown within a reasonable period of time. An expeditious manner is the time necessary to determine

the cause of the excess emissions and to correct it within a reasonable period of time. A reasonable period of time is eight hours plus the period of time required to shut down the process without damaging the process equipment or control equipment. A variance from this subrule may be available as provided for in Iowa Code section 455B.143. In the case of an electric utility, a reasonable period of time is eight hours plus the period of time until comparable generating capacity is available to meet consumer demand with the affected unit out of service, unless the director shall, upon investigation, reasonably determine that continued operation constitutes an unjustifiable environmental hazard and issue an order that such operation is not in the public interest and require a process shutdown to commence immediately.

24.1(5) *Compliance with other paragraphs.* Subrules 24.1(1) to 24.1(4) notwithstanding, a fossil fuel-fired steam generator to which 567—paragraph 23.1(2)*"a," "z,"* or *"ccc"* applies shall comply with 567—paragraph 23.1(2)*"a," "z,"* or *"ccc."*

[**ARC 9154B**, IAB 10/20/10, effective 11/24/10]

567—24.2(455B) Maintenance and repair requirements.

24.2(1) *Maintenance and repair.* The owner or operator of any equipment or control equipment shall:

a. Maintain and operate the equipment or control equipment at all times in a manner consistent with good practice for minimizing emissions.

b. Remedy any cause of excess emissions in an expeditious manner.

c. Minimize the amount and duration of any excess emission to the maximum extent possible during periods of such emissions. These measures may include but not be limited to the use of clean fuels, production cutbacks, or the use of alternate process units or, in the case of utilities, purchase of electrical power until repairs are completed.

d. Implement measures contained in any contingency plan prepared in accordance with 24.2(2)*"c."*

e. Schedule, at a minimum, routine maintenance of equipment or control equipment during periods of process shutdown to the maximum extent possible.

24.2(2) *Maintenance plans.* A maintenance plan will be required for equipment or control equipment where in the judgment of the director a continued pattern of excess emissions indicative of inadequate operation and maintenance is occurring. The maintenance plan shall include, but not be limited to, the following:

a. A complete preventive maintenance schedule, including identification of the persons responsible for inspecting, maintaining and repairing control equipment, a description of the items or conditions that will be inspected, the frequency of these inspections or repairs, and an identification of the replacement parts which will be maintained in inventory for quick replacement;

b. An identification of the equipment and air pollution control equipment operating variables that will be monitored in order to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring and surveillance procedures.

c. A contingency plan for minimizing the amount and duration of any excess emissions to the maximum extent possible during periods of such emissions.

Rules 24.1(455B) and 24.2(455B) are intended to implement Iowa Code section 455B.133.

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CHAPTER 25
MEASUREMENT OF EMISSIONS

[Prior to 7/1/83, DEQ Ch 7]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—25.1(455B) Testing and sampling of new and existing equipment.

25.1(1) *Continuous monitoring of opacity from coal-fired steam generating units.* The owner or operator of any coal-fired or coal-gas-fired steam generating unit with a rated capacity of greater than 250 million Btus per hour heat input shall install, calibrate, maintain, and operate continuous monitoring equipment to monitor opacity. If an exhaust services more than one steam generating unit as defined in the preceding sentence, the owner has the option of installing opacity monitoring equipment on each unit or on the common stack. Such monitoring equipment shall conform to performance specifications specified in 25.1(9) and shall be operational within 18 months of the date these rules become effective. The director may require the owner or operator of any coal-fired or coal-gas-fired steam generating unit to install, calibrate, maintain and operate continuous monitoring equipment to monitor opacity whenever the compliance status, history of operations, ambient air quality in the vicinity surrounding the generator or the type of control equipment utilized would warrant such monitoring.

25.1(2) and **25.1(3)** Reserved.

25.1(4) *Continuous monitoring of sulfur dioxide from sulfuric acid plants.* The owner or operator of any sulfuric acid plant of greater than 300 tons per day production capacity, the production being expressed as 100 percent acid, shall install, calibrate, maintain and operate continuous monitoring equipment to monitor sulfur dioxide emissions. Said monitoring equipment shall conform to the minimum performance specifications specified in 25.1(9) and shall be operational within 18 months of the date these rules become effective.

25.1(5) *Maintenance of records of continuous monitors.* The owner or operator of any facility which is required to install, calibrate, maintain and operate continuous monitoring equipment shall maintain, for a minimum of two years, a file of all information pertinent to each monitoring system present at the facility. Such information must include but is not limited to all emissions data (raw data, adjusted data, and any or all adjusted factors used to convert emissions from units of measurement to units of the applicable standard), performance evaluations, calibrations and zero checks, and records of all malfunctions of monitoring equipment or source and repair procedures performed.

25.1(6) *Reporting of continuous monitoring information.* The owner or operator of any facility required to install a continuous monitoring system or systems shall provide quarterly reports to the director, no later than 30 calendar days following the end of the calendar quarter, on forms provided by the director. This provision shall not excuse compliance with more stringent applicable reporting requirements. All periods of recorded emissions in excess of the applicable standards, the results of all calibrations and zero checks and performance evaluations occurring during the reporting period, and any periods of monitoring equipment malfunctions or source upsets and any apparent reasons for these malfunctions and upsets shall be included in the report.

25.1(7) *Tests by owner.* The owner of new or existing equipment or the owner's authorized agent shall conduct emission tests to determine compliance with applicable rules in accordance with these requirements.

a. General. The owner of new or existing equipment or the owner's authorized agent shall notify the department in writing not less than 30 days before a required test or before a performance evaluation of a continuous emission monitor to determine compliance with applicable requirements of 567—Chapter 23 or a permit condition. Such notice shall include the time, the place, the name of the person who will conduct the tests and other information as required by the department. If the owner or operator does not provide timely notice to the department, the department shall not consider the test results or performance evaluation results to be a valid demonstration of compliance with applicable rules or permit conditions. Upon written request, the department may allow a notification period of less than 30 days. At the department's request, a pretest meeting shall be held not later than 15 days before the owner or operator conducts the compliance demonstration. A testing protocol shall be

submitted to the department no later than 15 days before the owner or operator conducts the compliance demonstration. A representative of the department shall be permitted to witness the tests. Results of the tests shall be submitted in writing to the director in the form of a comprehensive report within six weeks of the completion of the testing.

b. New equipment. Unless otherwise specified by the department, all new equipment shall be tested by the owner or the owner's authorized agent to determine compliance with applicable emission limits. Tests conducted to demonstrate compliance with the requirements of the rules or a permit shall be conducted within 60 days of achieving maximum production but no later than 180 days of startup, unless a shorter time frame is specified in the permit.

c. Existing equipment. The director may require the owner or the owner's authorized agent to conduct an emission test on any equipment if the director has reason to believe that the equipment does not comply with applicable requirements. Grounds for requiring such a demonstration of compliance include a modification of control or process equipment, age of equipment, or observation of opacities or other parameters outside the range of those indicative of properly maintained and operated equipment. Testing may be required as necessary to determine actual emissions from a source where that source is believed to have a significant impact on the public health or ambient air quality of an area. The director shall provide the owner or agent not less than 30 days to perform the compliance demonstration and shall provide written notice of the requirement.

25.1(8) *Tests by department.* Representatives of the department may conduct separate and additional air contaminant emission tests and continuous monitor performance tests of an installation on behalf of the state and at the expense of the state. Sampling holes, safe scaffolding and pertinent allied facilities, but not instruments or sensing devices, as needed, shall be requested in writing by the director and shall be provided by and at the expense of the owner of the installation at such points as specified in the request. The owner shall provide a suitable power source to the point or points of testing so that sampling instruments can be operated as required. Analytical results shall be furnished to the owner.

25.1(9) *Methods and procedures.* Stack sampling and associated analytical methods used to evaluate compliance with emission limitations of 567—Chapter 23 or a permit condition are as follows:

a. Performance test (stack test). A stack test shall be conducted according to EPA reference methods as specified in 40 CFR 51, Appendix M (as amended through November 14, 2018); 40 CFR 60, Appendix A (as amended through November 14, 2018); 40 CFR 61, Appendix B (as amended through August 30, 2016); and 40 CFR 63, Appendix A (as amended through November 14, 2018). The owner of the equipment or the owner's authorized agent may use an alternative methodology if the methodology is approved by the department in writing before testing. Each test shall consist of at least three separate test runs. Unless otherwise specified by the department, compliance shall be assessed on the basis of the arithmetic mean of the emissions measured in the three test runs.

b. Continuous monitoring systems. Minimum performance specifications and quality assurance procedures for performance evaluations of continuous monitoring systems are as specified in 40 CFR 60, Appendix B (as amended through November 14, 2018); 40 CFR 60, Appendix F (as amended through November 14, 2018); 40 CFR 75, Appendix A (as amended through August 30, 2016); 40 CFR 75, Appendix B (as amended through August 30, 2016); and 40 CFR 75, Appendix F (as amended through August 30, 2016). The owner of the equipment or the owner's authorized agent may use an alternative methodology for continuous monitoring systems if the methodology is approved by the department in writing before the minimum performance specifications and quality assurance procedures are conducted.

c. Permit and compliance demonstration requirements. After October 24, 2012, all stack sampling and associated analytical methods used to evaluate compliance with emission limitations of 567—Chapter 23 or required in a permit issued by the department pursuant to 567—Chapter 22 or 33 shall be conducted using the methodology referenced in this rule. If stack sampling was required for a compliance demonstration pursuant to 567—Chapter 23 or for a performance test required in a permit issued by the department pursuant to 567—Chapter 22 or 33 before October 24, 2012, and the demonstration or test was not required to be completed before October 24, 2012, then the methodology referenced in this subrule applies retroactively.

25.1(10) *Exemptions from continuous monitoring requirements.* The owner or operator of any source is exempt if it can be demonstrated that any of the conditions set forth in this subrule are met with the provision that periodic recertification of the existence of these conditions can be requested.

a. An affected source is subject to a new source performance standard promulgated in 40 CFR Part 60 as amended through September 28, 2007.

b. An affected steam generator had an annual capacity factor for calendar year 1974, as reported to the Federal Power Commission, of less than 30 percent or the projected use of the unit indicates the annual capacity factor will not be increased above 30 percent in the future.

c. An affected steam generator is scheduled to be retired from service within five years of the date these rules become effective.

d. Rescinded IAB 1/20/93, effective 2/24/93.

e. The director may provide a temporary exemption from the monitoring and reporting requirements during any period of monitoring system malfunction, provided that the source owner or operator shows, to the satisfaction of the director, that the malfunction was unavoidable and is being repaired as expeditiously as practical.

25.1(11) *Extensions.* The owner or operator of any source may request an extension of time provided for installation of the required monitor by demonstrating to the director that good faith efforts have been made to obtain and install the monitor in the prescribed time.

25.1(12) *Continuous monitoring of sulfur dioxide from emission points involved in an alternative emission control program.* The owner or operator of any facility applying for an alternative emission control program under 567—subrule 22.7(1) that involves the trade-off of sulfur dioxide emissions shall install, calibrate, maintain and operate continuous sulfur dioxide monitoring equipment consistent with EPA reference methods (40 CFR Part 60, Appendix B, as amended through September 28, 2007). The equipment shall be operational within three months of EPA approval of an alternative emission control program.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 0330C**, IAB 9/19/12, effective 10/24/12; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; **ARC 4335C**, IAB 3/13/19, effective 4/17/19; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—25.2(455B) Continuous emission monitoring under the acid rain program. The continuous emission monitoring requirements for affected units under the acid rain program as provided in 40 CFR Part 75, including Appendices A, B, F and K as amended through August 30, 2016, are adopted by reference.

[**ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18]

567—25.3(455B) Mercury emissions testing and monitoring. Any stationary, coal-fired boiler or stationary, coal-fired combustion turbine serving, at any time since the later of November 15, 1990, or the start-up of the unit's combustion chamber, a generator with a nameplate capacity of more than 25 megawatt electrical (MWe) producing electricity for sale is an affected source under the provisions of this rule.

The provisions of this rule expire on April 22, 2015, except for any affected facility that receives an extension to comply with the emission standards for hazardous air pollutants: coal- and oil-fired electric utility steam generating units (EGUs) (40 CFR Part 63, Subpart UUUUU, commonly known as mercury air toxics standards (MATS)). Any facility receiving an extension of the MATS compliance date shall continue to comply with the provisions of this rule until the date the facility is required to comply with MATS or, alternatively, is no longer subject to the MATS compliance requirements. However, facilities complying with the requirements of this rule as specified in subrule 25.3(3), continuous emissions monitoring systems (CEMS), may submit a written request to the department to discontinue concurrent, annual stack tests. The department will evaluate and grant requests on a case-by-case basis, based upon previous stack test results and how recent the last stack test occurred or other extenuating circumstances, such as those that may cause testing conditions to be unrepresentative of normal operations or cause tests to be unsafe to perform. If the department grants a request, the facility will be required to continue operating CEMS and conduct relative accuracy test audits (RATAs), as specified in subrule 25.3(3),

until the facility is required to comply with MATS or, alternatively, is no longer subject to MATS compliance requirements.

25.3(1) *Testing frequency and methods.* The owner or operator of an affected source shall complete one stack test for mercury in each calendar quarter for four consecutive calendar quarters. Testing shall commence no later than the third calendar quarter in 2010 (July 1 – September 30). At such time as four consecutive quarterly stack tests are completed and the test results are approved in writing by the department, the owner or operator of an affected source shall complete one stack test for mercury in each subsequent calendar year. Stack testing to fulfill the requirements of this subrule shall meet the following conditions:

a. Stack testing shall be conducted according to U.S. EPA Method 29 or according to ASTM Method D6784-02 (Ontario Hydro Method) and shall quantify both vapor phase and particulate bound mercury. Each stack test shall consist of a minimum of three runs at the normal operating load while combusting coal, and the minimum time per run shall be two hours.

b. The owner or operator or the owner's authorized agent shall notify the department in writing not less than 30 days before each stack test. The notice shall include the time, the place, the name of the person who will conduct the test and other information as required by the department. Upon written request, the department may allow a notification period of less than 30 days. At the department's request, a pretest meeting shall be held no later than 15 days before the scheduled test date. A testing protocol shall be submitted to the department no later than 15 days before the scheduled test date. A representative of the department shall be permitted to witness the tests. Within six weeks of the completion of the testing, the results of the tests shall be submitted in writing to the department in the form of a comprehensive test report.

25.3(2) *Low mass emitter (LME).* In lieu of complying with the requirements of 25.3(1), the owner or operator of an affected source may submit a written request to the department to be classified as a low mass emitter (LME) for mercury. To be eligible for LME classification by the department, the owner or operator shall meet the following conditions:

a. The owner or operator shall complete at least one stack test prior to July 1, 2010, according to U.S. EPA Method 29 or according to ASTM Method D6784-02 (Ontario Hydro Method) and shall quantify both vapor phase and particulate bound mercury. Each stack test shall consist of a minimum of three runs at the normal operating load while combusting coal, and the minimum time per run shall be two hours.

b. The owner or operator or the owner's authorized agent shall notify the department in writing not less than 30 days before each stack test. The notice shall include the time, the place, the name of the person who will conduct the test and other information as required by the department. Upon written request, the department may allow a notification period of less than 30 days. At the department's request, a pretest meeting shall be held no later than 15 days before the scheduled test date. A testing protocol shall be submitted to the department no later than 15 days before the scheduled test date. A representative of the department shall be permitted to witness the tests. Within six weeks of the completion of the testing, the results of the tests shall be submitted in writing to the department in the form of a comprehensive test report.

c. Using the highest mercury concentration measured from any of the stack test runs, the owner or operator shall submit documentation to the department sufficient to demonstrate that the potential annual mercury emissions from the affected source are less than or equal to 29 pounds (464 ounces) per year.

d. Upon written notification of LME classification by the department, the owner or operator of an affected source shall be exempt from the requirements of 25.3(1).

e. If at any time the potential annual mercury emissions from the affected source exceed 29 pounds per year, it shall be the responsibility of the owner or operator of the affected source to notify the department in writing within 30 days.

25.3(3) *Continuous emission monitoring systems (CEMS).* In lieu of complying with the requirements of 25.3(1), the owner or operator of an affected source may submit a request to the department to record mercury emissions data using a continuous emission monitoring system (CEMS).

To be eligible for department approval to use CEMS, the owner or operator shall meet the following conditions:

a. The owner or operator shall complete at least one stack test concurrently with operating and recording data from the CEMS prior to September 30, 2010, and thereafter on an annual basis, to demonstrate that the CEMS are providing accurate emissions data, as follows:

(1) The stack test conducted concurrently with the CEMS shall be conducted according to U.S. EPA Method 29 or according to ASTM Method D6784-02 (Ontario Hydro Method) and shall quantify both vapor phase and particulate bound mercury. Each stack test shall consist of a minimum of three runs at the normal operating load while combusting coal, and the minimum time per run shall be two hours.

(2) While conducting the concurrent stack test, the owner and operator shall perform a relative accuracy test audit (RATA) and other CEMS certification procedures according to an approved EPA performance protocol. If an approved EPA performance protocol is not available, the owner or operator may submit an alternative CEMS certification protocol in writing to the department for approval. Department approval must be received before the owner or operator conducts the CEMS certification.

b. The owner or operator or the owner's authorized agent shall notify the department in writing not less than 30 days before each stack test conducted concurrently with CEMS. The notice shall include the time, the place, the name of the person who will conduct the test and other information as required by the department. Upon written request, the department may allow a notification period of less than 30 days. At the department's request, a pretest meeting shall be held no later than 15 days before the scheduled test date. Protocols for the stack testing and for the concurrent CEMS operation and data collection shall be submitted to the department no later than 15 days before the scheduled test date. A representative of the department shall be permitted to witness the tests. Results of the tests and CEMS certification shall be submitted in writing to the department in the form of a comprehensive test and CEMS certification report within six weeks of the completion of the testing.

c. The owner or operator of an affected source shall comply with the provisions of 25.3(1) until such time as the department approves use of CEMS.

d. Upon receiving department approval for CEMS use, the owner or operator of an affected source shall operate and record CEMS data, including calibrating each individual CEMS for zero and span on a daily basis, and shall provide all CEMS data to the department upon written request. CEMS certification shall be completed on an annual basis according to the procedures specified in paragraph 25.3(3)*"a."*

25.3(4) *EPA-required stack testing for mercury.* If the owner or operator of an affected source is required by EPA to complete stack testing for mercury, the owner or operator may submit a written request to the department that the EPA-required stack test be allowed to fulfill all or part of the testing requirements specified in 25.3(1). The department shall consider each such request on a case-by-case basis.

25.3(5) *Affected sources subject to Section 112(g).* The owner or operator of an affected source subject to the requirements of Clean Air Act Section 112(g) shall comply with the requirements contained in permits issued by the department under 567—Chapters 22 and 33.

[**ARC 8216B**, IAB 10/7/09, effective 11/11/09; **ARC 1913C**, IAB 3/18/15, effective 4/22/15]

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CHAPTER 26
PREVENTION OF AIR POLLUTION EMERGENCY EPISODES

[Prior to 7/1/83, DEQ Ch 8]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—26.1(455B) General.

26.1(1) *Purpose.* The provisions of this chapter are designed to prevent the excessive buildup of air contaminants during air pollution episodes, thereby preventing the occurrence of an emergency due to the effects of these contaminants on the health of persons.

26.1(2) Reserved.

567—26.2(455B) Episode criteria.

26.2(1) *Evaluation.* Conditions justifying the proclamation of an air pollution alert, air pollution warning or air pollution emergency shall be deemed to exist whenever the commission or the director determines that the meteorological conditions are such that the accumulation of air contaminants in any place is reaching, or has reached, levels which could, if sustained or exceeded, lead to a substantial threat to the health of persons.

Air pollution forecast. Initial consideration of air pollution episode activities will be activated by receipt from the National Weather Service of an air pollution forecast. Receipt of such a forecast shall be the basis for activities such as, but not limited to, increased monitoring of the air contaminants in the area involved.

26.2(2) *Declaration.* In making determinations for the declaration of an air pollution episode condition, the commission or the director will be guided by the criteria stated in the following paragraphs.

a. *Air pollution alert.* An alert will be declared when any one of the following levels is reached at any monitoring site, and when meteorological conditions are such that the contaminant concentrations can be expected to remain at those levels for 12 or more hours, or increase, unless control actions are taken.

(1) Sulfur dioxide—800 micrograms per cubic meter (0.3 ppm), 24-hour average.

(2) Particulate matter (PM_{10})—350 micrograms per cubic meter, 24-hour average.

(3) Carbon monoxide—17 milligrams per cubic meter (15 ppm), eight-hour average.

(4) Ozone—400 micrograms per cubic meter (0.2 ppm), one-hour average.

(5) Nitrogen dioxide—1,130 micrograms per cubic meter (0.6 ppm), one-hour average, or 282 micrograms per cubic meter (0.15 ppm), 24-hour average.

b. *Air pollution warning.* A warning will be declared when any one of the following levels is reached at any monitoring site and when meteorological conditions are such that the contaminant concentrations can be expected to remain at those levels for 12 or more hours or increase, unless control actions are taken.

(1) Sulfur dioxide—1,600 micrograms per cubic meter (0.6 ppm), 24-hour average.

(2) Particulate matter (PM_{10})—420 micrograms per cubic meter, 24-hour average.

(3) Carbon monoxide—34 milligrams per cubic meter (30 ppm), eight-hour average.

(4) Ozone—800 micrograms per cubic meter (0.4 ppm), one-hour average.

(5) Nitrogen dioxide—2,260 micrograms per cubic meter (1.2 ppm), one-hour average, or 565 micrograms per cubic meter (0.3 ppm), 24-hour average.

c. *Air pollution emergency.* An emergency will be declared when any one of the following levels is reached at any monitoring site, and when meteorological conditions are such that this condition can be expected to continue for 12 or more hours.

(1) Sulfur dioxide—2,100 micrograms per cubic meter (0.8 ppm), 24-hour average.

(2) Particulate matter (PM_{10})—500 micrograms per cubic meter, 24-hour average.

(3) Carbon monoxide—46 milligrams per cubic meter (40 ppm), eight-hour average.

(4) Ozone—1,000 micrograms per cubic meter (0.5 ppm), one-hour average.

(5) Nitrogen dioxide—3,000 micrograms per cubic meter (1.6 ppm), one-hour average or 750 micrograms per cubic meter (0.4 ppm), 24-hour average.

d. *Termination.* Once declared, any status reached by application of these criteria will remain in effect until the criteria for that level are no longer met. As meteorological factors and air contaminants change, an appropriate change in episode level will be declared.
[**ARC 2949C**, IAB 2/15/17, effective 3/22/17]

567—26.3(455B) Preplanned abatement strategies.

26.3(1) *Planned strategies.* Standby plans shall be designed to reduce or to eliminate emissions of air contaminants in accordance with the objectives set forth in Tables III—V, which are made a part of this chapter.

a. *Plan preparation.* Any person responsible for the operation of a source of air contaminants as set forth in Tables III—V shall prepare standby plans for reducing the emission of air contaminants, which shall be implemented upon the declaration of an air pollution episode and continued for the duration of the declared episode.

Any person responsible for the operation of a source of air contaminants not set forth under this paragraph shall, when requested by the director in writing, prepare standby plans for reducing the emission of such air contaminant or contaminants during the periods of an air pollution episode, as specified in this chapter.

b. *Plan content.* Standby plans as required under this subrule shall be in writing. Each standby plan shall identify the sources of air contaminants, the approximate amount of reduction of contaminants and a brief description of the manner in which the reduction will be achieved during an air pollution alert, air pollution warning or air pollution emergency, as specified in this chapter.

c. *Review of plans.* Standby plans as required by this subrule shall be submitted to the director on or before January 1, 1973. Each standby plan shall be subject to review. If, in the opinion of the director, a standby plan does not provide for adequate reduction of emissions, the director may disapprove the plan, state the reasons for disapproval and order the preparation of an amended standby plan within a time period specified in the order. The action of the director in securing a modification of a standby plan may be appealed to the commission.

d. *Availability.* During a declared air pollution episode, standby plans as required by this subrule shall be made available on the premises to any person authorized to enforce applicable rules.

26.3(2) Reserved.

This rule is intended to implement Iowa Code section 455B.133.

567—26.4(455B) Actions taken during episodes.

26.4(1) *Emission reduction activities.* Any person responsible for the operation of a source of air contaminants as set forth in Tables III—V, herein, which is located within the area involved, shall follow the actions specified below during periods of an air pollution alert, air pollution warning or air pollution emergency as may be declared.

a. *Air pollution alert.* When an air pollution alert has been declared, all persons in the area involved responsible for the operation of a source of air contaminants as set forth in Table III herein shall take all air pollution alert actions as required for such sources of air contaminants, and persons responsible for the operation of specific sources set forth in Table III herein shall put into effect the preplanned abatement strategy for an air pollution alert.

b. *Air pollution warning.* When an air pollution warning has been declared, all persons in the area involved responsible for the operation of a source of air contaminants as set forth in Table IV herein shall take all air pollution warning actions as required for such sources of air contaminants, and persons responsible for the operation of specific sources set forth in Table IV herein shall put into effect the preplanned abatement strategy for an air pollution warning.

c. *Air pollution emergency.* When an air pollution emergency has been declared, all persons in the area involved responsible for the operation of a source of air contaminants as set forth in Table V herein shall take all air pollution emergency actions as required for such sources of air contaminants, and persons responsible for the operation of specific sources set forth in Table V herein shall put into effect the preplanned abatement strategy for an air pollution emergency.

d. *Special conditions.* When the director determines that a specified episode level has been reached at one or more monitoring sites solely because of emissions from a limited number of sources, the director shall specify the persons responsible for such sources that the preplanned abatement strategy of Tables III, IV and V, or the standby plans, are required insofar as they apply to such sources, and such actions shall be put into effect until notified that the criteria of the specified level are no longer met.

26.4(2) Reserved.

TABLE III
ABATEMENT STRATEGIES EMISSION REDUCTION ACTIONS ALERT LEVEL

GENERAL

1. There shall be no open burning by any persons of tree waste, vegetation, refuse or debris in any form.
2. The use of incinerators for the disposal of any form of solid waste shall be limited to the hours between 12 noon and 4 p.m.
3. Persons operating fuel-burning equipment which requires boiler lancing or soot blowing shall perform such operations only between the hours of 12 noon and 4 p.m.
4. Persons operating motor vehicles should eliminate all unnecessary operations.

SOURCE CURTAILMENT

Any person responsible for the operation of a source of air contaminants listed below shall take all required control actions for this alert level.

SOURCE OF AIR POLLUTION

1. Coal- or oil-fired electric power generating facilities.

Control Actions

a. Substantial reduction by utilization of fuels having low ash and sulfur content.

b. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing or soot blowing.

c. Substantial reduction by diverting electric power generation to facilities outside of alert level.

2. Coal- and oil-fired process steam generating facilities.

Control Actions

a. Substantial reduction by utilization of fuels having low ash and sulfur content.

b. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

c. Substantial reduction of steam load demands consistent with continuing plant operations.

3. Manufacturing industries of the following classifications:

Primary Metals Industries
Petroleum Refining Operations
Chemical Industries
Mineral Processing Industries
Paper and Allied Products
Grain Industry

Control Actions

a. Substantial reduction of air contaminants from manufacturing operations by curtailing, postponing or deferring production and all operation.

b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gas vapors or malodorous substances.

c. Maximum reduction of heat load demands for processing.

d. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

TABLE IV
ABATEMENT STRATEGIES EMISSION REDUCTION ACTIONS WARNING LEVEL

GENERAL

1. There shall be no open burning by any persons of tree waste, vegetation, refuse or debris in any form.
2. The use of incinerators for the disposal of any form of solid waste or liquid waste shall be prohibited.
3. Persons operating fuel-burning equipment which requires boiler lancing or soot blowing shall perform such operations only between the hours of 12 noon and 4 p.m.
4. Persons operating motor vehicles must reduce operations by the use of car pools and increased use of public transportation and elimination of unnecessary operation.

SOURCE CURTAILMENT

Any person responsible for the operation of a source of air contaminants listed below shall take all required control actions for this warning level.

SOURCE OF AIR POLLUTION

1. Coal- or oil-fired electric power generating facilities.

Control Actions

a. Maximum reduction by utilization of fuels having lowest ash and sulfur content.

b. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

c. Maximum reduction by diverting electric power generation to facilities outside of warning area.

2. Oil and oil-fired process steam generating facilities.

Control Actions

a. Maximum reduction by utilization of fuels having the lowest available ash and sulfur content.

b. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

c. Making ready for use a plan of action to be taken if an emergency develops.

3. Manufacturing industries which require considerable lead time for shutdown include the following classifications:

Petroleum Refining
Chemical Industries
Primary Metals Industries
Glass Industries
Paper and Allied Products

Control Actions

a. Maximum reduction of air contaminants from manufacturing operations by, if necessary, assuming reasonable economic hardships by postponing production and allied operation.

b. Maximum reduction by deferring trade waste disposal operations which emit solid particles, gases, vapors or malodorous substances.

c. Maximum reduction of heat load demands for processing.

d. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

4. Manufacturing industries which require relatively short lead times for shutdown including the following classifications:

Primary Metals Industries
Chemical Industries
Mineral Processing Industries
Grain Industry

Control Actions

a. Elimination of air contaminants from manufacturing operations by ceasing, curtailing, postponing or deferring production and allied operations to the extent possible without causing injury to persons or damage to equipment.

b. Elimination of air contaminants from trade waste disposal processes which emit solid particles, gases, vapors or malodorous substances.

c. Maximum reduction of heat load demands for processing.

d. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

TABLE V
ABATEMENT STRATEGIES EMISSION REDUCTION ACTIONS
EMERGENCY LEVEL

GENERAL

1. There shall be no open burning by any persons of tree waste, vegetation, refuse or debris in any form.

2. The use of incinerators for the disposal of any form of solid or liquid waste shall be prohibited.

3. All places of employment described below shall immediately cease operations:

a. Mining and quarrying of nonmetallic minerals.

b. All construction work except that which must proceed to avoid emergent physical harm.

c. All manufacturing establishments except those required to have in force an air pollution emergency plan.

d. All wholesale trade establishments: i.e., places of business primarily engaged in selling merchandise to retailers or industrial, commercial, institutional or professional users, or to other wholesalers, or acting as agents in buying merchandise for or selling merchandise to such persons or companies, except those engaged in the distribution of drugs, surgical supplies and food.

e. All offices of local, county and state government including authorities, joint meetings and other public bodies excepting such agencies which are determined by the chief administrative officer of local, county or state government, authorities, joint meetings and other public bodies to be vital for public safety and welfare and the enforcement of the provisions of this order.

f. All retail trade establishments except pharmacies, surgical supply distributors and stores primarily engaged in the sale of food.

g. Banks, credit agencies other than banks, securities and commodities brokers, dealers, exchanges and services; offices of insurance carriers, agents and brokers, real estate offices.

h. Wholesale and retail laundries, laundry services and cleaning and dyeing establishments, photographic studios, beauty shops, barber shops, shoe repair shops.

i. Advertising offices, consumer credit reporting, adjustment and collection agencies, duplicating, addressing, blueprinting, photocopying, mailing, mailing list and stenographic services, equipment rental services, commercial testing laboratories.

j. Automobile repair, automobile services, garages.

k. Establishments rendering amusement and recreational services including motion picture theaters.

l. Elementary and secondary schools, colleges, universities, professional schools, junior colleges, vocational schools and public and private libraries.

4. All commercial and manufacturing establishments not included in this order will institute such actions as will result in maximum reduction of air contaminants from their operation by ceasing, curtailing or postponing operations which emit air pollutants to the extent possible without causing injury to persons or damage to equipment.

5. The use of motor vehicles is prohibited except in emergencies with the approval of local or state police.

SOURCE CURTAILMENT

Any person responsible for the operation of a source of air contaminants listed below shall take all required control actions for this emergency level.

SOURCE OF AIR POLLUTION

1. Coal- or oil-fired electric power generating facilities.

Control Actions

a. Maximum reduction by utilization of fuels having lowest ash and sulfur content.

b. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

c. Maximum reduction by diverting electric power generation to facilities outside of emergency area.

2. Coal- and oil-fired process steam generating facilities.

Control Actions

a. Maximum reduction by reducing heat and steam demands to absolute necessities consistent with preventing equipment damage.

b. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

c. Taking the action called for in the emergency plan.

3. Manufacturing industries of the following classifications:

Primary Metals Industries
Petroleum Refining
Chemical Industries
Mineral Processing Industries
Grain Industry
Paper and Allied Products

Control Actions

a. Elimination of air contaminants from manufacturing operations by ceasing, curtailing, postponing or deferring production and allied operations to the extent possible without causing injury to persons or damage to equipment.

b. Elimination of air contaminants from trade waste disposal processes which emit solid particles, gases, vapors or malodorous substances.

c. Maximum reduction of heat load demands for processing.

d. Maximum utilization of midday (12 noon to 4 p.m.) atmospheric turbulence for boiler lancing and soot blowing.

These rules are intended to implement Iowa Code chapter 455B.

[Filed August 24, 1970; amended May 2, 1972, December 11, 1973, December 17, 1974]
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[Filed ARC 2949C (Notice ARC 2799C, IAB 11/9/16), IAB 2/15/17, effective 3/22/17]

CHAPTER 27
CERTIFICATE OF ACCEPTANCE

[Prior to 7/1/83, DEQ Ch 9]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—27.1(455B) General.

27.1(1) *Purpose.* Political subdivisions shall meet the conditions specified in this chapter if they intend to secure acceptance of the local air pollution control program and to obtain a certificate of acceptance from the director, as provided in Iowa Code section 455B.145.

27.1(2) *Limitation.* When a certificate of acceptance is issued to a political subdivision, the director retains authority to take emergency action as provided in Iowa Code section 455B.139.

This rule is intended to implement Iowa Code sections 455B.133, 455B.134, 455B.139, and 455B.143.

[**ARC 2949C**, IAB 2/15/17, effective 3/22/17]

567—27.2(455B) Certificate of acceptance. The governing body of a political subdivision may make application for a certificate of acceptance.

27.2(1) *Forms.* Each application for a certificate of acceptance shall be submitted to the director on the form "Application for a Certificate of Acceptance of Local Air Pollution Control Program." Application forms will be available at the department.

27.2(2) *Processing of applications.* The director shall make an investigation of the program or portion of a program covered by an application for a certificate of acceptance to evaluate conformance with applicable provisions of Iowa Code section 455B.145 as soon as practicable. The director may conduct a public hearing.

a. *Granting of certificate.* A certificate of acceptance may be granted by the director if the program is consistent with Iowa Code chapter 455B, division II, and the rules established thereunder.

[1]*b.* *Review of program.* When a certificate of acceptance has been granted for a local air pollution control program, or portion thereof, the director shall provide for a review of the program activities at intervals as the director may prescribe, for evaluation of the continuation of the certificate. Following the review, the director may continue the certificate in effect or suspend the certificate.

(1) *Suspension of certificate.* If the director determines at any time that a local air pollution control program, or portion thereof, is being conducted in a manner which is not consistent with the factors described herein, a notice to the political subdivision shall be provided setting forth the deviations from the standards prescribed herein. The notice shall include a listing of the corrective measures that are to be completed within a specified period of time. If the director finds, after such time period, that the specified corrective action has not been completed, the director shall suspend the certificate of acceptance, in whole or in part, and resume administration of the regulatory provisions of the statute or portion thereof in the political subdivision. Suspension of a certificate shall be without prejudice to the right of the applicant for requesting a hearing before the commission.

(2) *Reinstatement of certificate.* If the director shall receive evidence that is deemed to indicate correction of the deviations from the standards, a suspended certificate of acceptance, or portion thereof, shall be reinstated upon the request of the political subdivision involved. Upon reinstatement of a certificate, or portion thereof, the political subdivision shall resume the regulatory functions of the program.

This rule is intended to implement Iowa Code sections 455B.133, 455B.134 and 455B.143.

[1] Editor's Note: Subrule 27.2(2), paragraph *"b,"* [DEQ 9.2(2)"*b*"] revised to conform with 5/13/81, IAB.

567—27.3(455B) Ordinance or regulations.

27.3(1) *Legal aspects.* Each local control program considered for a certificate of acceptance shall be conducted under an appropriate ordinance or set of regulations.

The definition of air pollution included in the ordinance or regulations shall be consistent with that specified in Iowa Code section 455B.131(3). The other definitions included in the ordinance or regulations shall be consistent with those specified in rule 567—20.2(455B).

27.3(2) *Legal authority.* The ordinance or regulations shall provide authority to the local control agency as follows:

a. *Scope of control.* Authority and responsibility for air pollution control within the entire area included in the jurisdiction involved.

b. *Degree of control.* Authority to prevent, abate and control air pollution from all sources within its area of jurisdiction, in accordance with requirements consistent with, or more strict than, the provisions specified in these rules.

c. *Enforcement.* Legal authority to enforce its requirements and standards.

d. *Inspection and tests.* Legal authority to make inspections, perform emission tests and obtain data, reports or other information relating to sources of air pollution which may be necessary to prepare air contaminant emission inventories, and to evaluate control measures needed to meet specified goals.

27.3(3) *Control of air pollution.* The ordinance or regulations shall contain provisions applicable to the control or prohibition of emissions of air contaminants as listed below.

a. *Emission control.* Requirements specifying maximum concentrations, density or rates of discharge of emissions of air contaminants from specified sources.

(1) These requirements may be included in the ordinance or regulations, or in standards adopted by the local control agency under the authority granted by such ordinance or regulations.

(2) These requirements shall not establish an emission standard for any specific source that is in excess of the emission standard specified in 567—Chapter 23 for that source. However, these requirements may establish an emission standard for any specific source that is more strict than the emission standard specified in 567—Chapter 23 for that source.

b. *Prohibition of emissions.* Provisions prohibiting the installation of equipment having a potential for air pollution without adequate control equipment. Such restriction may be included in the building code applicable to the jurisdiction covered by the local control agency.

c. *Open burning.* Provisions prohibiting open burning, including backyard burning, in urban areas within the jurisdiction of the local control agency.

(1) Provisions relating to backyard burning may consist of a program requiring the prohibition of such burning within a reasonable period of time.

(2) Provisions applicable to open burning may include a variance procedure, so long as no variance which would prevent the attainment or maintenance of ambient air quality standards for suspended particulates and carbon monoxide is issued.

d. *Requirements for permits.* Provisions requiring installation and operating permits for all new or altered equipment capable of emitting air contaminants into the atmosphere installed within the jurisdiction of the local control agency.

27.3(4) *Enforcement.* The ordinance or regulations of the local control agency shall include an effective mechanism for enforcing the provisions specified thereunder, as listed below.

a. *Procedures.* The local control ordinance or regulations shall specify that any violation of its provisions are subject to civil and criminal penalties.

b. *Penalties.* The penalties specified in such ordinance or regulations shall include fines, injunctive relief and sealing of equipment found to be not in compliance with applicable provisions of the ordinance or regulations.

c. *Procedures for granting variances or extensions of time to attain compliance status.* The local control agency shall maintain on file a record of the names, addresses, sources of emissions, types of emissions, rates of emissions, reason for granting, conditions and length of time specified, relating to all variances or extension of time granted and shall make such records available to the commission or the department upon request.

This rule is intended to implement Iowa Code sections 455B.133, 455B.134 and 455B.143.

[**ARC 2949C**, IAB 2/15/17, effective 3/22/17]

567—27.4(455B) Administrative organization.

27.4(1) *Administrative facilities.* Each local control program considered for a certificate of acceptance shall have the administrative facilities necessary for effective operation of such program including, but not limited to, those listed below.

a. *Agency.* Designation of a legally constituted body within the organizational structure of the applicable political subdivision or combination of political subdivisions, as the administrative authority for the local control program.

b. *Procedures.* Adoption of definite administrative procedures for developing, promulgating and enforcing requirements and standards for air pollution control within the jurisdiction of the local control agency.

c. *Staff.* Employment of a technical and clerical staff deemed adequate to conduct the air pollution control activities in the local control program.

(1) Key technical staff personnel shall have received training or experience in air quality management program procedures.

(2) At least one member of the technical staff shall be assigned full-time duty in the operation of the local control program.

27.4(2) *Financial support.* Each local control program considered for a certificate of acceptance shall have adequate financial support for the operation of effective program activities.

27.4(3) *Physical facilities.* Each local control program considered for a certificate of acceptance shall have the physical facilities necessary for the operation of effective program activities, including those listed below.

a. *Office space.* Sufficient office space and equipment to accommodate the members of the technical and clerical staff.

b. *Laboratory facilities.* The laboratory space and equipment shall be adequate for the effective exercise of the specific functions required in the operation of the local control program.

c. *Transportation facilities.* These facilities shall include provisions for transportation of personnel to service air monitoring equipment, visits to sources of emissions for investigative purposes and other appropriate program activities.

567—27.5(455B) Program activities.

27.5(1) *Control program.* Each local control program considered for a certificate of acceptance shall conduct air pollution control activities adequate to provide adequate control of air pollution within the jurisdiction of the local control program, including, but not limited to, those listed below. In conducting these program activities, the local control agency shall make every effort to meet the specified ambient air quality objectives applicable to the state of Iowa.

a. *Evaluation of problems.* Determination of the actual and potential air pollution problems within the jurisdiction of the local control agency, and comparison of the present air quality in that jurisdiction with the air quality standards and objectives promulgated for this state.

(1) The air quality within the jurisdiction shall be determined by an air monitoring program, using sampling techniques and laboratory determinations compatible with those used in the air pollution control program of this state. The air monitoring program of the local control agency shall give attention to the air contaminants considered to be indices of pollution in this state.

(2) The current emissions of significant air contaminants from sources located within the jurisdiction of the local control agency shall be determined through an emissions inventory. The data collected should be used to determine the levels of air contaminant emissions appropriate to achieve or maintain the levels specified in air quality goals or objectives, and to calculate the reductions in emissions inventory to meet those goals or objectives.

b. *Control activities.* Conducting of activities to abate or control emissions of air contaminants from existing equipment or from new or altered equipment located within the jurisdiction of the local control agency.

(1) A program of plant inspections shall be conducted with respect to control of emissions from existing equipment. These activities should include the collection of data related to the types of emissions

and the rate of discharge of emissions from each source involved, along with stack sampling when deemed appropriate.

(2) Procedures for plan review and the issuing of permits relating to the installation or alteration such that the emission of air contaminants is significantly altered, shall be conducted with respect to control of emissions from new or altered sources. These procedures may include provisions for permits relating to the use of the equipment involved.

27.5(2) Reserved.

These rules are intended to implement Iowa Code chapter 455B.

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CHAPTER 28
AMBIENT AIR QUALITY STANDARDS

[Prior to 7/1/83, DEQ Ch 10]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—28.1(455B) Statewide standards. The state of Iowa ambient air quality standards shall be the National Primary and Secondary Ambient Air Quality Standards as published in 40 Code of Federal Regulations Part 50 (1972) and as amended at 38 Federal Register 22384 (September 14, 1973), 43 Federal Register 46258 (October 5, 1978), 44 Federal Register 8202, 8220 (February 9, 1979), 52 Federal Register 24634-24669 (July 1, 1987), 62 Federal Register 38651-38760, 38855-38896 (July 18, 1997), 71 Federal Register 61144-61233 (October 17, 2006), 73 Federal Register 16436-16514 (March 27, 2008), 73 Federal Register 66964-67062 (November 12, 2008), 75 Federal Register 6474-6537 (February 9, 2010), 75 Federal Register 35520-35603 (June 22, 2010), and 78 Federal Register 3086-3287 (January 15, 2013). The department shall implement these rules in a time frame and schedule consistent with implementation schedules in federal laws and regulations.

This rule is intended to implement Iowa Code section 455B.133.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 9154B**, IAB 10/20/10, effective 11/24/10; **ARC 1013C**, IAB 9/18/13, effective 10/23/13; **ARC 2949C**, IAB 2/15/17, effective 3/22/17]

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[Filed ARC 2949C (Notice ARC 2799C, IAB 11/9/16), IAB 2/15/17, effective 3/22/17]

[1] See SJR 5 of the 2003 Session of the Eightieth General Assembly.

CHAPTER 29
QUALIFICATION IN VISUAL DETERMINATION OF THE OPACITY OF EMISSIONS

[Prior to 7/1/83, DEQ Ch 11]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—29.1(455B) Methodology and qualified observer. The federal method for visual determination of opacity of emissions and requirements for qualified observers as defined in Method 9, 40 CFR Part 60 Appendix A as amended through March 12, 1996, is adopted by reference.

To qualify as an observer a candidate must, after meeting the requirements established in Method 9, 40 CFR Part 60 Appendix A, have on record with the department a minimum of 250 readings of black plumes and 250 readings of white plumes, taken at approved smokereading courses.

This rule is intended to implement Iowa Code chapter 455B.

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[Filed 3/19/98, Notice 1/14/98—published 4/8/98, effective 5/13/98]

CHAPTER 30
FEES

567—30.1(455B) Purpose. This chapter sets forth requirements to pay fees for specified activities. Rule 567—30.1(455B) adds definitions for this chapter, a duty to correct errors, and an exemption to fee requirements for administrative amendments. Rule 567—30.2(455B) sets forth the requirements for applicants to submit fees for specified activities associated with new source review in 567—Chapter 22, 567—Chapter 31 and 567—Chapter 33. Rule 567—30.3(455B) contains requirements for the submission of demolition and renovation notification fees for the asbestos emission standard for hazardous air pollutants listed in 567—paragraph 23.1(3)*"a."* Rule 567—30.4(455B) sets forth the requirements for applicants to submit fees for specified activities associated with the Title V program found in 567—Chapter 22. Rule 567—30.5(455B) sets forth the requirement to convene fee advisory groups. Rule 567—30.6(455B) details the process by which fee levels shall be established, lists the types of fees and the dollar caps on the fee types that the commission may set, and establishes the mechanism for notification of the fee schedule. Rule 567—30.7(455B) details how fee revenues may be expended and specifies the calculated estimate of maximum fee revenues.

The department shall not initiate review and processing of an application submittal from a minor source until all required fees have been paid to the department. Fees are nonrefundable, except as provided in subrule 30.1(4).

30.1(1) *Definitions.* For purposes of this chapter, the following definitions shall apply:

"Application submittal" means one or more applications required under rule 567—22.1(455B) and submitted at the same time or required to be submitted under rule 567—22.4(455B), rule 567—22.5(455B), 567—Chapter 31 or 567—Chapter 33.

"Electronic format," "electronic submittal," and *"electronic submittal format"* mean a software, Internet-based, or other electronic means specified by the department for submitting fees or associated information to the department for the activities specified in this chapter related to, but not limited to, applications, certifications, determination requests, emissions inventories, forms, notifications, payments, permit applications, and registrations. References to these fee or information submittal methods in this chapter may, as specified by the department, include electronic submittal.

"Major source" means a "major source" as defined in rule 567—22.100(455B).

"Minor source" means any stationary source not included in the definition of "major source" as defined in rule 567—22.100(455B).

"Regulated air pollutant" means "regulated air pollutant or contaminant (for fee calculation)" as defined in rule 567—22.100(455B).

30.1(2) *Duty to correct errors.* If an owner or operator, or the department, finds an error in a fee assessed or collected under this chapter, the owner or operator shall submit to the department revised forms making the necessary corrections to the fee and shall submit the correct fee. Corrected forms shall be submitted as soon as possible after the error is discovered or upon notification by the department. If the error correction results in a determination by the department that a fee was overpaid or that a duplicate fee was submitted, the department will return the overpaid balance of the fee to the applicant.

30.1(3) *Exemption to fee requirements for administrative amendments.* A fee shall not be required for any of the following:

a. Corrections of typographical errors;

b. Corrections of word processing errors;

c. Changes in the name, address, or telephone number of any person identified in a permit, or similar minor administrative changes at the source;

d. Changes in ownership or operational control of a source where the department determines that no other change in the permit is necessary, provided that a written agreement that contains a specific date for transfer of permit responsibility, coverage, and liability between the current permittee and the new permittee has been submitted to the department.

30.1(4) *Refund of application fee minus administrative cost for permit applications at minor sources.* The department may refund the application fee minus administrative costs if the owner or

operator requests to withdraw the application prior to commencement of the technical review of the application.
[**ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—30.2(455B) Fees associated with new source review applications. Beginning on January 15, 2016, each owner or operator required to provide an application submittal, including air quality modeling as applicable; registration; permit by rule; and template under 567—subrule 22.1(1), rule 567—22.4(455B), rule 567—22.5(455B), rule 567—22.8(455B), rule 567—22.10(455B), 567—Chapter 31 or 567—Chapter 33, shall pay fees as specified in the fee schedule approved by the commission and posted on the department's website. Fees shall be submitted with forms supplied by the department.

30.2(1) *Payment of regulatory applicability determination fee.* Beginning on January 15, 2016, each owner or operator requesting a regulatory applicability determination, as specified in 567—paragraph 22.1(3)*"a,"* shall pay fees as specified in the fee schedule approved by the commission and posted on the department's website. Fees shall be submitted with forms provided by the department.

30.2(2) Reserved.
[**ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—30.3(455B) Fees associated with asbestos demolition or renovation notification.

30.3(1) *Payment of fees established.* Beginning on January 15, 2016, the owner or operator of a site subject to the national emission standard for hazardous air pollutants (NESHAP) for asbestos notifications, adopted by reference in 567—paragraph 23.1(3)*"a,"* shall submit a fee with each required original or each annual notification for each demolition or renovation, including abatement. Fees shall be paid as specified in the fee schedule approved by the commission and posted on the department's website. Fees shall be submitted with the notification forms provided by the department.

30.3(2) *Fee not required.* A fee shall not be required for the following:

a. Notifications when the total amount of asbestos to be removed or disturbed is less than 260 linear feet, less than 160 square feet, and less than 35 cubic feet of facility components and is below the reporting thresholds as defined in 40 CFR 61.145 as amended on January 16, 1991;

b. Notifications of training fires as required in 567—paragraph 23.2(3)*"g"*;

c. Controlled burning of demolished buildings as required in 567—paragraph 23.2(3)*"j"*;

d. Revised, canceled, and courtesy notifications. A revision to a previously submitted courtesy notification due to applicability of the notification requirements in 567—paragraph 23.1(3)*"a"* is considered an original notification and is subject to the fee requirements of subrule 30.3(1).
[**ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—30.4(455B) Fees associated with Title V operating permits.

30.4(1) *Payment of Title V application fee.* Beginning on January 15, 2016, each owner or operator required to apply for a Title V permit, or a renewal of a Title V permit, shall pay fees as specified in the fee schedule approved by the commission and posted on the department's website. Fees shall be submitted with forms supplied by the department.

30.4(2) *Payment of Title V annual emissions fee.*

a. *Fee required.* Any person required to obtain a Title V permit shall pay an annual fee based on the first 4,000 tons of each regulated air pollutant, beginning on November 15, 1994. Beginning on July 1, 1996, Title V operating permit fees shall be paid on or before July 1 of each year. The Title V emissions fee shall be based on actual emissions required to be included in the Title V operating permit application and the annual emissions statement for the previous calendar year. The commission shall not set the fee higher than $70 per ton without adopting the change pursuant to formal rule making.

b. *Fee and documentation due dates.* The fee shall be submitted annually by July 1 with forms specified by the department.

c. *Phase I acid rain sources.* No fee shall be required to be paid for emissions which occurred during the years 1993 through 1999, inclusive, with respect to any Phase I acid rain affected unit under 42 U.S.C. 7651c.

d. Operation in Iowa. The fee for a portable emissions unit or stationary source which operates both in Iowa and out of state shall be calculated only for emissions from the source while it is operating in Iowa.

e. Title V exempted stationary sources. No fee shall be required for emissions until the year in which sources exempted under 567—subrules 22.102(1) and 22.102(2) are required to apply for a Title V permit. Fees shall be paid for the emission year preceding the year in which the application is due and thereafter.

f. Insignificant activities. No fee shall be required for insignificant activities as defined in rule 567—22.103(455B).

[**ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 3679C**, IAB 3/14/18, effective 4/18/18]

567—30.5(455B) Fee advisory groups. Prior to each March commission meeting, the director shall convene fee advisory groups for the purposes of reviewing a draft budget and providing recommendations to the department regarding establishing or adjusting fees. Any stakeholder may attend meetings of the advisory groups. The meetings will be open to the public. The date of each meeting shall be posted on the department's website 14 days prior to the meeting date.

30.5(1) *New source review for major sources fee advisory group.* The director shall convene annually a fee advisory group to review the draft budget and major source fees required by rule 567—30.2(455B) and listed in rule 567—30.6(455B). Participants in the advisory group may provide recommendations to the department regarding fees necessary to cover all direct and indirect costs to administer the major source permit program.

30.5(2) *New source review for minor sources fee advisory group.* The director shall convene annually a fee advisory group which shall not include major sources as defined in subrule 30.1(1). The fee advisory group will review the draft budget and minor source application fees required in rule 567—30.2(455B) and listed in rule 567—30.6(455B). Participants in the fee advisory group shall include, but may not be limited to, any minor sources and their representatives. The advisory group may provide recommendations to the department regarding fees necessary to cover all direct and indirect costs to administer the minor source permit program.

30.5(3) *Asbestos fee advisory group.* The director shall convene annually an asbestos NESHAP fee advisory group to review the draft budget and asbestos notification fee required by rule 567—30.3(455B) and listed in rule 567—30.6(455B). Participants in the advisory group may provide recommendations to the department regarding fees necessary to cover all direct and indirect costs to administer the asbestos NESHAP program.

30.5(4) *Title V fee advisory group.* The director shall convene annually a fee advisory group to review the draft budget and Title V emissions and application fees required by rule 567—30.4(455B) and listed in rule 567—30.6(455B). Participants in the advisory group may provide recommendations to the department regarding fees necessary to cover all direct and indirect costs to administer the Title V operating permit program.

[**ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—30.6(455B) Process to establish or adjust fees and notification of fee rates.

30.6(1) *Setting the fees.* Beginning on January 15, 2016, fees shall be paid as specified in the fee schedule approved by the commission and posted on the department's website. Following the setting of the fee schedule effective January 15, 2016, the department shall submit the proposed budget and fees for major and minor source construction permit programs, the Title V operating permit program, and the asbestos NESHAP program for the following fiscal year to the commission no later than the March commission meeting of each year, at which time the proposal will be available for public comment until such time as the commission acts on the proposal or until the May commission meeting, whichever occurs first. The department's calculated estimate for each fee shall not produce total revenues in excess of limits specified in Iowa Code sections 455B.133B and 455B.133C during any fiscal year. If an established fee amount must be adjusted, the commission shall set the fees no later than the May commission meeting of each year.

Fees established prior to January 15, 2016, shall become effective on January 15, 2016. In subsequent years, adjusted or established fees shall become effective on July 1. A fee not adjusted by the commission shall remain in effect as previously established until the fee is adjusted by the commission.

30.6(2) *Fee types and dollar caps on fee types.* The commission may set fees for the fee types and activities specified in this subrule and shall not set a fee in the fee schedule higher than the levels specified in this subrule without adopting the change pursuant to formal rule making:

a. New source review applications from major sources, which may include:

(1) Review of each application for a construction permit: $115 per hour;

(2) Review of each application for a prevention of significant deterioration permit: $115 per hour;

(3) Review of each plantwide applicability limit request, renewal, or reopening: $115 per hour;

(4) Review of each regulatory applicability determination: $115 per hour; and

(5) Air quality modeling review: $90 per hour, which may include:

1. Reviewing air quality modeling for construction permit application submittal; prevention of significant deterioration application submittal; and nonattainment new source review project application submittal; and

2. Conducting air quality modeling for construction permit application submittal.

b. New source review applications from minor sources, which may include:

(1) Each application for a construction permit: $385;

(2) Each application for a registration permit: $100;

(3) Each application for a permit by rule: $100; and

(4) Each application for a permit template: $100.

c. Asbestos notifications: $100.

d. Review of each initial or renewal Title V operating permit application: $100 per hour.

e. Title V annual emissions: $70 per ton.

30.6(3) *Notification of fee schedule.* Following the initial setting of any fee by the commission, the department shall make available to the public a fee schedule at least 30 days prior to its effective date. If any established fee amount is adjusted, the department shall make available to the public a revised fee schedule at least 30 days prior to its effective date. The fee schedule shall be posted on the department's website.

[**ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—30.7(455B) Fee revenue. Each fee program is established to provide revenue for and is limited in use to specific activities.

30.7(1) *New source review application fees from major sources.* In accordance with Iowa Code section 455B.133C(5), new source review fee revenues may be used to fund the direct and indirect costs related to reviewing and acting on applications for new source review permits, including permit revisions submitted by major sources as defined under new source review programs pursuant to the federal Act, and as provided under 567—Chapter 22, 567—Chapter 31, and 567—Chapter 33, as follows:

a. Reviewing and acting on any application for a new source review permit, including the determination of all applicable requirements and dispersion modeling as part of the processing of a permit or permit revision or an applicability determination;

b. General administrative costs of administering new source review programs, including supporting and tracking of any application for a new source review permit and related data entry; and

c. Developing and implementing an expedited new source review permit application process, and additional fees associated with this process.

The calculated estimate of total revenues from new source review application fees from major sources shall not exceed $1,500,000 during any state fiscal year.

30.7(2) *New source review application fees from minor sources.* In accordance with Iowa Code section 455B.133C(6), minor new source review fee revenues may be used to fund the direct and indirect costs for reviewing and acting on applications submitted by minor air contaminant sources for construction permits and providing for registrations, permits by rule, or template permits in lieu of obtaining construction permits, under minor source new source review programs pursuant to the federal

Clean Air Act Amendments of 1990, including as provided under 567—Chapter 22. The calculated estimate of total revenues from new source review application fees from minor sources shall not exceed $250,000 during any state fiscal year.

30.7(3) *Title V emissions.* In accordance with Iowa Code section 455B.133B(5), Title V emissions fee revenues may be used to fund the direct and indirect costs related to:

a. General administrative costs of administering the operating permit program, including the supporting and tracking of operating permit applications, compliance certification, and related data entry.

b. Costs of implementing and enforcing the terms of an operating permit, not including any court costs or other costs associated with an enforcement action, including adequate resources to determine which sources are subject to the program.

c. Costs of emissions and ambient site-specific monitors.

d. Costs of Title V source-specific modeling, analyses or demonstrations.

e. Costs of preparing inventories and tracking emissions.

f. Costs of providing direct support to sources under the small business stationary source technical and environmental compliance assistance program as provided in Iowa Code section 455B.133A.

g. Costs associated with implementing and administering regulatory activities, including programs, as provided for in division II of Iowa Code chapter 455B, other than costs covered by any of the following: operating permit application fees, new source review application fees, or notification fees, pursuant to Iowa Code section 455B.133B(5)*"d"*(2).

The calculated estimate of total revenues from emissions fees shall not exceed $8,250,000 during any state fiscal year.

30.7(4) *Title V applications.* In accordance with Iowa Code section 455B.133B(6), Title V application fee revenues may be used to fund the direct and indirect costs related to reviewing and acting on applications for operating permits submitted by major sources as defined in rule 567—22.100(455B) and sources subject to rule 567—22.101(455B), as follows:

a. Costs of reviewing and acting on any application for an operating permit or operating permit revision.

b. General administrative costs of administering the operating permit program, including the supporting and tracking of operating permit applications and related data entry.

The calculated estimate of total revenues from Title V application fees shall not exceed $1,250,000 during any state fiscal year.

30.7(5) *Asbestos notification.* Pursuant to Iowa Code section 455B.133C(7), asbestos notification fee revenues may be used to fund the direct and indirect costs related to implementing and administering the asbestos national emission standard for hazardous air pollutants program pursuant to 567—Chapter 23. The calculated estimate of total revenues from asbestos notification fees shall not exceed $450,000 during any state fiscal year.

[**ARC 2352C**, IAB 1/6/16, effective 12/16/15]

These rules are intended to implement Iowa Code sections 455B.133, 455B.133B and 455B.133C.

[Filed Emergency After Notice ARC 2352C (Notice ARC 2222C, IAB 10/28/15), IAB 1/6/16, effective 12/16/15]

[Filed ARC 3679C (Notice ARC 3520C, IAB 12/20/17), IAB 3/14/18, effective 4/18/18]

[Filed ARC 5051C (Notice ARC 4961C, IAB 3/11/20), IAB 6/17/20, effective 7/22/20]

CHAPTER 31
NONATTAINMENT AREAS

567—31.1(455B) Permit requirements relating to nonattainment areas. This chapter implements the nonattainment major new source review (NSR) program contained in Part D of Title I of the federal Clean Air Act and as promulgated under 40 CFR 51.165 as amended through March 30, 2011, and 40 CFR 51, Appendix S, as amended through July 1, 2011.

The nonattainment major NSR program is a preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under Part D of Title I of the federal Clean Air Act as amended on November 15, 1990. The nonattainment major NSR program applies only in areas that do not meet the national ambient air quality standards (NAAQS).

Section 107(d) of the federal Clean Air Act, 42 U.S.C. §7457(d), requires each state to submit to the Administrator of the federal Environmental Protection Agency a list of areas that exceed the NAAQS, that are lower than those standards, or that cannot be classified on the basis of current data.

Requirements for nonattainment areas designated on or after May 18, 1998, are in rules 567—31.3(455B) through 567—31.10(455B). Requirements for nonattainment areas designated before May 18, 1998, are in rule 567—31.20(455B). A list of Iowa's nonattainment area designations is found at 40 CFR 81.316 as amended through August 5, 2013. An owner or operator required to apply for a construction permit under this chapter or requesting a plantwide applicability limit shall submit fees as required in 567—Chapter 30.

[**ARC 1227C**, IAB 12/11/13, effective 1/15/14; **ARC 2352C**, IAB 1/6/16, effective 12/16/15]

567—31.2(455B) Conformity of general federal actions to the Iowa state implementation plan or federal implementation plan. Rescinded **ARC 2949C**, IAB 2/15/17, effective 3/22/17.

NONATTAINMENT AREAS DESIGNATED ON OR AFTER MAY 18, 1998

567—31.3(455B) Nonattainment new source review requirements for areas designated nonattainment on or after May 18, 1998.

31.3(1) *Definitions.* For the purpose of nonattainment new source review, the following definitions shall apply:

"Act" means the Clean Air Act, 42 U.S.C. Sections 7401, et seq., as amended through November 15, 1990.

"Actual emissions" means:

1. The actual rate of emissions of a regulated NSR pollutant from an emissions unit, as determined in accordance with paragraphs "2" through "4," except that this definition shall not apply for calculating whether a significant emissions increase has occurred, or for establishing a PAL under rule 567—31.9(455B). Instead, the definitions of projected actual emission and baseline actual emissions shall apply for those purposes.

2. In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The department shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

3. The department may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

4. For any emissions unit that has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

"Administrator" means the administrator for the U. S. Environmental Protection Agency (EPA) or designee.

"Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

1. The applicable standards as set forth in 567—subrules 23.1(2) through 23.1(5) (new source performance standards, emissions standards for hazardous air pollutants, and federal emissions guidelines) or an applicable federal standard not adopted by the state, as set forth in 40 CFR Parts 60, 61 and 63;

2. The state implementation plan (SIP) emissions limitation, including those with a future compliance date; or

3. The emissions rate specified as an enforceable permit condition, including those with a future compliance date.

"Baseline actual emissions," for the purposes of this rule, means the rate of emissions, in tons per year, of a regulated NSR pollutant, as determined in accordance with paragraphs "1" through "4."

1. For any existing electric utility steam generating unit, baseline actual emissions means the average rate, in tons per year, at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the five-year period immediately preceding when the owner or operator begins actual construction of the project. The department shall allow the use of a different time period upon a determination that it is more representative of normal source operation.

(a) The average rate shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions.

(b) The average rate shall be adjusted downward to exclude any non-compliant emissions that occurred while the source was operating above an emissions limitation that was legally enforceable during the consecutive 24-month period.

(c) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions units being changed. A different consecutive 24-month period can be used for each regulated NSR pollutant.

(d) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount if required by paragraph "1"(b) of this definition.

2. For an existing emissions unit (other than an electric utility steam generating unit), baseline actual emissions means the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the ten-year period immediately preceding either the date the owner or operator begins actual construction of the project, or the date on which a complete permit application is received by the department for a permit required either under this rule or under a plan approved by the Administrator, whichever is earlier, except that the ten-year period shall not include any period earlier than November 15, 1990.

(a) The average rate shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions.

(b) The average rate shall be adjusted downward to exclude any non-compliant emissions that occurred while the source was operating above an emission limitation that was legally enforceable during the consecutive 24-month period.

(c) The average rate shall be adjusted downward to exclude any emissions that would have exceeded an emission limitation with which the major stationary source must currently comply, had such major stationary source been required to comply with such limitations during the consecutive 24-month period. However, if an emission limitation is part of a maximum achievable control technology standard that the Administrator proposed or promulgated under 40 CFR Part 63, the baseline actual emissions need only be adjusted if the state has taken credit for such emissions reductions in an attainment demonstration or maintenance plan consistent with the requirements of subparagraph 31.3(3)*"b"*(7).

(d) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions

units being changed. A different consecutive 24-month period can be used for each regulated NSR pollutant.

(e) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount if required by paragraphs "2"(b) and "2"(c) of this definition.

3. For a new emissions unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero; and thereafter, for all other purposes, shall equal the unit's potential to emit.

4. For a PAL for a major stationary source, the baseline actual emissions shall be calculated for existing electric utility steam generating units in accordance with the procedures contained in paragraph "1," for other existing emissions units in accordance with the procedures contained in paragraph "2," and for a new emissions unit in accordance with the procedures contained in paragraph "3."

"Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operating this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.

"Best available control technology" or *"BACT"* means an emissions limitation, including a visible emissions standard, based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the department, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 567—subrules 23.1(2) through 23.1(5) (standards for new stationary sources, federal standards for hazardous air pollutants, and federal emissions guidelines), or federal regulations as set forth in 40 CFR Parts 60, 61 and 63 but not yet adopted by the state. If the department determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of BACT. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.

"Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same major group (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0065 and 003-005-00176-0, respectively).

"CFR" means the Code of Federal Regulations, with standard references in this chapter by title and part, so that "40 CFR 51" or "40 CFR Part 51" means "Title 40 Code of Federal Regulations, Part 51."

"Clean coal technology" means any technology, including technologies applied at the precombustion, combustion, or post combustion stage, at a new or existing facility which will achieve significant reductions in air emissions of sulfur dioxide or oxides of nitrogen associated with the utilization of coal in the generation of electricity, or process steam which was not in widespread use as of November 15, 1990.

"Clean coal technology demonstration project" means a project using funds appropriated under the heading "Department of Energy—Clean Coal Technology," up to a total amount of $2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations

for the EPA. The federal contribution for a qualifying project shall be at least 20 percent of the total cost of the demonstration project.

"Commence," as applied to construction of a major stationary source or major modification, means that the owner or operator has all necessary preconstruction approvals or permits and either has:

1. Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

2. Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

"Construction" means any physical change or change in the method of operation, including fabrication, erection, installation, demolition, or modification of an emissions unit, that would result in a change in emissions.

"Continuous emissions monitoring system" or *"CEMS"* means all of the equipment that may be required to meet the data acquisition and availability requirements of this rule, to sample, to condition (if applicable), to analyze, and to provide a record of emissions on a continuous basis.

"Continuous emissions rate monitoring system" or *"CERMS"* means the total equipment required for the determination and recording of the pollutant mass emissions rate (in terms of mass per unit of time).

"Continuous parameter monitoring system" or *"CPMS"* means all of the equipment necessary to meet the data acquisition and availability requirements of this rule, to monitor process and control device operational parameters (for example, control device secondary voltages and electric currents) and other information (for example, gas flow rate, O_2 or CO_2 concentrations), and to record average operational parameter value(s) on a continuous basis.

"Electric utility steam generating unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

"Emissions unit" means any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric steam generating unit. For purposes of this rule, there are two types of emissions units as described in paragraphs "1" and "2."

1. A new emissions unit is any emissions unit which is (or will be) newly constructed and which has existed for less than two years from the date such emissions unit first operated.

2. An existing emissions unit is any emissions unit that does not meet the requirements in paragraph "1" of this definition. A replacement unit is an existing emissions unit.

"Federal land manager" means, with respect to any lands in the United States, the secretary of the department with authority over such lands.

"Federally enforceable" means all limitations and conditions which are enforceable by the Administrator and the department, including those federal requirements not yet adopted by the state, developed pursuant to 40 CFR Parts 60, 61, and 63; requirements within 567—subrules 23.1(2) through 23.1(5); requirements within the SIP; any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, as amended through October 20, 2010, including operating permits issued under an EPA-approved program that is incorporated into the SIP and expressly requires adherence to any permit issued under such program.

"Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening.

"Lowest achievable emission rate" or *"LAER"* means, for any source, the more stringent rate of emissions based on the following:

1. The most stringent emissions limitation which is contained in the implementation plan of any state for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or

2. The most stringent emissions limitation which is achieved in practice by such class or category of stationary sources. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within or stationary source. In no event shall the application of the term permit a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under an applicable new source standard of performance.

"Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant emissions increase of a regulated NSR pollutant and a significant net emissions increase of that pollutant from the major stationary source.

1. Any significant emissions increase from any emissions units or net emissions increase at a major stationary source that is significant for volatile organic compounds shall be considered significant for ozone.

2. A physical change or change in the method of operation shall not include:

(a) Routine maintenance, repair and replacement;

(b) Use of an alternative fuel or raw material by reason of an order under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(c) Use of an alternative fuel by reason of an order or rule Section 125 of the Act;

(d) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(e) Use of an alternative fuel or raw material by a stationary source which the source was capable of accommodating before December 21, 1976, unless such change would be prohibited under any federally enforceable permit condition which was established after December 12, 1976, pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Subpart I or § 51.166; or the source is approved to use under any permit issued under regulations approved pursuant to this rule;

(f) An increase in the hours of operation or in the production rate, unless such change is prohibited under any federally enforceable permit condition which was established after December 21, 1976, pursuant to 40 CFR 52.21 or regulations approved pursuant to 40 CFR Part 51, Subpart I, or 40 CFR 51.166.

(g) Any change in ownership at a stationary source.

(h) Reserved.

(i) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with the SIP, and other requirements necessary to attain and maintain the national ambient air quality standard during the project and after it is terminated.

3. This definition shall not apply with respect to a particular regulated NSR pollutant when the major stationary source is complying with the requirements under rule 567—31.9(455B) of this chapter for a PAL for that pollutant. Instead, the definition at 567—31.9(455B) shall apply.

4. For the purpose of applying the requirements of subrule 31.3(8) to modifications at major stationary sources of nitrogen oxides located in ozone nonattainment areas or in ozone transport regions, whether or not subject to Subpart 2, Part D, Title I of the Act, any significant net emissions increase of nitrogen oxides is considered significant for ozone.

5. Any physical change in, or change in the method of operation of, a major stationary source of volatile organic compounds that results in any increase in emissions of volatile organic compounds from any discrete operation, emissions unit, or other pollutant emitting activity at the source shall be considered a significant net emissions increase and a major modification for ozone, if the major stationary source is located in an extreme ozone nonattainment area that is subject to Subpart 2, Part D, Title I of the Act.

"Major stationary source" means:

1. Any stationary source of air pollutants that emits, or has the potential to emit, 100 tons per year or more of any regulated NSR pollutant, except that lower emissions thresholds shall apply in areas subject to Subpart 2, Subpart 3, or Subpart 4 of Part D, Title I of the Act, according to definitions in 31.3(1).

(a) 50 tons per year of volatile organic compounds in any serious ozone nonattainment area.

(b) 50 tons per year of volatile organic compounds in an area within an ozone transport region, except for any severe or extreme ozone nonattainment area.

(c) 25 tons per year of volatile organic compounds in any severe ozone nonattainment area.

(d) 10 tons per year of volatile organic compounds in any extreme ozone nonattainment area.

(e) 50 tons per year of carbon monoxide in any serious nonattainment area for carbon monoxide, where stationary sources contribute significantly to carbon monoxide levels in the area (as determined under rules issued by the Administrator as amended through [effective date of these rules]).

(f) 70 tons per year of PM_{10} in any serious nonattainment area for PM_{10};

2. For the purposes of applying the requirements of subrule 31.3(8) to stationary sources of nitrogen oxides located in an ozone nonattainment area or in an ozone transport region, any stationary source which emits, or has the potential to emit, 100 tons per year or more of nitrogen oxides emissions, except that the following emission thresholds apply in areas subject to Subpart 2 of Part D, Title I of the Act:

(a) 100 tons per year or more of nitrogen oxides in any ozone nonattainment area classified as marginal or moderate.

(b) 100 tons per year or more of nitrogen oxides in any ozone nonattainment area classified as a transitional, submarginal, or incomplete or no data area, when such area is located in an ozone transport region.

(c) 100 tons per year or more of nitrogen oxides in any area designated under Section 107(d) of the Act as attainment or unclassifiable for ozone that is located in an ozone transport region.

(d) 50 tons per year or more of nitrogen oxides in any serious nonattainment area for ozone.

(e) 25 tons per year or more of nitrogen oxides in any severe nonattainment area for ozone.

(f) 10 tons per year or more of nitrogen oxides in any extreme nonattainment area for ozone; or

3. Any physical change that would occur at a stationary source not qualifying under subrule 31.3(1) as a major stationary source, if the change would constitute a major stationary source by itself.

4. A major stationary source that is major for volatile organic compounds shall be considered major for ozone.

5. The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this rule whether it is a major stationary source, unless the source belongs to one of the following categories of stationary sources: coal cleaning plants (with thermal dryers); kraft pulp mills; Portland cement plants; primary zinc smelters; iron and steel mills; primary aluminum ore reduction plants; primary copper smelters; municipal incinerators capable of charging more than 250 tons of refuse per day; hydrofluoric, sulfuric, or nitric acid plants; petroleum refineries; lime plants; phosphate rock processing plants; coke oven batteries; sulfur recovery plants; carbon black plants (furnace process); primary lead smelters; fuel conversion plants; sintering plants; secondary metal production plants; chemical process plants—The term chemical processing plant shall not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS codes 325193 or 312140; fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input; petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels; taconite ore processing plants; glass fiber processing plants; charcoal production plants; fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; and any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act.

"Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the SIP.

"Net emissions increase" means, with respect to any regulated NSR pollutant emitted by a major stationary source, the amount by which the sum of the following exceeds zero: the increase in emissions from a particular physical change or change in the method of operation at a stationary source as calculated according to the applicability requirements of paragraph 31.3(2)*"b,"* and any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the

particular change and are otherwise creditable. Baseline actual emissions for calculating increases and decreases shall be determined as provided in the "baseline actual emissions" definition, except that paragraphs "1"(c) and "2"(d) shall not apply.

1. An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if the increase or decrease in actual emissions occurs between the date five years before construction on the particular change commences and the date that the increase from the particular change occurs;

2. An increase or decrease in actual emissions is creditable only if:

(a) The increase or decrease in actual emissions occurs within the contemporaneous time period, as noted in paragraph "1" of this definition; and

(b) The department has not relied on the increase or decrease in actual emissions in issuing a permit for the source under this rule, which permit is in effect when the increase in actual emissions from the particular change occurs; and

(c) Reserved.

3. An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

4. A decrease in actual emissions is creditable only to the extent that:

(a) The old level of actual emission or the old level of allowable emissions whichever is lower, exceeds the new level of actual emissions;

(b) It is enforceable as a practical matter at and after the time that actual construction on the particular change begins; and

(c) The department has not relied on a decrease in actual emissions in issuing any permit under regulations approved pursuant to 40 CFR Part 51, Subpart I, or has not relied on a decrease in actual emissions in demonstrating attainment or reasonable further progress;

(d) The decrease in actual emissions has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change; and

5. An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

6. Actual emissions shall not apply for determining creditable increases and decreases or after a change.

"Nonattainment major new source review (NSR) program" means a major source preconstruction permit program that has been approved by the Administrator and incorporated into the plan to implement the requirements of this rule, or a program that implements 40 CFR Part 51, Appendix S, Sections I through VI, as amended on October 25, 2012. Any permit issued under such a program is a major NSR permit.

"Pollution prevention" means any activity that through process changes, product reformulation or redesign, or substitution of less polluting raw materials, eliminates or reduces the release of air pollutants (including fugitive emissions) and other pollutants to the environment prior to recycling, treatment, or disposal. "Pollution prevention" does not mean recycling (other than certain "in-process recycling" practices), energy recovery, treatment, or disposal.

"Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

"Predictive emissions monitoring system" or *"PEMS"* means all of the equipment necessary to monitor process and control device operational parameters (for example, control device secondary voltages and electric currents) and other information (for example, gas flow rate, O_2 or CO_2

concentrations), and calculate and record the mass emissions rate (for example, lb/hr) on a continuous basis.

"Prevention of significant deterioration (PSD) permit" means any permit that is issued under a major source preconstruction permit program that has been approved by the Administrator and incorporated into the plan to implement the requirements of 40 CFR 51.166, or under the program in 40 CFR 52.21.

"Project" means a physical change in, or change in the method of operation of, an existing major stationary source.

"Projected actual emissions" means the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the five years (12-month period) following the date the unit resumes regular operation after the project, or in any one of the ten years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit of that regulated NSR pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source. In determining the projected actual emissions before beginning actual construction, the owner or operator of the major stationary source:

1. Shall consider all relevant information including, but not limited to, historical operational data, the company's own representations, the company's expected business activity and the company's highest projections of business activity, the company's filings with the state or federal regulatory authorities, and compliance plans under the approved plan; and

2. Shall include fugitive emissions to the extent quantifiable, and emissions associated with startups, shutdowns, and malfunctions; and

3. Shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project, including any increased utilization due to product demand growth; or

4. In lieu of using the method set out in paragraphs "1" through "3," may elect to use the emissions unit's potential to emit, in tons per year.

"Reasonable period" means an increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if the increase or decrease in actual emissions occurs between the date five years before construction on the particular change commences and the date that the increase from the particular change occurs.

"Regulated NSR pollutant" means the following:

1. Nitrogen oxides or any volatile organic compounds;

2. Any pollutant for which a national ambient air quality standard has been promulgated;

3. Any pollutant that is identified as a constituent or precursor of a general pollutant listed under paragraph "1" or "2," provided that such constituent or precursor pollutant may only be regulated under NSR as part of regulation of the general pollutant. Precursors identified by the Administrator for purposes of NSR are the following:

(a) Volatile organic compounds and nitrogen oxides are precursors to ozone in all ozone nonattainment areas.

(b) Sulfur dioxide is a precursor to $PM_{2.5}$ in all $PM_{2.5}$ nonattainment areas.

(c) Nitrogen oxides are presumed to be precursors to $PM_{2.5}$ in all $PM_{2.5}$ nonattainment areas, unless the department demonstrates to the EPA's satisfaction or EPA demonstrates that emissions of nitrogen oxides from sources in a specific area are not a significant contributor to the area's ambient $PM_{2.5}$ concentrations.

(d) Volatile organic compounds and ammonia are presumed not to be precursors to $PM_{2.5}$ in any $PM_{2.5}$ nonattainment area, unless the department demonstrates to the EPA's satisfaction or EPA demonstrates that emissions of volatile organic compounds or ammonia from sources in a specific area are a significant contributor to that area's ambient $PM_{2.5}$ concentrations; or

4. $PM_{2.5}$ emissions and PM_{10} emissions shall include gaseous emissions from a source or activity which condense to form particulate matter at ambient temperatures.

"Replacement unit" means an emissions unit for which all the criteria listed in paragraphs "1" through "4" of this definition are met. No creditable emission reductions shall be generated from shutting down the existing emissions unit that is replaced.

1. The emissions unit is a reconstructed unit within the meaning of 40 CFR 60.15(b)(1) as amended through December 16, 1975, or the emissions unit completely takes the place of an existing emissions unit.

2. The emissions unit is identical to or functionally equivalent to the replaced emissions unit.

3. The replacement does not alter the basic design parameters of the process unit.

4. The replaced emissions unit is permanently removed from the major stationary source, otherwise permanently disabled, or permanently barred from operation by a permit that is enforceable as a practical matter. If the replaced emissions unit is brought back into operation, it shall constitute a new emissions unit.

"Reviewing authority" means the department of natural resources.

"Secondary emissions" means emissions which would occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purpose of this rule, "secondary emissions" must be specific, well defined, quantifiable, and impact the same general area as the stationary source or modification which causes the secondary emissions. "Secondary emissions" include emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction of operation of the major stationary source of major modification. "Secondary emissions" do not include any emissions which come directly from a mobile source such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

"Significant" means:

1. In reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant Emission Rate

(a) Carbon monoxide: 100 tons per year (tpy)

(b) Nitrogen oxides: 40 tpy

(c) Sulfur dioxide: 40 tpy

(d) Ozone: 40 tpy of volatile organic compounds or nitrogen oxides

(e) Lead: 0.6 tpy

(f) PM_{10}: 15 tpy

(g) $PM_{2.5}$: 10 tpy of direct $PM_{2.5}$ emissions; 40 tpy of sulfur dioxide emissions; 40 tpy of nitrogen oxide emissions unless the department demonstrates to EPA's satisfaction that the emissions of nitrogen oxides from sources in a specific area are not a significant contributor to the area's ambient $PM_{2.5}$ concentrations.

2. Notwithstanding the significant emissions rate for ozone, significant means, in reference to an emissions increase or a net emissions increase, any increase in actual emissions of volatile organic compounds that would result from any physical change in, or change in the method of operation of, a major stationary source locating in a serious or severe ozone nonattainment area that is subject to Subpart 2, Part D, Title I of the Act, if such emissions increase of volatile organic compounds exceeds 25 tons per year.

3. For the purposes of applying the requirements of subrule 31.3(8) to modifications at major stationary sources of nitrogen oxides located in an ozone nonattainment area or in an ozone transport region, the significant emission rates and other requirements for volatile organic compounds in paragraphs "1," "2," and "5" shall apply to nitrogen oxides emissions.

4. Notwithstanding the significant emissions rate for carbon monoxide, significant means, in reference to an emissions increase or a net emissions increase, any increase in actual emissions of carbon monoxide that would result from any physical change in, or change in the method of operation of, a major stationary source in a serious nonattainment area for carbon monoxide if such increase equals or exceeds 50 tons per year, provided the department has determined that stationary sources contribute significantly to carbon monoxide levels in that area.

5. Notwithstanding the significant emissions rates for ozone under paragraphs "1" and "2," any increase in actual emissions of volatile organic compounds from any emissions unit at a major stationary source of volatile organic compounds located in an extreme ozone nonattainment area that is subject to Subpart 2, Part D, Title I of the Act shall be considered a significant net emissions increase.

"Significant emissions increase" means, for a regulated NSR pollutant, an increase in emissions that is significant for that pollutant.

"Stationary source" means any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant.

"Temporary clean coal technology demonstration project" means a clean coal technology demonstration project that is operated for a period of five years or less, and which complies with the SIP and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after it is terminated.

"Volatile organic compounds" or *"VOC"* means any compound included in the definition of "volatile organic compounds" found at 40 CFR 51.100(s) as amended through January 21, 2009.

31.3(2) Applicability procedures.

a. This subrule adopts a preconstruction review program to satisfy the requirements of Sections 172(c)(5) and 173 of the Act for any area designated nonattainment for any national ambient air quality standard under Subpart C of 40 CFR Part 81 as amended on August 5, 2013, and shall apply to any new major stationary source or major modification that is major for the pollutant for which the area is designated nonattainment under Section 107(d)(1)(A)(i) of the Act, if the stationary source or modification would locate anywhere in the designated nonattainment area.

b. Each plan shall use the specific provisions of subparagraphs (1) through (6) of this paragraph. Deviations from these provisions will be approved only if the submitted provisions are more stringent than or at least as stringent in all respects as the corresponding provisions in subparagraphs (1) through (6) of this paragraph.

(1) Except as otherwise provided in paragraph 31.3(2)*"c,"* and consistent with the definition of major modification, a project is a major modification for a regulated NSR pollutant if it causes two types of emissions increases—a significant emissions increase and a significant net emissions increase. The project is not a major modification if it does not cause a significant emissions increase. If the project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase.

(2) The procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to subparagraphs (3) through (6) of this paragraph. The procedure for calculating (before beginning actual construction) whether a significant net emissions increase will occur at the major stationary source. Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

(3) Actual-to-projected-actual applicability test for projects that only involve existing emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the projected actual emissions and the baseline actual emissions, for each existing emissions unit, equals or exceeds the significant amount for that pollutant.

(4) Actual-to-potential test for projects that only involve construction of a new emissions unit(s). A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the potential to emit from each new emissions unit following completion of the project and the baseline actual emissions of these units before the project equals or exceeds the significant amount for that pollutant.

(5) Reserved.

(6) Hybrid test for projects that involve multiple types of emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in subparagraphs (3) and (4) of this paragraph as applicable

with respect to each emissions unit, for each type of emissions unit equals or exceeds the significant amount for that pollutant.

c. The plan shall require that for any major stationary source for a PAL for a regulated NSR pollutant, the major stationary source shall comply with requirements under rule 567—31.9(455B).

31.3(3) Creditable offsets.

a. For sources and modifications subject to any preconstruction review program, the baseline for determining credit for emissions reductions is the emissions limit in effect at the time the application to construct is filed, except that the offset baseline shall be the actual emissions of the source from which offset credit is obtained where;

(1) The demonstration of reasonable further progress and attainment of ambient air quality standards is based upon the actual emissions of sources located within a designated nonattainment area for which the preconstruction review program was adopted; or

(2) The SIP does not contain an emissions limitation for that source or source category.

b. Providing that:

(1) Where the emissions limit under the SIP allows greater emissions than the potential to emit of the source, emissions offset credit will be allowed only for control below this potential;

(2) For an existing fuel combustion source, credit shall be based on the allowable emissions under the SIP for the type of fuel being burned at the time the application to construct is filed. If the existing source commits to switch to a cleaner fuel at some future date, emissions offset credit based on the allowable (or actual) emissions for the fuels involved is not acceptable, unless the permit is conditioned to require the use of a specified alternative control measure which would achieve the same degree of emissions reduction should the source switch back to a dirtier fuel at some later date. The department should ensure that adequate long-term supplies of the new fuel are available before granting emissions offset credit for fuel switches,

(3) Emissions reductions achieved by shutting down an existing emission unit or curtailing production or operating hours may be generally credited for offsets if: such reductions are surplus, permanent, quantifiable, and federally enforceable; and the shutdown or curtailment occurred after the last day of the base year for the SIP planning process. For purposes of this subparagraph, the department may choose to consider a prior shutdown or curtailment to have occurred after the last day of the base year if the projected emissions inventory used to develop the attainment demonstration explicitly includes the emissions from such previously shutdown or curtailed emission units. However, in no event may credit be given for shutdowns that occurred before August 7, 1977.

Emissions reductions achieved by shutting down an existing emissions unit or curtailing production or operating hours and that do not meet the requirements above may be generally credited only if: the shutdown or curtailment occurred on or after the date the construction permit application is filed; or the applicant can establish that the proposed new emissions unit is a replacement for the shutdown or curtailed emissions unit, and the emissions reductions achieved by the shutdown or curtailment met the requirements of this subparagraph.

(4) No emissions credit may be allowed for replacing one hydrocarbon compound with another of lesser reactivity, except for those compounds listed in Table 1 of EPA's "Recommended Policy on Control of Volatile Organic Compounds" (42 FR 35314, July 8, 1977);

(5) All emission reductions claimed as offset credit shall be federally enforceable;

(6) Procedures relating to the permissible location of offsetting emissions shall be followed which are at least as stringent as those set out in 40 CFR Part 51, Appendix S, Section IV.D, as amended on October 25, 2012.

(7) Credit for an emissions reduction can be claimed to the extent that the department has not relied on it in issuing any permit under regulations approved pursuant to 40 CFR Part 51, Subpart I, or the state has not relied on it in demonstration attainment or reasonable further progress.

(8) Reserved.

(9) Reserved.

(10) The total tonnage of increased emissions, in tons per year, resulting from a major modification that must be offset in accordance with Section 173 of the Act shall be determined by summing the

difference between the allowable emissions after the modification and the actual emissions before the modification for each emissions unit.

31.3(4) The department may provide that the provisions of this subrule do not apply to a source or modification that would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories: coal cleaning plants (with thermal dryers); kraft pulp mills; Portland cement plants; primary zinc smelters; iron and steel mills; primary aluminum ore reduction plants; primary copper smelters; municipal incinerators capable of charging more than 250 tons of refuse per day; hydrofluoric, sulfuric, or nitric acid plants; petroleum refineries; lime plants; phosphate rock processing plants; coke oven batteries; sulfur recovery plants; carbon black plants (furnace process); primary lead smelters; fuel conversion plants; sintering plants; secondary metal production plants; chemical process plants—The term chemical processing plant shall not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS codes 325193 or 312140; fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input; petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels; taconite ore processing plants; glass fiber processing plants; charcoal production plants; fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; and any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act.

31.3(5) Enforceable procedures.

a. Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provision of the plan and any other requirements under local, state or federal law.

b. At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforcement limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of this rule shall apply to the source or modification as though construction had not yet commenced on the source or modification.

31.3(6) Except as otherwise provided in paragraph 31.3(6)*"f,"* the following specific provisions apply with respect to any regulated NSR pollutant emitted from projects at existing emissions units at a major stationary source (other than projects at a source with a PAL) in circumstances where there is a reasonable possibility, within the meaning of paragraph 31.3(6)*"f,"* that a project that is not a part of a major modification may result in a significant emissions increase of such pollutant, and the owner or operator elects to use the method specified in paragraphs "1" through "3" of the definition of "projected actual emissions" for calculating projected actual emissions. Deviations from these provisions will be approved only if the state specifically demonstrates that the submitted provisions are more stringent than or at least as stringent in all respects as the corresponding provisions in paragraphs 31.3(6)*"a"* through *"f."*

a. Before beginning actual construction of the project, the owner or operator shall document and maintain a record of the following information:

(1) A description of the project;

(2) Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project; and

(3) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under paragraph "3" of the definition of "projected actual emissions" and an explanation for why such amount was excluded, and any netting calculations, if applicable.

b. If the emissions unit is an existing electric utility steam generating unit, before beginning actual construction, the owner or operator shall provide a copy of the information set out in paragraph 31.3(6)*"a"* to the department. Nothing in paragraph 31.3(6)*"b"* shall be construed to require the owner or operator of such a unit to obtain any determination from the reviewing authority before beginning actual construction.

c. The owner or operator shall monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any emissions units identified in subparagraph 31.3(6)*"a"*(2); and calculate and maintain a record of the annual emissions, in tons per year on a calendar year basis, for a period of five years following resumption of regular operations after the change, or for a period of ten years following resumption of regular operations after the change if the project increases the design capacity or potential to emit of that regulated NSR pollutant at such emissions unit.

d. If the unit is an existing electric utility steam generating unit, the owner or operator shall submit a report to the department within 60 days after the end of each year during which records must be generated under paragraph 31.3(6)*"c"* setting out the unit's annual emissions during the year that preceded submission of the report.

e. If the unit is an existing unit other than an electric utility steam generating unit, the owner or operator shall submit a report to the department if the annual emissions, in tons per year, from the project identified in paragraph 31.3(6)*"a,"* exceed the baseline actual emissions (as documented and maintained under subparagraph 31.3(6)*"a"*(3)), by a significant amount for that regulated NSR pollutant, and if such emissions differ from the preconstruction projection as documented and maintained under subparagraph 31.3(6)*"a"*(3). Such report shall be submitted to the department within 60 days after the end of such year. The report shall contain the following:

(1) The name, address and telephone number of the major stationary source;

(2) The annual emissions as calculated pursuant to paragraph 31.3(6)*"c"*; and

(3) Any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection).

f. A "reasonable possibility" under this subrule occurs when the owner or operator calculates the project to result in either:

(1) A projected actual emissions increase of at least 50 percent of the amount that is a "significant emissions increase" (without reference to the amount that is a significant net emissions increase) for the regulated NSR pollutant; or

(2) A projected actual emissions increase that, added to the amount of emissions excluded under paragraph "3" of the definition of "projected actual emissions," sums to at least 50 percent of the amount that is a "significant emissions increase" (without reference to the amount that is a significant net emissions increase) for the regulated NSR pollutant. For a project for which a reasonable possibility occurs only within the meaning of this subparagraph, and not also within the meaning of subparagraph (1), then paragraphs 31.3(6)*"b"* through *"e"* do not apply to the project.

31.3(7) The owner or operator of the source shall make the information required to be documented and maintained pursuant to this subrule available for review upon a request for inspection by the department or the general public pursuant to the requirements contained in 40 CFR 70.4(b)(3)(viii) as amended through October 6, 2009.

31.3(8) The requirements of this subrule applicable to major stationary sources and major modifications of volatile organic compounds shall apply to nitrogen oxides emissions from major stationary sources and major modifications of nitrogen oxides in an ozone transport region or in any ozone nonattainment area, except in ozone nonattainment areas or in portions of an ozone transport region where the Administrator has granted a NO_X waiver applying the standards set forth under Section 182(f) of the Act and the waiver continues to apply.

31.3(9) Offset ratios.

a. In meeting the emissions offset requirements of subrule 31.3(3), the ratio of total actual emissions reductions to the emissions increase shall be at least 1:1 unless an alternative ratio is provided for the applicable nonattainment area in paragraphs 31.3(9)*"b"* through *"d."*

b. The plan shall require that in meeting the emissions offset requirements of subrule 31.3(3) for ozone nonattainment areas that are subject to Subpart 2, Part D, Title I of the Act, the ratio of total actual emissions reductions of VOC to the emissions increase of VOC shall be as follows:

(1) In any marginal nonattainment area for ozone—at least 1.1:1;

(2) In any moderate nonattainment area for ozone—at least 1.15:1;

(3) In any serious nonattainment area for ozone—at least 1.2:1;

(4) In any severe nonattainment area for ozone—at least 1.3:1 (except that the ratio may be at least 1.2:1 if the approved plan also requires all existing major sources in such nonattainment area to use BACT for the control of VOC); and

(5) In any extreme nonattainment area for ozone—at least 1.5:1 (except that the ratio may be at least 1.2:1 if the approved plan also requires all existing major sources in such nonattainment area to use BACT for the control of VOC); and

c. Notwithstanding the requirements of subrule 31.3(9) for meeting the requirements of subrule 31.3(3), the ratio of total actual emissions reductions of VOC to the emissions increase of VOC shall be at least 1.15:1 for all areas within an ozone transport region that is subject to Subpart 2, Part D, Title I of the Act, except for serious, severe, and extreme ozone nonattainment areas that are subject to Subpart 2, Part D, Title I of the Act.

d. In meeting the emissions offset requirements of subrule 31.3(3) for ozone nonattainment areas that are subject to Subpart 1, Part D, Title I of the Act (but are not subject to Subpart 2, Part D, Title I of the Act, including eight-hour ozone nonattainment areas subject to 40 CFR 51.902(b)), the ratio of total actual emissions reductions of VOC to the emissions increase of VOC shall be at least 1:1.

31.3(10) The requirements of this rule applicable to major stationary sources and major modifications of PM_{10} shall also apply to major stationary sources and major modifications of PM_{10} precursors.

31.3(11) In meeting the emissions offset requirements of subrule 31.3(3), the emissions offsets obtained shall be for the same regulated NSR pollutant unless interprecursor offsetting is permitted for a particular pollutant as specified in this subrule. The offset requirements in subrule 31.3(3) for direct $PM_{2.5}$ emissions or emissions of precursors of $PM_{2.5}$ may be satisfied by offsetting reductions in direct $PM_{2.5}$ emissions or emissions of any $PM_{2.5}$ precursor if such offsets comply with the interprecursor trading hierarchy and ratio established in the approved plan for a particular nonattainment area.

[**ARC 1227C**, IAB 12/11/13, effective 1/15/14]

567—31.4(455B) Preconstruction review permit program.

31.4(1) Sources shall comply with the requirements of Section 110(a)(2)(D)(i) of the Act for any new major stationary source or major modification as defined in subrule 31.3(1). The definitions in subrule 31.3(1) for "major stationary source" and "major modification" planning to locate in any area designated as attainment or unclassifiable for any national ambient air quality standard pursuant to Section 107 of the Act, apply when that source or modification would cause or contribute to a violation of any national ambient air quality standard.

31.4(2) A major source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard:

Pollutant	Annual	Averaging time (hours)			
		24	8	3	1
SO_2	1.0 μg/m^3	5 μg/m^3		25 μg/m^3	
PM_{10}	1.0 μg/m^3	5 μg/m^3			
$PM_{2.5}$	0.3 μg/m^3	1.2 μg/m^3			
NO_2	1.0 μg/m^3				
CO			0.5 mg/m^3		2 mg/m^3

31.4(3) A proposed major source or major modification subject to this rule may reduce the impact of its emissions upon air quality by obtaining sufficient emission reductions to, at a minimum, compensate for its adverse ambient impact where the major source or major modification would otherwise cause or contribute to a violation of any national ambient air quality standard. In the absence of such emission reductions, the proposed construction permit application shall be denied.

31.4(4) The requirements of this rule shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that, as to that pollutant, the source or modification is located in an area designated as nonattainment pursuant to Section 107 of the Act.
[**ARC 1227C**, IAB 12/11/13, effective 1/15/14]

567—31.5(455B) to **31.8(455B)** Reserved.

567—31.9(455B) Actuals PALs. Except as provided in subrule 31.9(1), the provisions for actuals PALs as specified in 40 CFR 51.165(f) as amended through March 30, 2011, are adopted by reference.

31.9(1) The following portions of actuals PALs in 40 CFR 51.165(f) are modified to read as follows:

a. 40 CFR 51.165(f)(2): Definitions. The definitions in paragraphs (f)(2)(i) through (xi) of this section shall be applicable to actuals PALs for purposes of paragraphs (f)(1) through (15) of this section. Any terms not defined in paragraphs (f)(2)(i) through (xi) shall have the meaning prescribed by rule 567—31.3(455B) or the meaning prescribed by the Act.

b. 40 CFR 51.165(f)(8)(ii)(B): The reviewing authority shall have discretion to reopen the PAL permit for the following:

c. 40 CFR 51.165(f)(10)(ii): Application deadline. A major stationary source owner or operator shall submit a timely application to the reviewing authority to request renewal of a PAL. In order to be considered timely, the application shall be submitted at least 6 months prior to, but not earlier than 18 months prior to, the date of permit expiration. This deadline for application submittal is to ensure that the permit will not expire before the permit is renewed. If the owner or operator of a major stationary source submits a complete application to renew the PAL within this time period, then the PAL shall continue to be effective until the revised permit with the renewed PAL is issued.

d. 40 CFR 51.165(f)(15)(i): Each PAL shall comply with the requirements contained in paragraphs (f)(1) through (15) of this section.

e. 40 CFR 51.165(f)(15)(ii): Any PAL issued prior to January 15, 2014, may be superseded with a PAL that complies with the requirements of paragraphs (f)(1) through (15) of this section.

31.9(2) Reserved.
[**ARC 1227C**, IAB 12/11/13, effective 1/15/14]

567—31.10(455B) Validity of rules. If any provision of rules 567—31.3(455B) through 567—31.9(455B), or the application of such provision to any person or circumstance, is held invalid, the remainder of these rules, or the application of such provision to persons or circumstances other than those as to which it is held invalid, shall not be affected thereby.
[**ARC 1227C**, IAB 12/11/13, effective 1/15/14]

567—31.11(455B) to **31.19(455B)** Reserved.

NONATTAINMENT AREAS DESIGNATED BEFORE MAY 18, 1998

567—31.20(455B) Special requirements for nonattainment areas designated before May 18, 1998 (originally adopted in 567—22.5(455B)).

31.20(1) *Definitions.*

a. *"Major stationary source"* means any of the following:

(1) Any stationary source of air contaminants which emits, or has the potential to emit, 100 tons per year or more of any regulated air contaminant;

(2) Any physical change that would occur at a stationary source not qualifying under subparagraph (1) as a major stationary source, if the change would constitute a major stationary source by itself;

(3) For ozone nonattainment areas, sources with the potential to emit 100 tpy or more of volatile organic compounds or oxides of nitrogen in areas classified as "marginal" or "moderate," 50 tpy or more in areas classified as "serious," 25 tpy or more in areas classified as "severe" and 10 tpy or more in areas classified as "extreme"; except that the references in this paragraph to 100, 50, 25, and 10 tpy of nitrogen oxides shall not apply with respect to any source for which the Administrator has made a finding, under

Section 182(f)(1) or (2) of the Clean Air Act, that requirements under Section 182(f) of the Clean Air Act do not apply;

(4) For ozone transport regions established pursuant to Section 184 of the Clean Air Act, sources with potential to emit 50 tpy or more of volatile organic compounds;

(5) For carbon monoxide nonattainment areas that both are classified as "serious" and in which there are stationary sources which contribute significantly to carbon monoxide levels, sources with the potential to emit 50 tpy or more of carbon monoxide; or

(6) For particulate matter (PM_{10}), nonattainment areas classified as "serious," sources with the potential to emit 70 tpy or more of PM_{10}.

A major stationary source that is major for volatile organic compounds shall be considered major for ozone.

b. *"Major modification"* means any physical change in or change in the method of operation of a major stationary source, that would result in a significant net emission increase of any regulated air contaminant.

(1) Any net emissions increase that is considered significant for volatile organic compounds shall be considered significant for ozone.

(2) A physical change, or change in the method of operation, shall not include:

Routine maintenance, repair, and replacement;

Use of an alternative fuel or raw material by reason of an order under Sections 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation), or by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act;

Use of an alternative fuel by reason of an order or rule under Section 125 of the Clean Air Act;

Any change in ownership at a stationary source;

Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

Use of an alternative fuel or raw material by a stationary source which the source was capable of accommodating before December 21, 1976, unless such change would be prohibited by any enforceable permit condition; or

An increase in the hours of operation or in the production rate, unless such change is prohibited under any enforceable permit condition.

c. *"Potential to emit"* means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design only if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

The provisions of this paragraph do not apply to a source or modification that would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and the source does not belong to any of the following categories:

Coal cleaning plants (with thermal dryers);

Kraft pulp mills;

Portland cement plants;

Primary zinc smelters;

Iron and steel mills;

Primary aluminum ore reduction plants;

Primary copper smelters;

Municipal incinerators capable of charging more than 250 tons of refuse per day;

Hydrofluoric, sulfuric, or nitric acid plants;

Petroleum refineries;

Lime plants;

Phosphate rock processing plants;

Coke oven batteries;

Sulfur recovery plants;

Carbon black plants (furnace process);

Primary lead smelters;

Fuel conversion plants;

Sintering plants;

Secondary metal production plants;

Chemical process plants;

Fossil-fuel boilers (or combination thereof) totaling more than 250 million British thermal units per hour heat input;

Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

Taconite ore processing plants;

Glass fiber processing plants;

Charcoal production plants;

Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;

Any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Clean Air Act, 42 U.S.C. §§7401 et seq.

d. *"Lowest achievable emission rate"* means, for any source, that rate of emissions based on the following, whichever is more stringent:

(1) The most stringent emission limitation which is contained in the implementation plan of any state for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or

(2) The most stringent emission limitation which is achieved in practice by such class or category of source.

This term, applied to a modification, means the lowest achievable emission rate for the new or modified emission units within the stationary source.

This term may include a design, equipment, material, work practice or operational standard or combination thereof.

In no event shall the application of this term permit a proposed new or modified stationary source to emit any regulated air contaminant in excess of the amount allowable under applicable new source standards of performance.

e. *"Secondary emissions"* means emissions which occur or could occur as a result of the construction or operation of a major stationary source or major modification, but do not necessarily come from the major stationary source or major modification itself. For purposes of this rule, secondary emissions must be specific and well-defined, must be quantifiable, and must affect the same general nonattainment area as the stationary source or modification which causes the secondary emission. Secondary emissions may include, but are not limited to:

Emissions from barges or trains coming to or from the new or modified stationary source; and

Emissions from any off-site support facility which would not otherwise be constructed or increase its emissions as a result of the construction or operation of the major stationary source or major modification.

f. (1) *"Net emissions increase"* means the amount by which the sum of the following exceeds zero:

Any increase in actual emissions from a particular physical change or change in the method of operation at a stationary source; and

Any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable.

(2) An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between the date five years before construction on the particular change commences and the date that the increase from the particular change occurs.

(3) An increase or decrease in actual emissions is creditable only if the director has not relied on it in issuing a permit for the source under this rule which permit is in effect when the increase in actual emissions from the particular change occurs.

(4) An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

(5) A decrease in actual emissions is creditable only to the extent that:

The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

It is an enforceable permit condition at and after the time that actual construction on the particular change begins;

The director has not relied on it in issuing any other permit;

Such emission decreases have not been used for showing reasonable further progress; and

It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

(6) An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

g. *"Emissions unit or installation"* means an identifiable piece of process equipment.

h. *"Reconstruction"* will be presumed to have taken place where the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost of a comparable entirely new stationary source. Any final decision as to whether reconstruction has occurred shall be made in accordance with the provisions of new source performance standards (see 567—subrule 23.1(2)). A reconstructed stationary source will be treated as a new stationary source for purposes of this rule. In determining lowest achievable emission rate for a reconstructed stationary source, the definitions in the new source performance standards shall be taken into account in assessing whether a new source performance standard is applicable to such stationary source.

i. *"Fixed capital cost"* means the capital needed to provide all the depreciable components.

j. *"Fugitive emissions"* means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

k. *"Significant"* means in reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

Carbon monoxide: 100 tons per year (tpy)

Nitrogen oxides: 40 tpy

Sulfur dioxide: 40 tpy

Particulate matter: 25 tpy

Ozone: 40 tpy of volatile organic compounds

Lead: 0.6 tpy

PM_{10}: 15 tpy

l. *"Allowable emissions"* means the emissions rate calculated using the maximum rated capacity of the source (unless the source is subject to an enforceable permit condition which restricts the operating rate, or hours of operation, or both) and the most stringent of the following:

(1) Applicable standards as set forth in 567—Chapter 23;

(2) Any applicable state implementation plan emissions limitation, including those with a future compliance date; or

(3) The emissions rate specified as an enforceable permit condition, including those with a future compliance date.

m. *"Enforceable permit condition"* for the purpose of this rule means any of the following limitations and conditions: requirements developed pursuant to new source performance standards, prevention of significant deterioration standards, emission standards for hazardous air pollutants,

requirements within the state implementation plan, and any permit requirements established pursuant to this rule, or under construction or Title V operating permit rules.

n. (1) *"Actual emissions"* means the actual rate of emissions of a pollutant from an emissions unit as determined in accordance with subparagraphs (2) to (4) below.

(2) In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a two-year period which precedes the particular date and which is representative of normal source operation. The reviewing authority shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period.

(3) The director may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

(4) For any emissions unit which has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

o. *"Construction"* means any physical change or change in the method of operation (including fabrication, erection, installation, demolition, or modification of an emissions unit) which would result in a change in actual emissions.

p. *"Commence"* as applied to construction of a major stationary source or major modification means that the owner or operator has all necessary preconstruction approvals or permits and either has:

(1) Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

(2) Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

q. *"Necessary preconstruction approvals or permits"* means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the state implementation plan.

r. *"Begin actual construction"* means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework and construction of permanent storage structures. With respect to a change in method of operating, this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.

s. *"Building, structure, or facility"* means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "major group" (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0 respectively).

31.20(2) *Applicability.* Areas designated as attainment, nonattainment, or unclassified are as listed in 40 CFR §81.316 as amended through March 19, 1998.

a. The requirements contained in rule 567—31.20(455B) shall apply to any new major stationary source or major modification that, as of the date the permit is issued, is major for any pollutant for which the area in which the source would construct is designated as nonattainment.

b. The requirements contained in rule 567—31.20(455B) shall apply to each nonattainment pollutant that the source will emit or has the potential to emit in major amounts. In the case of a modification, the requirements shall apply to the significant net emissions increase of each nonattainment pollutant for which the source is major.

c. Particulate matter. If a major source or major modification is proposed to be constructed in an area designated nonattainment for particulate matter, then emission offsets must be achieved prior to startup.

If a major source or major modification is proposed to be constructed in an area designated attainment or unclassified for particulate matter, but the modeled (EPA-approved guideline model) worst case ground level particulate concentrations due to the major source or major modification in a designated particulate matter nonattainment area is equal to or greater than five micrograms per cubic meter (24-hour concentration), or one microgram per cubic meter (annual arithmetic mean), then emission offsets must be achieved prior to startup.

d. Sulfur dioxide. If a major source or major modification is proposed to be constructed in an area designated nonattainment for sulfur dioxide, then emission offsets must be achieved prior to startup.

If a major source or major modification is proposed to be constructed in an area designated attainment or unclassified for sulfur dioxide, but the modeled (EPA-approved guideline model) worst case ground level sulfur dioxide concentrations due to the major source or major modification in a designated sulfur dioxide nonattainment area is equal to or greater than 25 micrograms per cubic meter (three-hour concentration), five microgram per cubic meter (24-hour concentration), or one microgram per cubic meter (annual arithmetic mean), then emission offsets must be achieved prior to startup.

e. At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, then the requirements of this rule shall apply to the source or modification as though construction had not yet commenced on the source or modification.

31.20(3) *Emission offsets.*

a. Emission offsets shall be obtained from the same source or other sources in the same nonattainment area, except that the required emissions reductions may be obtained from a source in another nonattainment area if:

(1) The other area, which must be nonattainment for the same pollutant, has an equal or higher nonattainment classification than the nonattainment area in which the source is located, and

(2) Emissions from such other nonattainment areas contribute to a violation of a national ambient air quality standard in the nonattainment area in which the proposed new or modified source would construct.

b. Emission offsets for any regulated air contaminant in the designated nonattainment area shall provide for reasonable further progress toward attainment of the applicable national ambient air quality standards and provide a positive net air quality benefit in the nonattainment area.

c. The increased emissions of any applicable nonattainment air pollutant allowed from the proposed new or modified source shall be offset by an equal or greater reduction, as applicable, in the total tonnage and impact of actual emissions, as stated in subrule 31.20(4), of such air pollutant from the same or other sources. For purposes of subrule 31.20(3), actual emissions shall be determined in accordance with subparagraphs 31.20(1)*"n"*(1) and (2).

d. All emissions reductions claimed as offset credit shall be federally enforceable prior to, or upon, the issuance of the permit required under this rule and shall be in effect by the time operation of the permitted new source or modification begins.

e. Proposals for emission offsets shall be submitted with the application for a permit for the major source or major modification. All approved emission offsets shall be made a part of the permit and shall be deemed a condition of expected performance of the major source or major modification.

31.20(4) *Acceptable emission offsets.*

a. *Equivalence.* The effect of the reduction of emissions must be measured or predicted to occur in the same area as the emissions of the major source or major modification. It can be assumed that, if the emission offsets are obtained from an existing source on the same premises or in the immediate vicinity of the major source or major modification and if the air contaminant disperses from substantially the same stack height, the emissions will be equivalent and may be offset. Otherwise, an adequate dispersion model must be used to predict the effect. If the reduction accomplished at the source is as specified in subrule 31.20(3) and if the effect of the reduction is measured or predicted to occur in the same area as the emissions of the major source or major modification, the effect of the reduction at the measured or predicted point does not have to exactly offset the effect of the major source or major modification.

b. Reserved.

c. *Control of uncontrolled existing sources.* If control equipment is proposed for a presently uncontrolled existing source for which controls are not required by rules, then credit may be allowed for any reduction below the source's potential to emit. The reduction shall be proposed at the time of permit application. Any such reductions which occurred prior to January 1, 1978, shall not be accepted for offsets.

d. *Greater control of existing sources.* If more effective control equipment for a source already in compliance with the SIP allowable level is proposed to offset the emissions of the major source or major modification in or affecting a nonattainment area, then the difference in the emissions between the actual level on January 1, 1978, and the new level can be credited for offsets. (This does not allow credit to be granted for any reductions in actual emissions required by the SIP subsequent to January 1, 1978.)

For example, if a cyclone that is being used to meet a SIP emission standard is emitting X_1 lbs/hr and if it is to be replaced by a bag filter emitting X_2 lbs/hr, an emission offset equal to $(X_1 - X_2)$ lbs/hr may be allowed toward the total required reduction.

e. *Fugitive dust offsets.* Credits may be allowed for permanent control of fugitive dust. EPA's "Technical Guidance for Control of Industrial Process Fugitive Particulate Emissions" (EPA-450/3-77-010, March 1977) shall be used as a guide to estimate reduction from fugitive dust controls on traditional sources. Traditional source means a source category for which a particulate emission standard has been established in 567—subrule 23.1(2), 567—paragraph 23.3(2)*"a"* or *"b"* or 567—23.4(455B). The emission factors shall be modified to reflect realistic reductions. This would correspond to a consideration of particles in the less than 3 micron size range and the effectiveness of the fugitive dust control method.

f. *Fuel switching credits.* Credit may be allowed for fuel switching provided there is a demonstration by the applicant that supplies of the cleaner fuel will be available to the applicant for a minimum of five years. The demonstration must include, as a minimum, a written contract with the fuel supplier that the fuel will not be interrupted. The permit for the existing source shall be amended to provide for maintaining those offsets resulting from the fuel switching before offset credit will be granted.

g. *Reduction credits.* Credit for an emissions reduction can be claimed to the extent that the Administrator and the department have not: (1) relied on it in issuing any permit under regulations approved pursuant to 40 CFR Parts 51 (amended through April 9, 1998), 55 (amended through August 4, 1997), 63 (amended through December 28, 1998), 70 (amended through November 26, 1997), or 71 (amended through October 22, 1997); (2) relied on it in demonstrating attainment or reasonable further progress; or (3) the reduction is not otherwise required under the Clean Air Act. Incidental emissions reductions which are not otherwise required under the Act shall be creditable as emissions reductions for such purposes if such emissions reductions meet the requirements of subrule 31.20(3).

h. *Derating of equipment.* If the emissions from a major source or major modification are proposed to be offset by reducing the operating capacity of another existing source, then credit may be allowed for this provided proper documentation (such as stack test results) showing the effect on emissions due to derating is submitted. The permit for the existing source must be amended to limit the operating capacity before offsets will be allowed.

i. *Shutdown or curtailment.*

(1) Emissions reductions achieved by shutting down an existing source or curtailing production or operating hours below baseline levels may be generally credited if such reductions are surplus, permanent, quantifiable, and federally enforceable, and if the area has an EPA-approved attainment plan. In addition, the shutdown or curtailment is creditable only if it occurred on or after the date specified for this purpose in the plan, and if such date is on or after the date of the most recent emissions inventory or attainment demonstration. However, in no event may credit be given for shutdowns which occurred prior to January 1, 1978. For purposes of this paragraph, the director may consider a prior shutdown or curtailment to have occurred after the date of its most recent emissions inventory, if the inventory explicitly includes as current existing emissions the emissions from such previously shutdown

or curtailed sources. The work force shall be notified of the proposed curtailment or shutdown by the source owner or operator.

(2) The reductions described in subparagraph 31.20(4)*"i"*(1) may be credited in the absence of any approved attainment demonstration only if the shutdown or curtailment occurred on or after the date the new source permit application is filed, or, if the applicant can establish that the proposed new source is a replacement for the shutdown or curtailed source, and the cutoff date provisions in 31.20(4)*"i"*(1) are observed.

j. *External emission offsets.* If the emissions from the major source or major modification are proposed to be offset by reduction of emissions from a source not owned or operated by the owner or operator of the major source or major modification, then credit may be allowed for such reductions provided the external source's permit is amended to require the reduced emissions or a consent order is entered into by the department and the existing source. Consent orders for external offsets must be incorporated into the SIP and be approved by EPA before offset credit may be granted.

31.20(5) *Banking of offsets in nonattainment areas.* If the offsets in a given situation are more than required by 31.20(3), the amount of offsets that is greater than required may be banked for the exclusive use or control of the person achieving the reduction, subject to the limitations of this subrule. If the person achieving the reduction is not an individual, an authorized representative of the person must release control of the banked emissions in writing before another person, other than the commission, can utilize the banked emissions. The banking of offsets creates no property right in those offsets. The commission may proportionally reduce or cancel banked offsets if it is determined that reduction or cancellation is necessary to demonstrate reasonable further progress or to attain the ambient air quality standards. Prior to reduction or cancellation, the commission shall notify the person who banked the offsets.

31.20(6) *Control technology review.*

a. Lowest achievable emission rate. A new or modified major source in a nonattainment area shall comply with the lowest achievable emission rate.

b. For phased construction projects, the determination of the lowest achievable emissions rate shall be reviewed and modified as appropriate at the latest reasonable time which occurs no later than 18 months prior to the commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of the LAER for the source.

c. State implementation plan, new source performance standards, and emission standards for hazardous air pollutants. A major stationary source or major modification shall meet each applicable emissions limitation under the state implementation plan and each applicable emissions standard of performance under 40 CFR Parts 60 (amended through November 24, 1998), 61 (amended through October 14, 1997), and 63 (amended through December 28, 1998).

31.20(7) *Compliance of existing sources.* If a new major source or major modification is subject to rule 567—31.20(455B), then all major sources owned or operated by the applicant (or by any entity controlling, controlled by, or under common control by the applicant) in Iowa shall be either in compliance with applicable emission standards or under a compliance schedule approved by the commission.

31.20(8) *Alternate site analysis.* The permit application shall contain a submittal of an alternative site analysis. Such submittal shall include analysis of alternative sites, sizes, production processes and environmental control techniques for the proposed source. The analysis must demonstrate that benefits of the proposed source significantly outweigh the environmental and social costs that would result from its location, construction or modification. Such analysis shall be completed prior to permit issuance.

31.20(9) *Additional conditions for permit approval.*

a. For the air pollution control requirements applicable to subrule 31.20(6), the permit shall require the source to monitor, keep records, and provide reports necessary to determine compliance with and deviations from applicable requirements.

b. The state shall not issue the permit if the Administrator has determined that the applicable implementation plan is not being adequately implemented for the nonattainment area in which the proposed stationary source or modification is to be constructed.

31.20(10) *Public availability of information.* No permit shall be issued until notice and opportunity for public comment are made available in accordance with the procedure described in 40 CFR 51.161 (as amended through November 7, 1986).

[**ARC 1227C**, IAB 12/11/13, effective 1/15/14; **ARC 1913C**, IAB 3/18/15, effective 4/22/15]

These rules are intended to implement Iowa Code section 455B.133.

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[Filed ARC 1913C (Notice ARC 1795C, IAB 12/24/14), IAB 3/18/15, effective 4/22/15]

[Filed Emergency After Notice ARC 2352C (Notice ARC 2222C, IAB 10/28/15), IAB 1/6/16, effective 12/16/15]

[Filed ARC 2949C (Notice ARC 2799C, IAB 11/9/16), IAB 2/15/17, effective 3/22/17]

CHAPTER 32
ANIMAL FEEDING OPERATIONS FIELD STUDY

567—32.1(455B) Animal feeding operations field study. The department shall conduct a field study to measure the levels of hydrogen sulfide, ammonia and odor near animal feeding operations as defined in 567—65.1(455B).

567—32.2(455B) Definitions. For the purposes of this chapter, the following terms shall have the meaning indicated in this rule.

"Health effects standard" means the level of an airborne pollutant required to trigger plans and programs to abate emissions of airborne pollutants.

"Health effects value" means the level of an airborne pollutant commonly known to cause a material and verifiable adverse health effect.

"Separated location" means a location or object from which a separation distance is required under Iowa Code sections 455B.134, 459.202 or 459.204, other than a public thoroughfare.

567—32.3(455B) Exceedance of the health effects value (HEV) for hydrogen sulfide. The health effects value for hydrogen sulfide is exceeded at a monitoring site when the one-hour average concentration exceeds 30 ppb.

567—32.4(455B) Exceedance of the health effects standard (HES) for hydrogen sulfide. The health effects standard for hydrogen sulfide is exceeded at a monitoring site when the daily maximum one-hour average concentration exceeds 30 ppb more than seven times per year. The department shall develop plans and programs to abate hydrogen sulfide emissions from animal feeding operations if hydrogen sulfide levels measured at a separated location exceed the health effects standard for hydrogen sulfide.

567—32.5(455B) Iowa Air Sampling Manual. Monitor siting requirements, data handling procedures, approved monitoring methods and equipment, quality assurance requirements, and requirements for public availability of the data for determining compliance with the HEV or HES for hydrogen sulfide shall be in accordance with the Iowa Air Sampling Manual[1] adopted by the commission on July 19, 2004, and adopted by reference herein.

[1] Available from the department.

These rules are intended to implement Iowa Code sections 459.207 and 455B.133.

[Filed 7/29/04, Notices 1/7/04, 3/31/04—published 8/18/04, effective 9/22/04]

CHAPTER 33
SPECIAL REGULATIONS AND CONSTRUCTION PERMIT REQUIREMENTS FOR MAJOR STATIONARY SOURCES—PREVENTION OF SIGNIFICANT DETERIORATION (PSD) OF AIR QUALITY

567—33.1(455B) Purpose. This chapter implements the major New Source Review (NSR) program contained in Part C of Title I of the federal Clean Air Act as amended on November 15, 1990, and as promulgated under 40 CFR 51.166 and 52.21 as amended through October 18, 2016. This is a preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under Part C of the Clean Air Act as amended on November 15, 1990. In areas that do not meet the national ambient air quality standards (NAAQS), the nonattainment major program applies. The requirements for the nonattainment major NSR program are set forth in 567—22.5(455B), 567—22.6(455B), 567—31.20(455), and 567—31.3(455B). In areas that meet the NAAQS, the PSD program applies. Collectively, the nonattainment major and PSD programs are referred to as the major NSR program. An owner or operator required to apply for a construction permit under 567—Chapter 33 shall submit fees as required in 567—Chapter 30.

Rule 567—33.2(455B) is reserved.

Rule 567—33.3(455B) sets forth the definitions, standards and permitting requirements that are specific to the PSD program.

Rules 567—33.4(455B) through 567—33.8(455B) are reserved.

Rule 567—33.9(455B) includes the conditions under which a source subject to PSD may obtain a plantwide applicability limitation (PAL) on emissions. An owner or operator requesting a PAL under 567—33.9(455B) shall submit fees as required in 567—Chapter 30.

In addition to the requirements in this chapter, stationary sources may also be subject to the permitting requirements in 567—Chapter 22, including requirements for Title V operating permits.

[**ARC 9906B**, IAB 12/14/11, effective 11/16/11; **ARC 1227C**, IAB 12/11/13, effective 1/15/14; **ARC 2352C**, IAB 1/6/16, effective 12/16/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18]

567—33.2(455B) Reserved.

567—33.3(455B) Special construction permit requirements for major stationary sources in areas designated attainment or unclassified (PSD).

33.3(1) *Definitions.* Definitions included in this subrule apply to the provisions set forth in this rule (PSD program requirements). For purposes of this rule, the definitions herein shall apply, rather than the definitions contained in 40 CFR 52.21 and 51.166, except for the PAL program definitions referenced in rule 567—33.9(455B). For purposes of this rule, the following terms shall have the meanings indicated in this subrule:

"Act" means the Clean Air Act, 42 U.S.C. Sections 7401, et seq., as amended through November 15, 1990.

"Actual emissions" means:

1. The actual rate of emissions of a regulated NSR pollutant from an emissions unit, as determined in accordance with paragraphs "2" through "4," except that this definition shall not apply for calculating whether a significant emissions increase has occurred, or for establishing a PAL under rule 567—33.9(455B). Instead, the requirements specified under the definitions for "projected actual emissions" and "baseline actual emissions" shall apply for those purposes.

2. In general, actual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during a consecutive 24-month period which precedes the particular date and which is representative of normal source operation. The department shall allow the use of a different time period upon a determination that it is more representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored, or combusted during the selected time period.

3. The department may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.

4. For any emissions unit that has not begun normal operations on the particular date, actual emissions shall equal the potential to emit of the unit on that date.

"Administrator" means the administrator for the United States Environmental Protection Agency (EPA) or designee.

"Allowable emissions" means the emissions rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable limits or enforceable permit conditions which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

1. The applicable standards as set forth in 567—subrules 23.1(2) through 23.1(5) (new source performance standards, emissions standards for hazardous air pollutants, and federal emissions guidelines) or an applicable federal standard not adopted by the state, as set forth in 40 CFR Parts 60, 61 and 63;

2. The applicable state implementation plan (SIP) emissions limitation, including those with a future compliance date; or

3. The emissions rate specified as an enforceable permit condition, including those with a future compliance date.

"Baseline actual emissions," for the purposes of this chapter, means the rate of emissions, in tons per year, of a regulated NSR pollutant, as "regulated NSR pollutant" is defined in this subrule, and as determined in accordance with paragraphs "1" through "4."

1. For any existing electric utility steam generating unit, "baseline actual emissions" means the average rate, in tons per year, at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the five-year period immediately preceding the date on which the owner or operator begins actual construction of the project. The department shall allow the use of a different time period upon a determination that it is more representative of normal source operation.

(a) The average rate shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions.

(b) The average rate shall be adjusted downward to exclude any noncompliant emissions that occurred while the source was operating above an emissions limitation that was legally enforceable during the consecutive 24-month period.

(c) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions units being changed. A different consecutive 24-month period may be used for each regulated NSR pollutant.

(d) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount if required by paragraph "1"(b) of this definition.

2. For an existing emissions unit, other than an electric utility steam generating unit, "baseline actual emissions" means the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the ten-year period immediately preceding either the date on which the owner or operator begins actual construction of the project, or the date on which a complete permit application is received by the department for a permit required either under this chapter or under a SIP approved by the Administrator, whichever is earlier, except that the ten-year period shall not include any period earlier than November 15, 1990.

(a) The average rate shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions.

(b) The average rate shall be adjusted downward to exclude any noncompliant emissions that occurred while the source was operating above an emissions limitation that was legally enforceable during the consecutive 24-month period.

(c) The average rate shall be adjusted downward to exclude any emissions that would have exceeded an emissions limitation with which the major stationary source must currently comply, had such major stationary source been required to comply with such limitations during the consecutive

24-month period. However, if an emissions limitation is part of a maximum achievable control technology standard that the Administrator proposed or promulgated under 40 CFR Part 63, the baseline actual emissions need only be adjusted if the state has taken credit for such emissions reductions in an attainment demonstration or maintenance plan consistent with the requirements of 40 CFR 51.165(a)(3)(ii)(G) as amended through November 29, 2005.

(d) For a regulated NSR pollutant, when a project involves multiple emissions units, only one consecutive 24-month period must be used to determine the baseline actual emissions for the emissions units being changed. A different consecutive 24-month period may be used for each regulated NSR pollutant.

(e) The average rate shall not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions, in tons per year, and for adjusting this amount if required by paragraphs "2"(b) and "2"(c) of this definition.

3. For a new emissions unit, the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero; and thereafter, for all other purposes, shall equal the unit's potential to emit.

4. For a PAL for a stationary source, the baseline actual emissions shall be calculated for existing electric utility steam generating units in accordance with the procedures contained in paragraph "1"; for other existing emissions units in accordance with the procedures contained in paragraph "2"; and for a new emissions unit in accordance with the procedures contained in paragraph "3."

"Baseline area" means:

1. Any intrastate area (and every part thereof) designated as attainment or unclassifiable under Section 107(d)(1)(A)(ii) or (iii) of the Act in which the major source or major modification establishing the minor source baseline date would construct or would have an air quality impact for the pollutant for which the baseline date is established, as follows: equal to or greater than 1 $\mu g/m^3$ (annual average) for sulfur dioxide (SO_2), nitrogen dioxide (NO_2) or PM_{10}; or equal to or greater than 0.3 $\mu g/m^3$ (annual average) for $PM_{2.5}$.

2. Area redesignations under Section 107(d)(1)(A)(ii) or (iii) of the Act cannot intersect or be smaller than the area of impact of any major stationary source or major modification which establishes a minor source baseline date or is subject to regulations specified in this rule, in 40 CFR 52.21 (PSD requirements), or in department rules approved by EPA under 40 CFR Part 51, Subpart I, and would be constructed in the same state as the state proposing the redesignation.

3. Any baseline area established originally for the total suspended particulate increments shall remain in effect and shall apply for purposes of determining the amount of available PM_{10} increments, except that such baseline area shall not remain in effect if the permitting authority rescinds the corresponding minor source baseline date in accordance with the definition of "baseline date" specified in this subrule.

"Baseline concentration" means:

1. The ambient concentration level that exists in the baseline area at the time of the applicable minor source baseline date. A baseline concentration is determined for each pollutant for which a minor source baseline date is established and shall include:

(a) The actual emissions representative of sources in existence on the applicable minor source baseline date, except as provided in paragraph "2" of this definition;

(b) The allowable emissions of major stationary sources that commenced construction before the major source baseline date, but were not in operation by the applicable minor source baseline date.

2. The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):

(a) Actual emissions from any major stationary source on which construction commenced after the major source baseline date; and

(b) Actual emissions increases and decreases at any stationary source occurring after the minor source baseline date.

"Baseline date" means:

1. Either "major source baseline date" or "minor source baseline date" as follows:

(a) The "major source baseline date" means, in the case of PM_{10} and sulfur dioxide, January 6, 1975; in the case of nitrogen dioxide, February 8, 1988; and in the case of $PM_{2.5}$, October 20, 2010.

(b) The "minor source baseline date" means the earliest date after the trigger date on which a major stationary source or a major modification subject to 40 CFR 52.21 as amended through October 20, 2010, or subject to this rule (PSD program requirements), or subject to a department rule approved by EPA under 40 CFR Part 51, Subpart I, submits a complete application under the relevant regulations. The trigger date for PM_{10} and sulfur dioxide is August 7, 1977. For nitrogen dioxide, the trigger date is February 8, 1988. For $PM_{2.5}$, the trigger date is October 20, 2011.

2. The "baseline date" is established for each pollutant for which increments or other equivalent measures have been established if:

(a) The area in which the proposed source or modification would construct is designated as attainment or unclassifiable under Section 107(d)(1)(A)(ii) or (iii) of the Act for the pollutant on the date of its complete application under 40 CFR 52.21 as amended through October 20, 2010, or under regulations specified in this rule (PSD program requirements); and

(b) In the case of a major stationary source, the pollutant would be emitted in significant amounts, or in the case of a major modification, there would be a significant net emissions increase of the pollutant.

Any minor source baseline date established originally for the total suspended particulate increments shall remain in effect and shall apply for purposes of determining the amount of available PM_{10} increments, except that the reviewing authority may rescind any such minor source baseline date where it can be shown, to the satisfaction of the reviewing authority, that the emissions increase from the major stationary source, or the net emissions increase from the major modification, responsible for triggering that date did not result in a significant amount of PM_{10} emissions.

"Begin actual construction" means, in general, initiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying of underground pipework, and construction of permanent storage structures. With respect to a change in method of operation, this term refers to those on-site activities, other than preparatory activities, which mark the initiation of the change.

"Best available control technology" or *"BACT"* means an emissions limitation, including a visible emissions standard, based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the reviewing authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combination techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 567—subrules 23.1(2) through 23.1(5) (standards for new stationary sources, federal standards for hazardous air pollutants, and federal emissions guidelines), or federal regulations as set forth in 40 CFR Parts 60, 61 and 63 but not yet adopted by the state. If the department determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible, a design, equipment, work practice, operational standard or combination thereof may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation and shall provide for compliance by means which achieve equivalent results.

"Building, structure, facility, or installation" means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same major group (i.e., which have the same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively).

"CFR" means the Code of Federal Regulations, with standard references in this chapter by title and part, so that "40 CFR 51" or "40 CFR Part 51" means "Title 40 Code of Federal Regulations, Part 51."

"Clean coal technology" means any technology, including technologies applied at the precombustion, combustion, or postcombustion stage, at a new or existing facility which will achieve significant reductions in air emissions of sulfur dioxide or oxides of nitrogen associated with the utilization of coal in the generation of electricity, or process steam which was not in widespread use as of November 15, 1990.

"Clean coal technology demonstration project" means a project using funds appropriated under the heading "Department of Energy—Clean Coal Technology," up to a total amount of $2,500,000,000 for commercial demonstration of clean coal technology, or similar projects funded through appropriations for the Environmental Protection Agency. The federal contribution for a qualifying project shall be at least 20 percent of the total cost of the demonstration project.

"Commence," as applied to construction of a major stationary source or major modification, means that the owner or operator has all necessary preconstruction approvals or permits and either has:

1. Begun, or caused to begin, a continuous program of actual on-site construction of the source, to be completed within a reasonable time; or

2. Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of actual construction of the source to be completed within a reasonable time.

"Complete" means, in reference to an application for a permit, that the application contains all the information necessary for processing the application. Designating an application complete for purposes of permit processing does not preclude the department from requesting or accepting any additional information.

"Construction" means any physical change or change in the method of operation, including fabrication, erection, installation, demolition, or modification of an emissions unit, that would result in a change in emissions.

"Continuous emissions monitoring system" or *"CEMS"* means all of the equipment that may be required to meet the data acquisition and availability requirements of this chapter, to sample, to condition (if applicable), to analyze, and to provide a record of emissions on a continuous basis.

"Continuous emissions rate monitoring system" or *"CERMS"* means the total equipment required for the determination and recording of the pollutant mass emissions rate (in terms of mass per unit of time).

"Continuous parameter monitoring system" or *"CPMS"* means all of the equipment necessary to meet the data acquisition and availability requirements of this chapter, to monitor the process device operational parameters and the control device operational parameters (e.g., control device secondary voltages and electric currents) and other information (e.g., gas flow rate, O_2 or CO_2 concentrations), and to record the average operational parameter value(s) on a continuous basis.

"Electric utility steam generating unit" means any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.

"Emissions unit" means any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant and includes an electric utility steam generating unit. For purposes of this chapter, there are two types of emissions units:

1. A new emissions unit is any emissions unit that is (or will be) newly constructed and that has existed for less than two years from the date such emissions unit first operated.

2. An existing emissions unit is any emissions unit that does not meet the requirements in "1" above. A replacement unit is an existing emissions unit.

"Enforceable permit condition," for the purpose of this chapter, means any of the following limitations and conditions: requirements developed pursuant to new source performance standards,

prevention of significant deterioration standards, emissions standards for hazardous air pollutants, requirements within the SIP, and any permit requirements established pursuant to this chapter, any permit requirements established pursuant to 40 CFR 52.21 or Part 51, Subpart I, as amended through October 20, 2010, or under construction or Title V operating permit rules.

"Federal land manager" means, with respect to any lands in the United States, the secretary of the department with authority over such lands.

"Federally enforceable" means all limitations and conditions which are enforceable by the Administrator and the department, including those federal requirements not yet adopted by the state, developed pursuant to 40 CFR Parts 60, 61 and 63; requirements within 567—subrules 23.1(2) through 23.1(5); requirements within the SIP; any permit requirements established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, as amended through October 20, 2010, including operating permits issued under an EPA-approved program, that are incorporated into the SIP and expressly require adherence to any permit issued under such program.

"Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

"High terrain" means any area having an elevation 900 feet or more above the base of the stack of a source.

"Indian governing body" means the governing body of any tribe, band, or group of Indians subject to the jurisdiction of the United States and recognized by the United States as possessing power of self-government.

"Indian reservation" means any federally recognized reservation established by treaty, agreement, executive order, or Act of Congress.

"Innovative control technology" means any system of air pollution control that has not been adequately demonstrated in practice, but would have a substantial likelihood of achieving greater continuous emissions reduction than any control system in current practice or of achieving at least comparable reductions at lower cost in terms of energy, economics, or non-air quality environmental impacts.

"Lowest achievable emissions rate" or *"LAER"* means, for any source, the more stringent rate of emissions based on the following:

1. The most stringent emissions limitation which is contained in the SIP for such class or category of stationary source, unless the owner or operator of the proposed stationary source demonstrates that such limitations are not achievable; or

2. The most stringent emissions limitation which is achieved in practice by such class or category of stationary sources. This limitation, when applied to a modification, means the lowest achievable emissions rate for the new or modified emissions units within a stationary source. In no event shall the application of the term permit a proposed new or modified stationary source to emit any pollutant in excess of the amount allowable under an applicable new source standard of performance.

"Low terrain" means any area other than high terrain.

"Major modification" means any physical change in or change in the method of operation of a major stationary source that would result in a significant emissions increase of a regulated NSR pollutant and a significant net emissions increase of that pollutant from the major stationary source.

1. Any significant emissions increase from any emissions units or net emissions increase at a major stationary source that is significant for volatile organic compounds or NO_x shall be considered significant for ozone.

2. A physical change or change in the method of operation shall not include:

(a) Routine maintenance, repair and replacement

(b) Use of an alternative fuel or raw material by reason of any order under Section 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 or by reason of a natural gas curtailment plan pursuant to the Federal Power Act;

(c) Use of an alternative fuel by reason of an order or rule under Section 125 of the Act;

(d) Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste;

(e) Use of an alternative fuel or raw material by a stationary source that the source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition, or that the source is approved to use under any federally enforceable permit condition;

(f) An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975;

(g) Any change in ownership at a stationary source;

(h) Reserved.

(i) The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with the requirements within the SIP; and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after the project is terminated;

(j) The installation or operation of a permanent clean coal technology demonstration project that constitutes repowering, provided that the project does not result in an increase in the potential to emit of any regulated pollutant emitted by the unit. This exemption shall apply on a pollutant-by-pollutant basis;

(k) The reactivation of a very clean coal-fired electric utility steam generating unit.

3. This definition shall not apply with respect to a particular regulated NSR pollutant when the major stationary source is complying with the requirements under rule 567—33.9(455B) for a PAL for that pollutant. Instead, the definition under rule 567—33.9(455B) shall apply.

"Major source baseline date" is defined under the definition of "baseline date."

"Major stationary source" means:

(1) (a) Any one of the following stationary sources of air pollutants which emits, or has the potential to emit, 100 tons per year or more of any regulated NSR pollutant:

- Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input;
- Coal cleaning plants (with thermal dryers);
- Kraft pulp mills;
- Portland cement plants;
- Primary zinc smelters;
- Iron and steel mill plants;
- Primary aluminum ore reduction plants;
- Primary copper smelters;
- Municipal incinerators capable of charging more than 250 tons of refuse per day;
- Hydrofluoric, sulfuric, and nitric acid plants;
- Petroleum refineries;
- Lime plants;
- Phosphate rock processing plants;
- Coke oven batteries;
- Sulfur recovery plants;
- Carbon black plants (furnace process);
- Primary lead smelters;
- Fuel conversion plants;
- Sintering plants;
- Secondary metal production plants;
- Chemical process plants (which does not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS code 325193 or 312140);
- Fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input;
- Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
- Taconite ore processing plants;
- Glass fiber processing plants; and
- Charcoal production plants.

(b) Notwithstanding the stationary source size specified in paragraph "1"(a), any stationary source which emits, or has the potential to emit, 250 tons per year or more of a regulated NSR pollutant; or

(c) Any physical change that would occur at a stationary source not otherwise qualifying under this definition as a major stationary source if the change would constitute a major stationary source by itself.

(2) A major source that is major for volatile organic compounds or NO_x shall be considered major for ozone.

(3) The fugitive emissions of a stationary source shall not be included in determining for any of the purposes of this rule whether it is a major stationary source, unless the source belongs to one of the categories of stationary sources listed in paragraph "1"(a) of this definition or to any other stationary source category which, as of August 7, 1980, is being regulated under Section 111 or 112 of the Act.

"Minor source baseline date" is defined under the definition of "baseline date."

"Necessary preconstruction approvals or permits" means those permits or approvals required under federal air quality control laws and regulations and those air quality control laws and regulations which are part of the SIP.

"Net emissions increase" means, with respect to any regulated NSR pollutant emitted by a major stationary source, the amount by which the following exceeds zero:

- The increase in emissions from a particular physical change or change in the method of operation at a stationary source as calculated according to the applicability requirements under subrule 33.3(2); and
- Any other increases and decreases in actual emissions at the major stationary source that are contemporaneous with the particular change and are otherwise creditable. Baseline actual emissions for calculating increases and decreases under this definition of "net emissions increase" shall be determined as provided for under the definition of "baseline actual emissions," except that paragraphs "1"(c) and "2"(d) of the definition of "baseline actual emissions," which describe provisions for multiple emissions units, shall not apply.

1. An increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if the increase or decrease in actual emissions occurs between the date five years before construction on the particular change commences and the date that the increase from the particular change occurs.

2. An increase or decrease in actual emissions is creditable only if:

(a) The increase or decrease in actual emissions occurs within the contemporaneous time period, as noted in paragraph "1" of this definition; and

(b) The department has not relied on the increase or decrease in actual emissions in issuing a permit for the source under this rule, which permit is in effect when the increase in actual emissions from the particular change occurs.

3. An increase or decrease in actual emissions of sulfur dioxide, particulate matter, or nitrogen oxides that occurs before the applicable minor source baseline date is creditable only if the increase or decrease in actual emissions is required to be considered in calculating the amount of maximum allowable increases remaining available.

4. An increase in actual emissions is creditable only to the extent that the new level of actual emissions exceeds the old level.

5. A decrease in actual emissions is creditable only to the extent that:

(a) The old level of actual emissions or the old level of allowable emissions, whichever is lower, exceeds the new level of actual emissions;

(b) The decrease in actual emissions is enforceable as a practical matter at and after the time that actual construction on the particular change begins; and

(c) The decrease in actual emissions has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

6. An increase that results from a physical change at a source occurs when the emissions unit on which construction occurred becomes operational and begins to emit a particular pollutant. Any replacement unit that requires shakedown becomes operational only after a reasonable shakedown period, not to exceed 180 days.

7. The definition of "actual emissions," paragraph "2," shall not apply for determining creditable increases and decreases.

"Nonattainment area" means an area so designated by the Administrator, acting pursuant to Section 107 of the Act.

"Permitting authority" means the Iowa department of natural resources or the director thereof.

"Pollution prevention" means any activity that, through process changes, product reformulation or redesign, or substitution of less polluting raw materials, eliminates or reduces the release of air pollutants (including fugitive emissions) and other pollutants to the environment prior to recycling, treatment, or disposal. "Pollution prevention" does not mean recycling (other than certain "in-process recycling" practices), energy recovery, treatment, or disposal.

"Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

"Predictive emissions monitoring system" or *"PEMS"* means all of the equipment necessary to monitor the process device operational parameters and the control device operational parameters (e.g., control device secondary voltages and electric currents) and other information (e.g., gas flow rate, O_2 or CO_2 concentrations), and calculate and record the mass emissions rate (e.g., lb/hr) on a continuous basis.

"Prevention of significant deterioration (PSD) program" means a major source preconstruction permit program that has been approved by the Administrator and incorporated into the SIP or means the program in 40 CFR 52.21. Any permit issued under such a program is a major NSR permit.

"Project" means a physical change in, or change in method of operation of, an existing major stationary source.

"Projected actual emissions," for the purposes of this chapter, means the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated NSR pollutant in any one of the five years (12-month period) beginning on the first day of the month following the date when the unit resumes regular operation after the project, or in any one of the ten years following that date, if the project involves increasing the emissions unit's design capacity or its potential to emit that regulated NSR pollutant, and full utilization of the unit would result in a significant emissions increase, or a significant net emissions increase at the major stationary source. For purposes of this definition, "regular" shall be determined by the department on a case-by-case basis.

In determining the projected actual emissions before beginning actual construction, the owner or operator of the major stationary source:

1. Shall consider all relevant information including, but not limited to, historical operational data, the company's own representations, the company's expected business activity and the company's highest projections of business activity, the company's filings with the state or federal regulatory authorities, and compliance plans under the approved plan; and

2. Shall include fugitive emissions to the extent quantifiable and emissions associated with startups, shutdowns, and malfunctions; and

3. Shall exclude, in calculating any increase in emissions that results from the particular project, that portion of the unit's emissions following the project that an existing unit could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project, including any increased utilization due to product demand growth; or

4. In lieu of using the method set out in paragraphs "1" through "3," may elect to use the emissions unit's potential to emit, in tons per year.

"Reactivation of a very clean coal-fired electric utility steam generating unit" means any physical change or change in the method of operation associated with the commencement of commercial operations by a coal-fired utility unit after a period of discontinued operation in which the unit:

1. Has not been in operation for the two-year period prior to the enactment of the Act, and the emissions from such unit continue to be carried in the permitting authority's emissions inventory at the time of the enactment;

2. Was equipped prior to shutdown with a continuous system of emissions control that achieves a removal efficiency for sulfur dioxide of no less than 85 percent and a removal efficiency for particulates of no less than 98 percent;

3. Is equipped with low-NO_X burners prior to the time of commencement of operations following reactivation; and

4. Is otherwise in compliance with the requirements of the Act.

"Regulated NSR pollutant" means the following:

1. Any pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the Administrator:

(a) Volatile organic compounds and nitrogen oxides are precursors to ozone in all attainment and unclassifiable areas;

(b) Sulfur dioxide is a precursor to $PM_{2.5}$ in all attainment and unclassifiable areas;

(c) Nitrogen oxides are presumed to be precursors to $PM_{2.5}$ in all attainment and unclassifiable areas, unless the department demonstrates to EPA's satisfaction or EPA demonstrates that emissions of nitrogen oxides from sources in a specific area are not a significant contributor to the area's ambient $PM_{2.5}$ concentrations;

(d) Volatile organic compounds are presumed not to be precursors to $PM_{2.5}$ in any attainment and unclassifiable areas, unless the department demonstrates to EPA's satisfaction or EPA demonstrates that emissions of volatile organic compounds from sources in a specific area are a significant contributor to that area's ambient $PM_{2.5}$ concentrations;

2. Any pollutant that is subject to any standard promulgated under Section 111 of the Act;

3. Any Class I or Class II substance subject to a standard promulgated under or established by Title VI of the Act; or

4. Any pollutant that otherwise is subject to regulation under the Act as defined in 33.3(1), definition of "subject to regulation."

5. Notwithstanding paragraphs "1" through "4," the definition of "regulated NSR pollutant" shall not include any or all hazardous air pollutants that are either listed in Section 112 of the Act or added to the list pursuant to Section 112(b)(2) of the Act and that have not been delisted pursuant to Section 112(b)(3) of the Act, unless the listed hazardous air pollutant is also regulated as a constituent or precursor of a general pollutant listed under Section 108 of the Act.

6. Particulate matter (PM) emissions, $PM_{2.5}$ emissions and PM_{10} emissions shall include gaseous emissions from a source or activity which condense to form particulate matter at ambient temperatures.

"Replacement unit" means an emissions unit for which all the criteria listed in paragraphs "1" through "4" of this definition are met. No creditable emissions reductions shall be generated from shutting down the existing emissions unit that is replaced.

1. The emissions unit is a reconstructed unit within the meaning of 40 CFR 60.15(b)(1) as amended through December 16, 1975, or the emissions unit completely takes the place of an existing emissions unit.

2. The emissions unit is identical to or functionally equivalent to the replaced emissions unit.

3. The replacement does not change the basic design parameter(s) of the process unit.

4. The replaced emissions unit is permanently removed from the major stationary source, otherwise permanently disabled, or permanently barred from operation by a permit that is enforceable as a practical matter. If the replaced emissions unit is brought back into operation, it shall constitute a new emissions unit.

"Repowering" means:

1. Replacement of an existing coal-fired boiler with one of the following clean coal technologies: atmospheric or pressurized fluidized bed combustion; integrated gasification combined cycle; magnetohydrodynamics; direct and indirect coal-fired turbines; integrated gasification fuel cells; or, as determined by the Administrator in consultation with the Secretary of Energy, a derivative of one

or more of these technologies; and any other technology capable of controlling multiple combustion emissions simultaneously with improved boiler or generation efficiency and with significantly greater waste reduction relative to the performance of technology in widespread commercial use as of November 15, 1990.

2. Repowering shall also include any oil or gas-fired unit which has been awarded clean coal technology demonstration funding as of January 1, 1991, by the Department of Energy.

3. The department shall give expedited consideration to permit applications for any source that satisfies the requirements of this definition and is granted an extension under Section 409 of the Act.

"Reviewing authority" means the department, or the Administrator in the case of EPA-implemented permit programs under 40 CFR 52.21.

"Secondary emissions" means emissions which occur as a result of the construction or operation of a major stationary source or major modification, but do not come from the major stationary source or major modification itself. For the purposes of this chapter, "secondary emissions" must be specific, well-defined, and quantifiable, and must impact the same general areas as the stationary source modification which causes the secondary emissions. "Secondary emissions" includes emissions from any offsite support facility which would not be constructed or increase its emissions except as a result of the construction or operation of the major stationary source or major modification. "Secondary emissions" does not include any emissions which come directly from a mobile source, such as emissions from the tailpipe of a motor vehicle, from a train, or from a vessel.

"Significant" means:

1. In reference to a net emissions increase or the potential of a source to emit any of the following pollutants, a rate of emissions that would equal or exceed any of the following rates:

Pollutant and Emissions Rate

- Carbon monoxide: 100 tons per year (tpy)
- Nitrogen oxides: 40 tpy
- Sulfur dioxide: 40 tpy
- Particulate matter: 25 tpy of particulate matter emissions
- PM_{10}: 15 tpy
- $PM_{2.5}$: 10 tpy of direct $PM_{2.5}$ emissions; 40 tpy of sulfur dioxide emissions; 40 tpy of nitrogen oxide emissions (unless the department demonstrates to EPA's satisfaction that emissions of nitrogen oxides from sources in a specific area are not a significant contributor to the area's ambient $PM_{2.5}$ concentrations)
- Ozone: 40 tpy of volatile organic compounds or NO_x
- Lead: 0.6 tpy
- Fluorides: 3 tpy
- Sulfuric acid mist: 7 tpy
- Hydrogen sulfide (H_2S): 10 tpy
- Total reduced sulfur (including H_2S): 10 tpy
- Reduced sulfur compounds (including H_2S): 10 tpy
- Municipal waste combustor organics (measured as total tetra- through octa-chlorinated dibenzo-p-dioxins and dibenzofurans): 3.2×10^{-6} megagrams per year (3.5×10^{-6} tons per year)
- Municipal waste combustor metals (measured as particulate matter): 14 megagrams per year (15 tons per year)
- Municipal waste combustor acid gases (measured as sulfur dioxide and hydrogen chloride): 36 megagrams per year (40 tons per year)
- Municipal solid waste landfill emissions (measured as nonmethane organic compounds): 45 megagrams per year (50 tons per year)

2. "Significant" means, for purposes of this rule and in reference to a net emissions increase or the potential of a source to emit a regulated NSR pollutant not listed in paragraph "1," any emissions rate.

3. Notwithstanding paragraph "1," "significant," for purposes of this rule, means any emissions rate or any net emissions increase associated with a major stationary source or major modification, which

would construct within ten kilometers of a Class I area and have an impact on such area equal to or greater than 1 $\mu g/m^3$ (24-hour average).

"Significant emissions increase" means, for a regulated NSR pollutant, an increase in emissions that is significant for that pollutant.

"State implementation plan" or *"SIP"* means the plan adopted by the state of Iowa and approved by the Administrator which provides for implementation, maintenance, and enforcement of such primary and secondary ambient air quality standards as they are adopted by the Administrator, pursuant to the Act.

"Stationary source" means any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant.

"Subject to regulation" means, for any air pollutant, that the pollutant is subject to either a provision in the Clean Air Act, or a nationally applicable regulation codified by the Administrator in 40 CFR Subchapter C (Air Programs) that requires actual control of the quantity of emissions of that pollutant, and that such a control requirement has taken effect and is operative to control, limit or restrict the quantity of emissions of that pollutant released from the regulated activity, except that:

1. Greenhouse gases (GHGs), the air pollutant defined in 40 CFR §86.1818-12(a) (as amended through September 15, 2011) as the aggregate group of six greenhouse gases that includes carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, shall not be subject to regulation except as provided in paragraph "4," and shall not be subject to regulation if the stationary source maintains its total sourcewide emissions below the GHG PAL level, meets the requirements in rule 567—33.9(455B), and complies with the PAL permit containing the GHG PAL.

2. For purposes of paragraphs "3" and "4," the term "tpy CO_2 equivalent emissions (CO_2e)" shall represent an amount of GHGs emitted and shall be computed as follows:

(a) Multiply the mass amount of emissions (tpy) for each of the six greenhouse gases in the pollutant GHGs by the associated global warming potential of the gas published at 40 CFR Part 98, Subpart A, Table A-1, "Global Warming Potentials," (as amended through December 24, 2014). For purposes of this definition, prior to July 21, 2014, the mass of the greenhouse gas carbon dioxide shall not include carbon dioxide emissions resulting from the combustion or decomposition of non-fossilized and biodegradable organic material originating from plants, animals, or micro-organisms (including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material).

(b) Sum the resultant value from paragraph (a) for each gas to compute a tpy CO_2e.

3. The term "emissions increase," as used in this paragraph and in paragraph "4," shall mean that both a significant emissions increase (as calculated using the procedures specified in 33.3(2)*"c"* through 33.3(2)*"h"*) and a significant net emissions increase (as specified in 33.3(1), in the definitions of "net emissions increase" and "significant") occur. For the pollutant GHGs, an emissions increase shall be based on tpy CO_2e and shall be calculated assuming the pollutant GHGs are a regulated NSR pollutant, and "significant" is defined as 75,000 tpy CO_2e rather than calculated by applying the value specified in 33.3(1), in paragraph "2" of the definition of "significant."

4. Beginning January 2, 2011, the pollutant GHGs are subject to regulation if:

(a) The stationary source is a new major stationary source for a regulated NSR pollutant that is not a GHG, and also will emit or will have the potential to emit 75,000 tpy CO_2e or more, or

(b) The stationary source is an existing major stationary source for a regulated NSR pollutant that is not a GHG, and also will have an emissions increase of a regulated NSR pollutant and an emissions increase of 75,000 tpy CO_2e or more.

"Temporary clean coal technology demonstration project" means a clean coal technology demonstration project that is operated for a period of five years or less and that complies with the SIP and other requirements necessary to attain and maintain the national ambient air quality standards during the project and after the project is terminated.

"Title V permit" means an operating permit under Title V of the Act.

"Volatile organic compounds" or *"VOC"* means any compound included in the definition of "volatile organic compounds" found at 40 CFR Section 51.100(s) as amended through November 28, 2018.

33.3(2) *Applicability.* The requirements of this rule (PSD program requirements) apply to the construction of any new "major stationary source" as defined in subrule 33.3(1) or any project at an existing major stationary source in an area designated as attainment or unclassifiable under Section 107(d)(1)(A)(ii) or (iii) of the Act. In addition to the provisions set forth in rules 567—33.3(455B) through 567—33.9(455B), the provisions of 40 CFR Part 51, Appendix W (Guideline on Air Quality Models) as amended through January 17, 2017, are adopted by reference.

a. The requirements of subrules 33.3(10) through 33.3(18) apply to the construction of any new major stationary source or the major modification of any existing major stationary source, except as this rule (PSD program requirements) otherwise provides.

b. No new major stationary source or major modification to which the requirements of subrule 33.3(10) through paragraph 33.3(18) *"e"* apply shall begin actual construction without a permit that states that the major stationary source or major modification will meet those requirements.

c. Except as otherwise provided in paragraphs 33.3(2) *"i"* and *"j,"* and consistent with the definition of "major modification" contained in subrule 33.3(1), a project is a major modification for a "regulated NSR pollutant" if it causes two types of emissions increases: a "significant emissions increase"; and a "net emissions increase" which is "significant." The project is not a major modification if it does not cause a significant emissions increase. If the project causes a significant emissions increase, then the project is a major modification only if it also results in a significant net emissions increase.

d. The procedure for calculating (before beginning actual construction) whether a significant emissions increase (i.e., the first step of the process) will occur depends upon the type of emissions units being modified, according to paragraphs *"e"* through *"h"* of this subrule. The procedure for calculating (before beginning actual construction) whether a significant net emissions increase will occur at the major stationary source (i.e., the second step of the process) is contained in the definition of "net emissions increase." Regardless of any such preconstruction projections, a major modification results if the project causes a significant emissions increase and a significant net emissions increase.

e. Actual-to-projected-actual applicability test for projects that only involve existing emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the "projected actual emissions" and the "baseline actual emissions" for each existing emissions unit equals or exceeds the significant amount for that pollutant.

f. Actual-to-potential test for projects that involve only construction of a new emissions unit(s). A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the difference between the "potential to emit" from each new emissions unit following completion of the project and the "baseline actual emissions" for a new emissions unit before the project equals or exceeds the significant amount for that pollutant.

g. Reserved.

h. Hybrid test for projects that involve multiple types of emissions units. A significant emissions increase of a regulated NSR pollutant is projected to occur if the sum of the emissions increases for each emissions unit, using the method specified in paragraphs *"e"* through *"g"* of this subrule, as applicable with respect to each emissions unit, for each type of emissions unit equals or exceeds the significant amount for that pollutant.

i. For any major stationary source with a PAL for a regulated NSR pollutant, the major stationary source shall comply with rule requirements under 567—33.9(455B).

j. Reserved.

33.3(3) *Ambient air increments.* The provisions for ambient air increments as specified in 40 CFR 52.21(c) as amended through October 20, 2010, are adopted by reference.

33.3(4) *Ambient air ceilings.* The provisions for ambient air ceilings as specified in 40 CFR 52.21(d) as amended through November 29, 2005, are adopted by reference.

33.3(5) *Restrictions on area classifications.* The provisions for restrictions on area classifications as specified in 40 CFR 52.21(e) as amended through November 29, 2005, are adopted by reference.

33.3(6) *Exclusions from increment consumption.* The provisions by which the SIP may provide for exclusions from increment consumption as specified in 40 CFR 51.166(f) as amended through November 29, 2005, are adopted by reference. The following phrases contained in 40 CFR 51.166(f) are not adopted by reference: "the plan may provide that," "the plan provides that," and "it shall also provide that." Additionally, the term "the plan" shall mean "SIP."

33.3(7) *Redesignation.* The provisions for redesignation as specified in 40 CFR 52.21(g) as amended through November 29, 2005, are adopted by reference.

33.3(8) *Stack heights.* The provisions for stack heights as specified in 40 CFR 52.21(h) as amended through November 29, 2005, are adopted by reference.

33.3(9) *Exemptions.* The provisions for allowing exemptions from certain requirements for PSD-subject sources as specified in 40 CFR 52.21(i) as amended through March 6, 2015, are adopted by reference.

33.3(10) *Control technology review.* The provisions for control technology review as specified in 40 CFR 52.21(j) as amended through November 29, 2005, are adopted by reference.

33.3(11) *Source impact analysis.* The provisions for a source impact analysis as specified in 40 CFR 52.21(k) as amended through December 9, 2013, are adopted by reference.

33.3(12) *Air quality models.* The provisions for air quality models as specified in 40 CFR 52.21(l) as amended through November 29, 2005, are adopted by reference.

33.3(13) *Air quality analysis.* The provisions for an air quality analysis as specified in 40 CFR 52.21(m) as amended through November 29, 2005, are adopted by reference.

33.3(14) *Source information.* The provisions for providing source information as specified in 40 CFR 52.21(n) as amended through November 29, 2005, are adopted by reference.

33.3(15) *Additional impact analyses.* The provisions for an additional impact analysis as specified in 40 CFR 52.21(o) as amended through November 29, 2005, are adopted by reference.

33.3(16) *Sources impacting federal Class I areas—additional requirements.* The provisions for sources impacting federal Class I areas as specified in 40 CFR 51.166(p) as amended through October 20, 2010, are adopted by reference. The following phrases contained in 40 CFR 51.166(p) are not adopted by reference: "the plan may provide that," "the plan shall provide that," "the plan shall provide" and "mechanism whereby."

33.3(17) *Public participation.*

a. The department shall notify all applicants within 30 days as to the completeness of the application or any deficiency in the application or information submitted. In the event of such a deficiency, the date of receipt of the application shall be the date on which the department received all required information.

b. Within one year after receipt of a complete application, the department shall:

(1) Make a preliminary determination whether construction should be approved, approved with conditions, or disapproved.

(2) Make available in at least one location in each region in which the proposed source would be constructed a copy of all materials the applicant submitted, a copy of the preliminary determination, and a copy or summary of other materials, if any, considered in making the preliminary determination.

(3) Notify the public, by posting on a publicly available website identified by the department, of the application, of the preliminary determination, of the degree of increment consumption that is expected from the source or modification, and of the opportunity for comment at a public hearing as well as written public comment. The electronic notice shall be available for the duration of the public comment period and shall include the notice of public comment, the draft permit(s), information on how to access the administrative record for the draft permit(s) and how to request or attend a public hearing on the draft permit(s). The department may use other means if necessary to ensure adequate notice to the affected public. At least 30 days shall be provided for public comment and for notification of any public hearing.

(4) Send a copy of the notice of public comment to the applicant, to the Administrator and to officials and agencies having cognizance over the location where the proposed construction would occur as follows: any other state or local air pollution control agencies; the chief executives of the city and county where the source would be located; any comprehensive regional land use planning agency; and

any state, federal land manager, or Indian governing body whose lands may be affected by emissions from the source or modification.

(5) Provide opportunity for a public hearing for interested persons to appear and submit written or oral comments on the air quality impact of the source, alternatives to the proposed source or modification, the control technology required, and other appropriate considerations. At least 30 days' notice shall be provided for any public hearing.

(6) Consider all written comments submitted within a time specified in the notice of public comment and all comments received at any public hearing(s) in making a final decision on the approvability of the application. The department shall make all comments available for public inspection at the same locations where the department made available preconstruction information relating to the proposed source or modification.

(7) Make a final determination whether construction should be approved, approved with conditions, or disapproved.

(8) Notify the applicant in writing of the final determination and make such notification available for public inspection at the same locations where the department made available preconstruction information and public comments relating to the proposed source or modification.

c. Reopening of the public comment period.

(1) If comments submitted during the public comment period raise substantial new issues concerning the permit, the department may, at its discretion, take one or more of the following actions:

1. Prepare a new draft permit, appropriately modified;
2. Prepare a revised fact sheet;
3. Prepare a revised fact sheet and reopen the public comment period; or
4. Reopen or extend the public comment period to provide interested persons an opportunity to comment on the comments submitted.

(2) The public notice provided by the department pursuant to this rule shall define the scope of the reopening. Department review of any comments filed during a reopened comment period shall be limited to comments pertaining to the substantial new issues causing the reopening.

33.3(18) *Source obligation.*

a. Approval to construct shall not relieve any owner or operator of the responsibility to comply fully with applicable provisions of the plan and any other requirements under local, state or federal law.

b. At such time that a particular source or modification becomes a major stationary source or major modification solely by virtue of a relaxation in any enforceable limitation which was established after August 7, 1980, on the capacity of the source or modification otherwise to emit a pollutant, such as a restriction on hours of operation, the requirements of subrules 33.3(10) through 33.3(19) shall apply to the source or modification as though construction had not yet commenced on the source or modification.

c. Any owner or operator who constructs or operates a source or modification not in accordance with the application pursuant to the provisions in rule 567—33.3(455B) or with the terms of any approval to construct, or any owner or operator of a source or modification subject to the provisions in rule 567—33.3(455B) who commences construction after April 15, 1987 (the effective date of Iowa's PSD program), without applying for and receiving department approval, shall be subject to appropriate enforcement action.

d. Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more, or if construction is not completed within a reasonable time. The department may extend the 18-month period upon a satisfactory showing that an extension is justified. These provisions do not apply to the time between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

e. Reserved.

f. Except as otherwise provided in subparagraph (8), the following specific provisions shall apply with respect to any regulated NSR pollutant emitted from projects at existing emissions units at a major stationary source, other than projects at a source with a PAL, in circumstances where there is a "reasonable possibility," within the meaning of subparagraph (8), that a project that is not part of

a major modification may result in a significant emissions increase of such pollutant, and the owner or operator elects to use the method for calculating projected actual emissions as specified in subrule 33.3(1), paragraphs "1" through "3" of the definition of "projected actual emissions."

(1) Before beginning actual construction of the project, the owner or operator shall document and maintain a record of the following information:

1. A description of the project;

2. Identification of the emissions unit(s) whose emissions of a regulated NSR pollutant could be affected by the project; and

3. A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions, the projected actual emissions, the amount of emissions excluded under paragraph "3" of the definition of "projected actual emissions" in subrule 33.3(1), an explanation describing why such amount was excluded, and any netting calculations, if applicable.

(2) No less than 30 days before beginning actual construction, the owner or operator shall meet with the department to discuss the owner's or operator's determination of projected actual emissions for the project and shall provide to the department a copy of the information specified in paragraph *"f."* The owner or operator is not required to obtain a determination from the department regarding the project's projected actual emissions prior to beginning actual construction.

(3) If the emissions unit is an existing electric utility steam generating unit, before beginning actual construction, the owner or operator shall provide a copy of the information set out in subparagraph (1) to the department. The requirements in subparagraphs (1), (2) and (3) shall not be construed to require the owner or operator of such a unit to obtain any determination from the department before beginning actual construction.

(4) The owner or operator shall:

1. Monitor the emissions of any regulated NSR pollutant that could increase as a result of the project and that is emitted by any emissions unit identified in subparagraph (1);

2. Calculate the annual emissions, in tons per year on a calendar-year basis, for a period of five years following resumption of regular operations and maintain a record of regular operations after the change, or for a period of ten years following resumption of regular operations after the change if the project increases the design capacity or potential to emit of that regulated NSR pollutant at such emissions unit (for purposes of this requirement, "regular" shall be determined by the department on a case-by-case basis); and

3. Maintain a written record containing the information required in this subparagraph.

(5) The written record containing the information required in subparagraph (4) shall be retained by the owner or operator for a period of ten years after the project is completed.

(6) If the unit is an existing electric utility steam generating unit, the owner or operator shall submit a report to the department within 60 days after the end of each year during which records must be generated under subparagraph (4) setting out the unit's annual emissions during the calendar year that preceded submission of the report.

(7) If the unit is an existing unit other than an electric utility steam generating unit, the owner or operator shall submit a report to the department if the annual emissions, in tons per year, from the project identified in subparagraph (1), exceed the baseline actual emissions, as documented and maintained pursuant to subparagraph (4), by an amount that is "significant" as defined in subrule 33.3(1) for that regulated NSR pollutant, and if such emissions differ from the preconstruction projection as documented and maintained pursuant to subparagraph (4). Such report shall be submitted to the department within 60 days after the end of such year. The report shall contain the following:

1. The name, address and telephone number of the major stationary source;

2. The annual emissions as calculated pursuant to subparagraph (4); and

3. Any other information that the owner or operator wishes to include in the report (e.g., an explanation as to why the emissions differ from the preconstruction projection).

(8) A "reasonable possibility" under this paragraph (paragraph 33.3(18) *"f"*) occurs when the owner or operator calculates the project to result in either:

1. A projected actual emissions increase of at least 50 percent of the amount that is a "significant emissions increase," as defined under subrule 33.3(1) (without reference to the amount that is a significant net emissions increase), for the regulated NSR pollutant; or

2. A projected actual emissions increase that, when added to the amount of emissions excluded under subrule 33.3(1), paragraph "3" of the definition of "projected actual emissions," equals at least 50 percent of the amount that is a "significant emissions increase," as defined under subrule 33.3(1) (without reference to the amount that is a significant net emissions increase), for the regulated NSR pollutant. For a project for which a reasonable possibility occurs only within the meaning of this numbered paragraph, and not also within the meaning of numbered paragraph "1" of this subparagraph (subparagraph (8)), then the provisions of subparagraphs (3) through (7) do not apply to the project.

g. The owner or operator of the source shall make the information required to be documented and maintained pursuant to paragraph *"f"* available for review upon request for inspection by the department or the general public pursuant to the requirements for Title V operating permits contained in 567—subrule 22.107(6).

33.3(19) *Innovative control technology.* The provisions for innovative control technology as specified in 40 CFR 51.166(s) as amended through November 29, 2005, are adopted by reference. The following phrases contained in 40 CFR 51.166(s) are not adopted by reference: "the plan may provide that" and "the plan shall provide that."

33.3(20) *Conditions for permit issuance.* Except as explained below, a permit may not be issued to any new "major stationary source" or "major modification" as defined in subrule 33.3(1) that would locate in any area designated as attainment or unclassifiable for any national ambient air quality standard pursuant to Section 107 of the Act, when the source or modification would cause or contribute to a violation of any national ambient air quality standard. A major stationary source or major modification will be considered to cause or contribute to a violation of a national ambient air quality standard when such source or modification would, at a minimum, exceed the following significance levels at any locality that does not or would not meet the applicable national standard:

	Averaging Time				
	Annual	24 hrs.	8 hrs.	3 hrs.	1 hr.
Pollutant	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)	(μg/m³)
SO_2	1.0	5	———	25	———
PM_{10}	1.0	5	———	———	———
$PM_{2.5}$	0.3	1.2	———	———	———
NO_2	1.0	———	———	———	———
CO	———	———	500	———	2000

A permit may be granted to a major stationary source or major modification as identified above if the major stationary source or major modification reduces the impact of its emissions upon air quality by obtaining sufficient emissions reductions to compensate for its adverse ambient air impact where the major stationary source or major modification would otherwise contribute to a violation of any national ambient air quality standard. This subrule shall not apply to a major stationary source or major modification with respect to a particular pollutant if the owner or operator demonstrates that the source is located in an area designated under Section 107 of the Act as nonattainment for that pollutant.

33.3(21) *Administrative amendments.*

a. Upon request for an administrative amendment, the department may take final action on any such request and may incorporate the requested changes without providing notice to the public or to affected states, provided that the department designates any such permit revisions as having been made pursuant to subrule 33.3(21).

b. An administrative amendment is a permit revision that does any of the following:

(1) Corrects typographical errors;

(2) Corrects word processing errors;

(3) Identifies a change in name, address or telephone number of any person identified in the permit or provides a similar minor administrative change at the source; or

(4) Allows for a change in ownership or operational control of a source where the department determines that no other change in the permit is necessary, provided that a written agreement that contains a specific date for transfer of permit responsibility, coverage, and liability between the current permittee and the new permittee has been submitted to the department.

33.3(22) *Permit rescission.* Any permit issued under 40 CFR 52.21 or this chapter or any permit issued under rule 567—22.4(455B) shall remain in effect unless and until it is rescinded. The department will consider requests for rescission that meet the conditions specified under paragraphs *"a"* and *"b"* of this subrule. If the department rescinds a permit or a condition in a permit issued under 40 CFR 52.21, this chapter, or rule 567—22.4(455B), the public shall be given adequate notice of the proposed rescission. Posting of an announcement of rescission on a publicly available website identified by the department 60 days prior to the proposed date for rescission shall be considered adequate notice.

a. The department may rescind a permit or a portion of a permit upon request from an owner or operator of a stationary source who holds a permit for a source or modification that was issued:

(1) Under 40 CFR 52.21 as in effect on July 30, 1987, or earlier, provided the application also meets the provisions in paragraph 33.3(22)*"b"*;

(2) Under this chapter between July 1, 2011, and July 6, 2015, to a source that was classified as a major stationary source under subrule 33.3(1) solely on the basis of potential emissions of greenhouse gases; or

(3) Under this chapter between July 1, 2011, and July 6, 2015, for a modification that was classified as a major modification under subrule 33.3(1) solely on the basis of an increase in emissions of greenhouse gases.

b. If the application for rescission meets the provisions in paragraph *"a"* of this subrule, the department may rescind a permit if the owner or operator shows that the PSD provisions under 40 CFR 52.21 or this chapter would not apply to the source or modification.

[**ARC 8215B**, IAB 10/7/09, effective 11/11/09; **ARC 9224B**, IAB 11/17/10, effective 12/22/10; **ARC 9906B**, IAB 12/14/11, effective 11/16/11; **ARC 0260C**, IAB 8/8/12, effective 9/12/12; **ARC 0783C**, IAB 6/12/13, effective 7/17/13; **ARC 1913C**, IAB 3/18/15, effective 4/22/15; **ARC 2949C**, IAB 2/15/17, effective 3/22/17; **ARC 3679C**, IAB 3/14/18, effective 4/18/18; **ARC 5051C**, IAB 6/17/20, effective 7/22/20]

567—33.4 to **33.8** Reserved.

567—33.9(455B) Plantwide applicability limitations (PALs). This rule provides an existing major source the option of establishing a plantwide applicability limitation (PAL) on emissions, provided the conditions in this rule are met. The provisions for a PAL as set forth in 40 CFR 52.21(aa) as amended through July 12, 2012, are adopted by reference, except that the term "Administrator" shall mean "the department of natural resources."

[**ARC 0783C**, IAB 6/12/13, effective 7/17/13]

567—33.10(455B) Exceptions to adoption by reference. All references to Clean Units and Pollution Control Projects set forth in 40 CFR Sections 52.21 and 51.166 are not adopted by reference.

These rules are intended to implement Iowa Code chapter 455B.

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[Filed ARC 1227C (Notice ARC 1016C, IAB 9/18/13), IAB 12/11/13, effective 1/15/14]
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[Filed ARC 3679C (Notice ARC 3520C, IAB 12/20/17), IAB 3/14/18, effective 4/18/18]
[Filed ARC 5051C (Notice ARC 4961C, IAB 3/11/20), IAB 6/17/20, effective 7/22/20]

CHAPTER 34
PROVISIONS FOR AIR QUALITY EMISSIONS TRADING PROGRAMS

567—34.1(455B) Purpose. This chapter implements the provisions for certain federal air emissions trading programs to control emissions of specific pollutants.

567—34.2 to **34.199** Reserved.

567—34.200(455B) Provisions for air emissions trading and other requirements for the Clean Air Interstate Rule (CAIR). Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.201(455B) CAIR NOx annual trading program general provisions. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.202(455B) CAIR designated representative for CAIR NOx sources. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.203(455B) Permits. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.204 Reserved.

567—34.205(455B) CAIR NOx allowance allocations. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.206(455B) CAIR NOx allowance tracking system. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.207(455B) CAIR NOx allowance transfers. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.208(455B) Monitoring and reporting. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.209(455B) CAIR NOx opt-in units. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.210(455B) CAIR SO2 trading program. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.211 to **34.219** Reserved.

567—34.220(455B) CAIR NOx ozone season trading program. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.221(455B) CAIR NOx ozone season trading program general provisions. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.222(455B) CAIR designated representative for CAIR NOx ozone season sources. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.223(455B) CAIR NOx ozone season permits. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.224 Reserved.

567—34.225(455B) CAIR NOx ozone season allowance allocations. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.226(455B) CAIR NOx ozone season allowance tracking system. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.227(455B) CAIR NOx ozone season allowance transfers. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.228(455B) CAIR NOx ozone season monitoring and reporting. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.229(455B) CAIR NOx ozone season opt-in units. Rescinded **ARC 3679C**, IAB 3/14/18, effective 4/18/18.

567—34.230 to **34.299** Reserved.

567—34.300(455B) Provisions for air emissions trading and other requirements for the Clean Air Mercury Rule (CAMR). Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

567—34.301(455B) Mercury (Hg) budget trading program general provisions. Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

567—34.302(455B) Hg designated representative for Hg budget sources. Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

567—34.303(455B) General Hg budget trading program permit requirements. Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

567—34.304(455B) Hg allowance allocations. Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

567—34.305(455B) Hg allowance tracking system. Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

567—34.306(455B) Hg allowance transfers. Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

567—34.307(455B) Monitoring and reporting. Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

567—34.308(455B) Performance specifications. Rescinded IAB 10/7/09, effective 11/11/09.

*As of November 11, 2009, the requirements for the Clean Air Mercury Rule (CAMR) are rescinded and the adoption by reference of federal regulations associated with CAMR is also rescinded. On March 14, 2008, the United States Court of Appeals for the District of Columbia Circuit issued its mandate to vacate the federal CAMR regulations in their entirety.
[**ARC 8216B**, IAB 10/7/09, effective 11/11/09]

These rules are intended to implement Iowa Code section 455B.133.

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[Filed ARC 3679C (Notice ARC 3520C, IAB 12/20/17), IAB 3/14/18, effective 4/18/18]

◊ Two or more ARCs

CHAPTER 35
AIR EMISSIONS REDUCTION ASSISTANCE PROGRAM

567—35.1(455B) Purpose. The purpose of this program is to provide financial assistance to eligible applicants for the purpose of reducing air pollution emissions.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.2(455B) Definitions. For the purposes of this chapter, the following definitions shall apply:

"Applicant" means any unit of state or local government, public or private group, business or individual.

"Cost share" means the applicant's share of proposed eligible project costs.

"Department" means the Iowa department of natural resources.

"Eligible costs" means costs directly related to the eligible project and for which financial assistance moneys may be used.

"Eligible project" means any project which, when implemented, will reduce air emissions.

"Financial assistance" means monetary assistance awarded under these rules to an applicant in the form of a grant or loan.

"Grant" means an award of assistance with the expectation that, with the fulfillment of the conditions of the award, repayment of funds is not required.

"Loan" means an award of financial assistance with the requirement that the award be repaid, including interest as identified in the written agreement between the department and the recipient. A "deferred loan" is one for which repayment of principal or interest, or both, is not required for a specified period of time. A "forgivable loan" is one for which repayment is eliminated in part or entirely if the borrower satisfies specified conditions.

"Recipient" means any applicant selected to receive financial assistance under these rules.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.3(455B) Role of the department of natural resources. The department is responsible for the administration of the program and for disbursement of funds to eligible projects receiving financial assistance under these rules.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.4(455B) Eligible projects. The department may provide financial assistance to applicants for projects that are consistent with the purpose of this program.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.5(455B) Forms. Applicants shall submit proposed eligible projects on application forms provided by the department. The applications are considered public records.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.6(455B) Project selection. The director has sole discretion to determine which eligible projects will receive an award of moneys under this program. Emphasis in selecting eligible projects will be placed on the amount of air pollution emissions reductions anticipated, cost-effectiveness, and the proposed location of the eligible project. Proposed eligible projects must be in compliance with all applicable state and federal statutes and rules. The director shall evaluate the proposals, and applicants will be awarded financial assistance based on selection criteria contained in the applicable application guidelines available from the department.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.7(455B) Funding sources. The department will use the funds designated by the legislature and other sources to achieve the purpose outlined in these rules.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.8(455B) Type of financial assistance. Financial assistance awarded under this program may be in the form of a loan, forgivable loan, deferred loan, grant, or a combination thereof. The type of

financial assistance offered to an applicant is dependent upon the amount of program funds awarded to each selected eligible project. The department reserves the right to offer any combination of financial assistance types to any selected eligible project.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.9(455B) Term of loans. The term of loans executed under these rules shall be determined on a case-by-case basis and shall be based on the specific costs financed, as well as the terms of other financing provided for the eligible project. The written agreement between the department and the recipient will establish other conditions or terms needed to manage or implement the eligible project.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.10(455B) Reduced award. The department reserves the right to offer financial assistance in an amount less than the amount requested by the applicant. In the event that financial assistance offered is less than the amount requested by an applicant, the applicant may be asked to document the impact of the reduced award on the proposed eligible project. Reduced awards shall be offered when the department has determined that:

1. Program resources are insufficient to provide the level of financial assistance requested to all applicants to which the department intends to offer financial assistance.
2. The applicant could implement the eligible project at a reduced level of financial assistance and achieve the eligible project objectives and purpose of this program.

[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.11(455B) Fund disbursement limitations. No funds shall be disbursed until the department has:

1. Determined the total estimated cost of the eligible project;
2. Determined that financing for the cost-share amount, if applicable, is ensured by the recipient;
3. Received confirmation that all required permits or permit amendments have been obtained by the recipient;
4. Received commitments from the recipient to implement the eligible project; and
5. Executed a written agreement with the recipient.

[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.12(455B) Applicant cost share. If requested by the department, an applicant for financial assistance shall agree to provide a cost share of funds committed to the eligible project. Financial assistance moneys received by the applicant under these rules are ineligible to be utilized for any portion of the required applicant cost share. Applicant cost share shall be in accordance with the schedule outlined in the applicable application guidelines available from the department.
[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.13(455B) Eligible costs. Applicants may request financial assistance in the implementation and operation of an eligible project which includes, but is not limited to, funds for the purpose of:

1. Purchase and installation of air pollution reduction equipment;
2. Replacement or modification of air pollution control equipment, or process and equipment, including labor for installation;
3. Development, printing and distribution of educational materials;
4. Planning and implementation of educational forums including, but not limited to, workshops;
5. Expenses directly related to implementation and operation of the eligible project; and
6. Research, laboratory analysis costs, engineering, or consulting fees.

[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.14(455B) Ineligible costs. Financial assistance shall not be provided or used for costs including, but not limited to, the following:

1. Taxes;
2. Vehicle registration;

3. Legal costs;
4. Contingency funds;
5. Proposal preparation;
6. Contractual project administration;
7. Land acquisition;
8. Office furniture, office computers, fax machines and other office furnishings and equipment;
9. Costs for which payment has been or will be received under another federal, state or private financial assistance program; and
10. Costs incurred before a written agreement between the applicant and the department has been executed. Ineligible costs shall be determined with applicable publications from the federal office of management and budget.

[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.15(455B) Written agreement. Each recipient shall enter into a contract with the department for the purposes of implementing the eligible project for which financial assistance has been awarded. The contract shall be signed by an authorized representative of the department and the authorized officer of the recipient. In cases in which the department has awarded other than a grant or forgivable loan, the recipient will be required to make regularly scheduled installment payments to retire the loan and any interest assigned to the loan as identified in the executed contract. The recipient will be required to submit periodic progress reports as identified in the executed contract. Progress reports are considered part of the public record. The department may terminate any contract and seek the return of any funds released under the contract for failure by the recipient to perform under the terms and conditions of the contract. Amendments to contracts may be adopted by mutual written consent by the department and the selected applicant.

[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

567—35.16(455B) Financial assistance denial. An applicant may be denied financial assistance for any of the following reasons:

1. Funds are insufficient to award financial assistance to all qualified applicants;
2. The applicant does not meet eligibility requirements pursuant to provisions of these rules;
3. The applicant does not provide sufficient information requested on forms provided by the department pursuant to these rules;
4. The applicant has previously received a loan under these rules and is determined by the department to be delinquent in repaying the loan;
5. The eligible project goals or scope is not consistent with these rules; or
6. The director concludes the denial is appropriate.

[**ARC 7679B**, IAB 4/8/09, effective 5/13/09; **ARC 7944B**, IAB 7/15/09, effective 8/19/09]

These rules are intended to implement Iowa Code section 455B.103(5).

[Filed Without Notice ARC 7679B, IAB 4/8/09, effective 5/13/09]

[Filed ARC 7944B (Notice ARC 7678B, IAB 4/8/09), IAB 7/15/09, effective 8/19/09]

TITLE III
WITHDRAWAL DIVERSION, STORAGE AND USE OF WATER
DIVISION A
WATER WELL CONSTRUCTION: GENERAL STANDARDS AND REGISTRATION OF CONTRACTORS

TITLE III
WITHDRAWAL DIVERSION, STORAGE AND USE OF WATER
DIVISION A
WATER WELL CONSTRUCTION: GENERAL STANDARDS AND REGISTRATION OF CONTRACTORS

CHAPTERS 36 and 37
Reserved

WATER WELL CONSTRUCTION: GENERAL STANDARDS AND REGISTRATION OF CONTRACTORS

CHAPTER 38
PRIVATE WATER WELL CONSTRUCTION PERMITS

567—38.1(455B) Definitions.

"Abandoned well" means a water well which is no longer in use or which is in such a state of disrepair that continued use for the purpose of accessing groundwater is unsafe or impracticable.

"Agreement" means a signed document between the department and the county board of supervisors with which the department delegates the authority to issue private well drilling permits to the county board of supervisors or its designee.

"Construction" means the physical act or process of making a water well including, but not limited to, siting, excavation, construction and installation of equipment and materials necessary to maintain and operate the well.

"Contiguous" means any number of parcels of land that physically touch one another, including tracts of land separated by roads, railroads or streams, except that for the purpose of reporting on other existing wells on the property, the radius of a contiguous piece of land shall be limited to one mile from the site of the new well constructed.

"Contractor" means a person engaged in the business of well construction or reconstruction. The term may include a corporation, partnership, sole proprietorship, association or any other business entity, as well as any employee or officer of the entity.

"Department" means the Iowa department of natural resources.

"Director" means the director of the department or a designee.

"Groundwater" means any water below the surface of the earth.

"Inactive water well" means a water well which is not currently in use and is capped or sealed to prevent the entrance of contaminants into the well, but is in such a condition that it can be activated to produce a safe supply of water.

"Landowner" means an individual, trust, partnership, corporation, government or governmental subdivision or agency, association or other legal entity that has legal or equitable title to a piece of land.

"Landowner's agent" means a person who acts for or in place of the landowner by authority from the landowner.

"Private water well" means a well that does not supply a public water supply system.

"Protected source" means a surface water or groundwater source recognized by rule as deserving special protection in order to ensure its long-term availability, in terms of either quality or quantity, or both, to preserve the public health and welfare.

"Public water supply system" means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. The term includes (1) any collection, treatment, storage, and distribution facilities under control of the supplier of water and used primarily in connection with the system, and (2) any collection (including wells) or pretreatment storage facilities not under the control which are used primarily in connection with the system.

"Water well" means an excavation that is drilled, cored, bored, augered, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for groundwater, monitoring groundwater, utilizing the geothermal properties of the ground, or extracting water from or injecting water into the aquifer. Water well does not include an open ditch or drain tiles or an excavation made for obtaining or prospecting for oil, natural gas, minerals, or products mined or quarried.

567—38.2(455B) Forms. The following application form is currently in use:

Application for Private Water Well Construction Permit. 12/98. 542-0988

567—38.3(455B) Permit requirement.

38.3(1) *When permit required.* A landowner or landowner's agent shall not drill or construct a new private water well without first obtaining a well construction permit issued by the department or by a

county board of supervisors or the board's designee authorized to issue permits pursuant to this chapter. Examples of private water wells requiring well construction permits include, but are not limited to: domestic wells, livestock wells, irrigation wells, recreational-use wells, monitoring wells, heat pump wells, industrial wells, and dewatering wells, except that dewatering wells shall be exempt from the construction standards of 567—Chapter 49 (nonpublic water wells).

38.3(2) *Exemptions.* The following types of excavations do not need private water well construction permits: soil borings, percolation test holes, sand and gravel and limestone exploration holes, excavations for storing and extracting natural gas or other products, gravel pits and quarries and all monitoring wells required as part of a permit or a construction approval issued by the department. Test holes, used to determine the availability, quality or depth of groundwater are also exempt provided that all the following conditions are met.

a. The use of the test hole is limited to the conduct of the test only.

b. The duration of the test is not more than seven consecutive days.

c. The test hole is properly closed immediately after the test is completed in accordance with 567—Chapter 39 "Requirements for Properly Plugging Abandoned Wells."

38.3(3) *Caveat.* Nothing in these rules shall be construed as exempting public water supply wells from the construction permit and water withdrawal permit provisions of the environmental protection commission rules, 567—Iowa Administrative Code.

567—38.4(455B) Form of application. Application shall be made on forms supplied by the department. However, counties that have active delegation of authority to issue new private well construction permits pursuant to rule 38.15(455B) may develop and use their own application forms subject to the approval of the department. Each application shall list all wells, including nonplugged abandoned wells, on the applicant's property contiguous to the well site described in the application and shall describe the location of each well site. The location shall be given in the form of a legal land description (section, township and range) to the nearest quarter of a quarter of a quarter of a section, or as a latitude and longitude in degrees to four decimal accuracy. The list of wells to be registered shall include but is not limited to abandoned wells, inactive wells, agricultural drainage wells, irrigation wells, domestic wells and livestock wells.

567—38.5(455B) Fees.

38.5(1) *Fee payment.* This paragraph is in effect through June 30, 2003. Each application shall be accompanied by a nonrefundable fee of $25 in the form of a check or money order payable to the Department of Natural Resources, unless a county board of supervisors or the board's designee is authorized to issue private well construction permits pursuant to rule 38.15(455B). In cases where the permitting authority is delegated to the county, the county board of supervisors may set a different fee and shall designate the terms for fee payment. More than one proposed well for the same use on one contiguous piece of property of less than ten acres may be listed on one application and only one fee need be paid irrespective of the number of wells listed on the application form. Additional wells on the same property at a later time require another permit. A proper application shall consist of a fully and properly completed form and nonrefundable fee.

Effective July 1, 2003, each application shall be accompanied by a nonrefundable fee of $125 in the form of a check or money order payable to the Department of Natural Resources, unless a county board of supervisors or the board's designee is authorized to issue private well construction permits pursuant to rule 38.15(455B). In cases where the permitting authority is delegated to the county, the county board of supervisors may set a different fee, shall designate the terms for fee payment, and shall submit to the department a permit fee of $25 per application. More than one proposed well for the same use on one contiguous piece of property of less than ten acres may be listed on one application and only one fee need be paid irrespective of the number of wells listed on the application form. Additional wells on the same property at a later time require another permit. A proper application shall consist of a fully and properly completed form and nonrefundable fee. The $25 fee collected by the counties for each permitted well shall be submitted quarterly by the counties to the department on forms and in a manner as provided by the department.

38.5(2) *Exemption.* The department is exempt from the fee payment requirements to the counties. The department shall remit fees directly to the department's private well permit program fund.

567—38.6(455B) Well maintenance and reconstruction. A private well construction permit is required for all replacement wells. A private well construction permit is required for modification to a well such as changes in physical dimensions including, but not limited to, deepening the well and changing the diameter or length of the casing or the screen. A private well construction permit is not required for the repair, maintenance, or rehabilitation of an existing well that does not change its physical dimensions.

567—38.7(455B) Emergency permits. Contracting counties must have policies and procedures in place to accommodate the issuance of permits on an emergency basis for the immediate replacement or reconstruction of water wells in response to the sudden and unforeseen loss or serious impairment of a well for its intended use.

38.7(1) to **38.7(3)** Rescinded IAB 11/13/02, effective 12/18/02.

567—38.8(455B) Permit issuance and conditions.

38.8(1) *When issued.* Upon receipt of a complete application, the department or contracting county shall issue a permit to the landowner or landowner's agent except as provided in rule 38.12(455B).

38.8(2) *Not a water withdrawal permit.* Each permit shall include notification that a private well construction permit is not a water withdrawal permit and does not eliminate the necessity of obtaining any water withdrawal permits required in 567—Chapters 50 through 54. A water withdrawal permit is required before an applicant can withdraw more than 25,000 gallons of water per day from any source or combination of sources in the state of Iowa.

38.8(3) *Construction by certified well contractor.* Each well construction permit shall require that each well be constructed by a certified well contractor in compliance with 567—Chapters 49 and 82. However, temporary dewatering wells at construction sites shall be exempt from the construction standards of 567—Chapter 49.

567—38.9(455B) Noncompliance. Violations of any of the provisions of this chapter may be addressed by the department pursuant to Iowa Code sections 455B.109, 455B.110, 455B.175 and 455B.191.

567—38.10(455B) Expiration of a permit. A private well construction permit shall expire one calendar year from the date of issuance. If construction of the proposed well is not started prior to the expiration date, a new application plus a new nonrefundable fee must be filed with the department or the county board of supervisors pursuant to rule 38.15(455B).

567—38.11(455B) Transferability. A private well construction permit is not transferable.

567—38.12(455B) Denial of a permit. The department or contracting county may deny a private well construction permit if granting the permit would lead to the violation of state law, could result in groundwater contamination, would lead to withdrawal from a protected source, or the well could threaten public health or the environment. Examples of wells that could threaten public health or the environment and, therefore, may be denied construction permits include, but are not limited to: in situ mining wells, wells which may result in a negative impact on an identified point source of groundwater contamination and cause leachate plume to spread or migrate, underground injection wells except as provided in subrule 567—50.6(4) and 567—62.9(455B).

567—38.13(455B) Appeal of a permit denial. Any applicant aggrieved by a decision issued under the provisions of this chapter may file a notice of appeal with the director. The notice of appeal must be filed within 30 days of the date of the permit decision. The form of the notice of appeal and appeal procedures are governed by 567—Chapter 13. Appeal of a permit denied by a county which has been delegated authority to issue private water well permits shall be administered by the county in accordance

with the county's appeal or judiciary review process. Appeal to the department is possible only when the appeal involves well design or construction variances or if delegation to the county is suspended, rescinded or revoked.

567—38.14(455B) Effective date. Rescinded IAB 11/13/02, effective 12/18/02.

567—38.15(455B) Delegation of authority to county board of supervisors.

38.15(1) *Application by board.* A county board of supervisors requesting the authority to issue private well construction permits shall apply to the department in accordance with Iowa Code chapter 28E. The application shall include statements of agreement to comply with 567—Chapter 38. Additional information may be requested by the department. The department may contract for all or part of the private well permitting services in those counties that do not receive or maintain delegation authority or for permit authorities retained by the department.

38.15(2) *County standards.* The county board of supervisors may impose additional standards as local conditions dictate, but the standards cannot be less stringent than those required by the provisions of this chapter.

38.15(3) *Information to department.* The delegation agreement shall provide for the method, format and frequency of reporting all permit application information and remission of fees to the department.

38.15(4) *Board authority.* After delegation of authority to a county board of supervisors, all applications in that county shall be made to the board or its designee except that all new private well permit applications by state or federal agencies shall be made to the department.

38.15(5) *Term of delegation.* The delegation of authority may be for up to five years and may be redelegated at the discretion of the department.

38.15(6) *Permit number.* Each permit shall be given a unique number as prescribed by the department. This numbering system shall be consistent throughout the state.

38.15(7) *Well tag.* The department may require that an identification tag be applied to each well. Counties with delegated permitting authority and certified water well contractors are responsible for ensuring that the tags are properly attached to the wells. The department may supply the numbered tags.

567—38.16(455B) Concurrent authority of the department. Notwithstanding the delegation of permit granting authority pursuant to rule 38.15(455B), the department reserves the right to exercise concurrent authority. In cases where the board or its designee fails to act on an application, or the director determines that a particular application cannot be appropriately evaluated by the board or its designee, the department may review such an application without invoking the provisions of rule 38.17(455B).

567—38.17(455B) Revocation of delegation agreement. The department may revoke the delegation to issue private well construction permits if the board of supervisors or its designee: failed or refused to carry out the provisions of this chapter in a timely manner; or violated any of the provisions of the delegation of authority agreement with the department.

These rules are intended to implement Iowa Code sections 455B.105(11), 455B.172, and 455B.187.

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CHAPTER 39
REQUIREMENTS FOR PROPERLY PLUGGING ABANDONED WELLS

567—39.1(455B) Purpose. The purpose of this chapter is to implement Iowa Code section 455B.190 by providing a schedule and required procedures for the proper plugging of abandoned wells to protect the groundwater by permanently sealing off contamination to individual aquifers.

567—39.2(455B) Applicability. These rules govern the proper plugging of abandoned wells. Some examples of types of wells covered by these rules are those accessing groundwater (withdrawing water from or injecting water into the groundwater) and can include, but are not limited to: public and nonpublic water wells, test wells, observation wells, monitoring wells, agricultural drainage wells, heat pump recirculation wells, and cooling water wells. Some examples of types of wells or subsurface structures not covered by these rules include: small diameter (2" or less) test holes, observation wells or monitoring wells installed for a limited time which can be sealed by withdrawal of the casing and allowing the hole to collapse; soil borings; septic tanks; underground storage tanks; and cisterns if not used for accessing groundwater. For additional guidance and background information, refer to "Guidelines for Plugging Abandoned Water Wells," Technical Information Series 15, Geological Survey Bureau, Iowa Department of Natural Resources, 1987.

567—39.3(455B) Definitions.

"Abandoned well" means a water well which is no longer in use or which is in such a state of disrepair that continued use for the purpose of accessing water is unsafe or impractical.

"Agricultural lime" means all calcium and magnesium products sold for agricultural purposes in the carbonate form, not including quicklime or hydrated lime, of a size comparable with that of crushed stone, gravel or pea gravel.

"Approved" means accepted or acceptable under an applicable specification stated or cited in these rules.

"Aquifer" means a water-bearing geologic formation capable of yielding a usable quantity of water to a well or spring.

"Bentonite" means a naturally occurring highly plastic, colloidal clay composed largely of the mineral montmorillonite which expands upon wetting.

"Bentonite grout (or slurry)" means a mixture of 10 percent processed bentonite (by weight) and water which is free of contaminants, turbidity and settleable solids.

"Bentonite pellets" means a form of processed bentonite which can be used directly for sealing applications in well plugging operations.

"Bentonite products" means the forms of bentonite which can be used for sealing material in wells, including graded bentonite, bentonite pellets and bentonite grout.

"Capped" means the application of a layer of sealing material at the top of the well casing.

"Casing" means a tubular retaining structure installed in an excavated hole to maintain the well opening.

"Certified well contractor" means a well contractor certified by the department in accordance with 567—Chapter 82.

"Class 1 well" means a well 100 feet or less in depth and 18 inches or more in diameter.

"Class 2 well" means a well more than 100 feet in depth or less than 18 inches in diameter or a bedrock well. Bedrock wells include:

1. Wells completed in a single confined aquifer;
2. Wells completed in a single unconfined aquifer; and
3. Wells completed in multiple aquifers.

"Class 3 well" means a sandpoint well or a well 50 feet or less in depth constructed by joining a screened drive point with lengths of pipe and driving the assembly into a shallow sand and gravel aquifer.

"Concrete" means a mixture of one sack (94 pounds) of Portland cement, up to but not exceeding an equal amount by volume of sand and up to but not exceeding an equal amount by volume of gravel

or crushed stone and not more than six gallons of water which is free of contaminants, turbidity and settleable solids.

"Confined aquifer" means an aquifer in which the groundwater is under pressure greater than atmospheric pressure. The static water level in a well tapping a confined aquifer rises to a level above the top of the aquifer.

"Crushed stone" means stone (predominantly limestone), crushed and well graded, with 100 percent passing a 1-inch sieve, in accordance with the 1984 edition of Iowa department of transportation specification No. 4120.04 for Class A crushed stone.

"Department" means the department of natural resources created under Iowa Code section 455A.2.

"Designated agent" means a person other than the state, designated by a county board of supervisors to review and confirm that a well has been property plugged.

"Director" means the director of the department.

"Filling materials" means agricultural lime, soil, sand, gravel, crushed stone, rock and pea gravel used to occupy space between and below sealing materials in abandoned wells being plugged.

"Frost pit" means a sunken area located directly over or within 4 feet of a well and used to house the equipment for discharging water from a well into the water system.

"Graded bentonite" means bentonite which is crushed and sized for pouring and easy handling. Like processed bentonite, it swells when hydrated with water and will form a plastic, essentially impermeable mass.

"Gravel" means stone screened from river sand or quarried, with 100 percent passing a ¾-inch sieve, in accordance with the 1984 edition of the Iowa department of transportation specification No. 4120.02 for Class B gravel.

"Groundwater" means any water beneath the surface of the earth.

"Grout" means, for the purposes of this chapter, a fluid mixture of cement and water (neat cement); sand, cement and water (sand cement grout); or bentonite and water (bentonite grout or slurry) of a consistency that can be forced through a pipe and placed as required.

"Limestone" means sedimentary rock which contains greater than 50 percent calcium carbonate and has a strong reaction with hydrochloric acid (HCL).

"Neat cement" means a mixture of one sack (94 pounds) of Portland cement to not more than six gallons of water which is free from contaminants, turbidity or settleable solids. Bentonite up to 2 percent by weight of cement may be added to reduce shrinkage.

"Owner" means the titleholder of the land where an abandoned well is located.

"Pea gravel" means gravel sized from 1/8 inch to 3/8 inch in diameter.

"Plug" means the closure of an abandoned well with plugging materials by procedures which will permanently seal the well from contamination by surface drainage and permanently seal off the well from contamination into an aquifer. This involves the proper application of filling and sealing materials.

"Processed bentonite" means bentonite which has been kiln dried and processed into pellets for direct use in well sealing applications or into powder or coarse granules for use in bentonite grout for sealing.

"Rock" means stone screened from river sand or quarried, free of debris, foreign matter and any toxic or agricultural chemical residue, up to 2½ inches in diameter.

"Sand" means clean, medium-textured quartz (concrete sand) and shall be at least 25 percent with diameters between 2.0 and 0.25 mm, less than 35 percent with diameters between 0.25 and 0.05 mm and less than 5 percent with diameters between 0.002 and 0.05 mm.

"Sand cement grout" means a mixture of one sack (94 pounds) of Portland cement, an equal amount by volume of sand and not more than six gallons of water which is free from contaminants, turbidity and settleable solids.

"Sandpoint well" means a small diameter water well constructed by joining a screened drive point with lengths of pipe and driving the assembly into a shallow sand and gravel aquifer.

"Sealing" means the proper placement of sealing materials into an abandoned well to seal off flow into, out of or between aquifers.

"Sealing materials" means bentonite products. Sealing materials may also include neat cement, sand cement grout and concrete.

"Standby well" means a water well which is temporarily taken out of service with the expectation of being returned to service at a future date.

"Static water level" means the water level in a water well or aquifer when the well is not flowing or being pumped; sometimes referred to as the water line. The static water level for an abandoned well is determined just prior to commencing plugging operations.

"Tremie pipe" means a device, usually a small diameter pipe, that carries grouting materials to the bottom of the hole and which allows pressure grouting from the bottom up without introduction of air pockets.

"Unconfined aquifer" means an aquifer in which the static water level does not rise above the top of the aquifer, i.e., the pressure of the water in the aquifer is approximately equal to that of the atmosphere.

"Water well" means an excavation that is drilled, cored, bored, augered, washed, driven, dug, jetted or otherwise constructed for accessing groundwater.

567—39.4(455B) Forms. The following form is currently in use: Abandoned Water Well Plugging Record. 542-1226.

567—39.5(455B) Abandoned well plugging schedule.

39.5(1) Class 1 wells abandoned prior to April 25, 1990, must be properly plugged by July 1, 1995.

39.5(2) Class 2 and 3 wells abandoned prior to April 25, 1990, must be properly plugged by July 1, 2000.

39.5(3) Wells near contamination sources. All classes of wells abandoned prior to April 25, 1990, and located less than 200 feet from an active well supplying potable water or located less than 660 feet from a point source of potential contamination which may include, but is not limited to, industrial waste sites; uncontrolled hazardous waste sites; petroleum storage areas; hazardous waste treatment, storage, or disposal areas; agricultural chemical storage areas; animal feedlots; and wastewater treatment facilities must be properly plugged by July 1, 1993.

39.5(4) Wells abandoned after April 25, 1990. All classes of wells which are abandoned on or after April 25, 1990, must be properly plugged within 90 days of the date of abandonment.

567—39.6(455B) Abandoned well owner responsibilities.

39.6(1) *Plugging requirements.* The owner is responsible for ensuring the abandoned well is plugged pursuant to this chapter.

39.6(2) *Record.* It is the responsibility of the owner to certify, on DNR Form 542-1226 "Abandoned Water Well Plugging Record," that an abandoned well has been plugged in accordance with the requirements and time schedule contained in this chapter. This report must include confirmation of the well plugging by the designated agent for the county or a certified well contractor. Within 30 calendar days of the date the plugging was completed, the owner shall submit to the department a copy of DNR Form 542-1226.

567—39.7(455B) Abandoned well plugging materials.

39.7(1) *Sealing materials.* Approved sealing materials are bentonite products (graded bentonite, bentonite pellets and bentonite grout), neat cement, sand cement grout and concrete.

39.7(2) *Filling materials.* Approved filling materials include agricultural lime, soil, sand, pea gravel, gravel and crushed stone. The filling materials shall be free of debris, foreign matter and any toxic or agricultural chemical residue. Filling materials are not required for well plugging.

567—39.8(455B) Abandoned well plugging procedures.

39.8(1) *Freedom from obstructions.* Abandoned wells must be checked before they are plugged in order to ensure there are no obstructions that may interfere with plugging operations. Drop pipes, check valves, pumps, and other obstructions shall be removed if practical.

39.8(2) *Class 1 wells.* These wells may be plugged by pouring filling and sealing materials from the top of the well or by using tremie pipes, except for sand cement grout or concrete placed below the static water level, which must be placed by tremie pipe or dump bailer.

Filling materials of sand, gravel, crushed stone, rock, pea gravel or agricultural lime shall be placed up to 1 foot below the static water level; soils are not permitted below the static water level due to naturally occurring bacteriological, organic and inorganic contaminants. A minimum of 1 foot of bentonite pellets, graded bentonite or neat cement shall be placed on top of the filling material up to the static water level as a seal. Sand cement grout or concrete applied with a tremie pipe or dump bailer also may be used on top of the filling material up to the static water level and in standing water above the static water level to act as a seal. Filling material may then be added up to 4 feet below the ground surface.

It is preferable that the filling materials be omitted and that sealing materials be used to fill the entire well up to 4 feet below the ground surface. Sand cement grout or concrete shall be placed with a tremie pipe or dump bailer when used below the static water level.

The casing pipe and any curbing, frost pipe or pump house structure shall be removed to a depth of 4 feet below the ground surface and shall be capped by a minimum of 1 foot of bentonite pellets, graded bentonite, neat cement, sand cement grout or concrete. The cap shall extend 6 or more inches beyond the outside diameter of the top of the remaining well casing and shall terminate 3 feet below the ground surface. The remaining 3 feet (below the ground surface) shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

39.8(3) *Class 2 wells other than bedrock wells.* If the details of well construction are unknown or obstructions that may interfere with well plugging cannot be removed, the well shall be tremied full of neat cement or bentonite grout up to 4 feet below the ground surface. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout or concrete terminating 4 feet below the ground surface.

Filling material consisting of sand, gravel, crushed stone, pea gravel or agricultural lime shall be placed in the bottom of the well up to 4 feet below the static water level. A minimum of 4 feet of sealing materials consisting of any bentonite products or neat cement shall be added above the filling material up to the original static water level. If bentonite grout or neat cement is used, it shall be placed by tremie pipe. If graded bentonite or bentonite pellets are used, they may be added by pouring in place and agitating to avoid bridging. Sealing materials shall be added above the static water level up to 4 feet below the ground surface. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout or concrete terminating 4 feet below the ground surface.

It is preferable that the filling materials be omitted and that sealing materials be used to fill the entire well up to 4 feet below the ground surface.

Casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of 4 feet below the ground surface. The remaining 4 feet shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

39.8(4) *Class 2 bedrock wells.* If the details of well construction are unknown or obstructions that may interfere with well plugging cannot be removed, the well shall be tremied full of neat cement or bentonite grout up to 4 feet below the ground surface. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout or concrete terminating 4 feet below the ground surface.

The casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of 4 feet below the ground surface. The remaining 4 feet shall then be backfilled with soil and the surface shall then be graded to divert water away from the abandoned well location.

a. *Bedrock wells completed in a single confined aquifer.* Before proceeding to plug the well, a bridge plug or packer shall be placed at or below the bottom of the casing to stop the flow of water where the pressure in the confined aquifer causes the water to flow from the well to the surface. In such cases, filling materials shall be placed in the lower portion of the well before the bridge plug or packer is set.

Filling material consisting of pea gravel, crushed stone, gravel or agricultural lime shall be placed from the bottom of the well up to 10 feet below the bottom of the casing or confining layer, whichever is lower. Sealing materials consisting of any bentonite products, sand cement grout or neat cement shall be placed from the top of the filling material to at least 10 feet above the bottom of the casing or confining layer or to the static water level, whichever is higher. If bentonite grout, neat cement or sand cement grout is used, it shall be placed by tremie pipe. If graded bentonite or bentonite pellets are used, they shall be added by pouring in place and agitating to avoid bridging. The casing shall then be filled up to 4 feet below the ground surface with sealing materials. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout or concrete terminating 4 feet below the ground surface.

It is preferable that the filling materials be omitted and that approved sealing materials be used to fill the entire well up to 4 feet below the ground surface.

The casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of 4 feet below the ground surface. The remaining 4 feet shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

b. *Bedrock wells completed in a single unconfined aquifer.* The plugging procedure for these wells is the same as for bedrock wells completed in a single confined aquifer except that a bridge plug or packer is not required to stop the flow of water since this problem will not exist in this type of well.

c. *Bedrock wells completed in multiple aquifers.* For the lowest aquifer, filling material consisting of pea gravel, crushed stone, gravel or agricultural lime shall be placed from the bottom of the well up to 10 feet below the bottom of the casing or confining layer, whichever is lower. Neat cement tremied in place shall then be placed as a sealing material on top of the fill and extend upward at least 20 feet. Sealing materials shall then be placed in at least the top 10 feet of each subsequent aquifer and extend at least 10 feet into the confining layer or casing above. The same type of filling materials and sealing procedures shall apply for each subsequent aquifer. Filling material may be placed from the top of the uppermost aquifer seal up to the static water level of the well. The casing shall then be filled with approved sealing or filling materials to 4 feet below the ground surface. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout, or concrete terminating 4 feet below the ground surface.

It is preferable that the filling materials be omitted and approved sealing materials be used to fill the entire well up to 4 feet below the ground surface. Sand cement grout or concrete shall be applied with a tremie pipe or dump bailer when applied below the static water level.

The casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of 4 feet below the ground surface. The remaining 4 feet shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

39.8(5) *Class 3 wells.* The preferred method of plugging a sandpoint well is to pull the casing and sandpoint out of the ground, allowing the hole to collapse and fill. If the sandpoint and casing cannot be extracted, they shall be tremied full of neat cement or completely sealed with bentonite products.

The casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of 4 feet below the ground surface. The remaining 4 feet shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

567—39.9(455B) Designated agent. A county's board of supervisors shall appoint an individual to be responsible to review and confirm an abandoned well to be properly plugged as required by 567—39.8(455B) and authorized by Iowa Code section 455B.190. The designation is effective upon notification to the department by the chairperson of the board of supervisors. This notification will include the identity of the designated agent and the length of appointment. Changes in a designated agent will require new notification by the chairperson to the department.

567—39.10(455B) Designation of standby wells.

39.10(1) *Standby wells.* A standby well must be disinfected prior to being taken out of use for a long period of time and must be disinfected and, as a minimum, checked for bacteria and nitrates when placed

back in service. Disinfection of standby wells shall be done in accordance with AWWA (American Water Works Association) Standard A100. The well must not be subject to contamination by surface drainage or from other causes, and the well casing must be provided with an airtight cover when the well is not in use. A well must be repaired so that there is no degradation of groundwater and it is suitable for use prior to being classified as a standby well.

39.10(2) *Caveat.* Nothing in these rules shall be construed as exempting public water supply wells from requirements set forth in the environmental protection commission rules, 567—Iowa Administrative Code.

567—39.11(455B) Variances. In accordance with Iowa Code section 455B.181, a variance to these rules may be granted by the department provided sufficient information is submitted in writing to the department to substantiate the need for a variance and to ensure the protection of all aquifers penetrated by the affected well. When satisfactory justification has been submitted to the director demonstrating that a variance to these rules will result in equivalent effectiveness or improved effectiveness, a variance to these rules may be granted by the director. A denial of a variance may be appealed to the environmental protection commission pursuant to 567—Chapter 7.

These rules are intended to implement Iowa Code sections 455B.171 and 455B.190.

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[2] Effective date of 39.8(3), second paragraph, first sentence, and 39.8(4)*"a,"* second paragraph, first sentence, delayed 70 days from 4/25/90 by the Administrative Rules Review Committee at its 4/12/90 meeting.

DIVISION B
DRINKING WATER

CHAPTER 40
SCOPE OF DIVISION—DEFINITIONS—FORMS—RULES OF PRACTICE

[Prior to 12/3/86, Water, Air and Waste Management [900]]

567—40.1(455B) Scope of division. The department conducts the public water supply program and establishes minimum standards for the construction of private water supply systems. The public water supply program includes the following: the establishment of drinking water standards, including maximum contaminant levels, treatment techniques, maximum residual disinfectant levels, action levels, monitoring, viability assessment, consumer confidence reporting, public notice requirements, public water supply system operator certification standards, environmental drinking water laboratory certification program, and a state revolving loan program consistent with the federal Safe Drinking Water Act, and the establishment of construction standards. The construction, modification and operation of any public water supply system requires a specific permit from the department. Certain construction permits are issued upon certification by a licensed professional engineer that a project meets standards, and, in certain instances, permits are issued by local authorities pursuant to 567—Chapter 9. Private water supplies are regulated by local boards of health.

Chapter 38 contains requirements for private water well construction permits, including test wells and monitoring wells.

Chapter 39 contains requirements for the proper closure or abandonment of wells.

Chapter 40 includes rules of practice, including designation of forms, applicable to the public in the department's administration of the subject matter of this division.

Chapter 41 contains the drinking water standards and specific monitoring requirements for the public water supply program.

Chapter 42 contains the public notification, public education, consumer confidence reporting, and record-keeping requirements for the public water supply program.

Chapter 43 contains specific design, construction, fee, operating, and operation permit requirements for the public water supply program.

Chapter 44 contains the drinking water state revolving fund program for the public water supply program.

Chapter 49 contains the nonpublic water supply well requirements.

Chapters 50 to 52 contain the provisions for water withdrawal and allocation.

Chapter 55 contains the provisions for public water supply aquifer storage and recovery.

Chapter 81 contains the provisions for the certification of public water supply system operators.

Chapter 82 contains the provisions for the certification of water well contractors.

Chapter 83 contains the provisions for the certification of laboratories to provide environmental testing of drinking water supplies.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—40.2(455B) Definitions.

"Act" means the Safe Drinking Water Act as amended (42 U.S.C. 300f et seq.).

"Action level" is the concentration of lead or copper in water which determines, in some cases, the treatment requirements that a water system is required to complete.

"Acute health effect" means the health effect of a contaminant which is an immediate rather than a long-term risk to health.

"Animal confinement" means a lot, yard, corral, or similar structure in which the concentration of livestock or poultry is such that a vegetative cover is not maintained.

"Animal pasturage" means a fenced area where vegetative cover is maintained and in which animals are enclosed.

"Animal waste" means animal wastes consisting of excreta, leachings, feed losses, litter, washwaters or other associated wastes.

"Animal waste stockpiles" means the stacking, composting or containment of animal wastes.

"Animal waste storage basin or lagoon" means a fully or partially excavated or diked earthen structure used for containing animal waste, including earthen sideslopes or floor.

"Animal waste storage tank" means a completely fabricated structure, with or without a cover, either formed in place or transported to the site, used for containing animal wastes.

"Antisiphon device" means a device which will prevent back siphonage by means of a relief valve which automatically opens to the atmosphere, preventing the creation of subatmospheric pressure within a pipe, thereby preventing water from reversing its flow.

"Authority" means the Iowa finance authority (IFA) as established by Iowa Code chapter 16.

"Backflow" means the flow of water or other liquids, mixtures, or substances into the distribution system of a potable water supply from any source other than its permitted source.

"Backflow preventer" is a device or means to prevent backflow into a potable water system.

"Back siphon" means the flowing back of used, contaminated, or polluted water, from a plumbing fixture or vessel as a result of negative or subatmospheric pressure within the distribution system.

"Bag filters" means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed of a non-rigid, fabric filtration media housed in a pressure vessel in which the direction of flow is from the inside of the bag to the outside.

"Bank filtration" means a water treatment process that uses a well to recover surface water that has naturally infiltrated into groundwater through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

"Best available technology" or *"BAT"* means the best technology, treatment techniques, or other means which the state finds, after examination, for efficacy under field conditions and not solely under laboratory conditions, are available (taking cost into consideration).

"Cartridge filters" means pressure-driven separation devices that remove particulate matter larger than 1 micrometer using an engineered porous filtration media. They are typically constructed as rigid or semi-rigid, self-supporting filter elements housed in pressure vessels in which flow is from the outside of the cartridge to the inside.

"Cistern" means a tank in which rainwater from roof drains is stored.

"Clean compliance history" means, for the purposes of 567—paragraph 41.2(1)*"e"*(4)"2," a record of no monitoring violations and no coliform treatment technique trigger exceedances or treatment technique violations under 567—subrule 41.2(1).

"Coagulation" means a process using coagulation chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

"Combined distribution system (CDS)" means the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

"Commission" means the environmental protection commission of the state of Iowa.

"Community water system (CWS)" means a public water supply system which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Compliance cycle" means the nine-year (calendar year) cycle during which public water systems must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar year cycle begins January 1, 1993, and ends December 31, 2001; the second begins January 1, 2002, and ends December 31, 2010; the third begins January 1, 2011, and ends December 31, 2019, and continues every nine years thereafter.

"Compliance period" means a three-year (calendar year) period within a compliance cycle. Each compliance cycle has three three-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993, to December 31, 1995; the second from January 1, 1996, to December 31, 1998; the third from January 1, 1999, to December 31, 2001, and continues every three years thereafter.

"Composite correction program (CCP)" is a systematic, comprehensive procedure that identifies and corrects the unique combination of factors, in the areas of design, operation, maintenance, and administration, that limit the performance of a filtration plant. The CCP is comprised of two elements:

comprehensive performance evaluation, which is the evaluation phase, and comprehensive technical assistance, which is the performance improvement phase.

"Comprehensive performance evaluation (CPE)" is a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation and maintenance practices. The CPE is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. For purposes of compliance with surface water or influenced groundwater treatment plant requirements pursuant to 567—Chapters 41, 42, and 43, the comprehensive performance evaluation must consist of at least the following components: assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report.

"Comprehensive technical assistance (CTA)" is the performance improvement phase of the composite correction plan that is implemented if the comprehensive performance evaluation results indicate improved performance potential by a filtration plant, in which the system must identify and systematically address plant-specific factors.

"Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

"Consecutive public water supply" means an active public water supply which purchases or obtains all or a portion of its water from another, separate public water supply, also called a wholesale system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

"Conservation easements" means an interest in land that entitles a person to use the land possessed by another (affirmative easement), or to restrict uses of the land subject to the easement (negative easement). A conservation easement restricts the landowner to uses that are compatible with resource conservation.

"Contaminant" means any physical, chemical, biological, or radiological substance or matter in water.

"Contiguous" means directly adjacent or touching along all or most of one side of a legally defined piece of property. Tracts of land involved in the same operation or water supply and separated only by roads, railroads, or bike trails are deemed contiguous tracts.

"Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

"Corrosion inhibitor" means a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

"Corrosive water" means a water which due to its physical and chemical characteristics may cause leaching or dissolving of the constituents of the transporting system in which it is contained.

"Cross connection" means any actual or potential connection between a potable water supply and any other source or system through which it is possible to introduce into the potable system any used water, industrial fluid, gas, or other substance other than the intended potable water with which the system is supplied.

"Customers" in consumer confidence reports are defined as billing units or service connections to which water is delivered by a community water system.

"Deep well" means a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Department" means the Iowa department of natural resources, which has jurisdiction over all nontribal public water systems in Iowa.

"Diatomaceous earth filtration" means a process resulting in substantial particulate removal in which (1) a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and (2) while the water is filtered by passing through the cake on the septum, additional filter

media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.

"Direct filtration" means a series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal.

"Director" means the director of the Iowa department of natural resources or a designee.

"Disinfectant" means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment process or distribution process, that is intended to kill or inactivate pathogenic microorganisms.

"Disinfection" means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

"Disinfection profile" is a summary of *Giardia lamblia* inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in 567—paragraph 43.9(2)*"b"*and 567—subrule 43.10(2).

"Dose equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

"Drinking water state revolving fund" or *"DWSRF"* means the department-administered fund intended to develop drinking water revolving loans to help finance drinking water infrastructure improvements, source water protection, system technical assistance, and other activities intended to encourage and facilitate public water supply system rule compliance and public health protection established by Iowa Code sections 455B.291 to 455B.299.

"DWSRF funds" means the combination of a particular fiscal year's federal capitalization grant appropriation plus the 20 percent state of Iowa match and any additional funds made available through the program.

"Effective corrosion inhibitor residual" means a concentration of corrosion inhibitor sufficient to form a passivating film on the interior walls of a pipe.

"Eligible cost" means the cost of all labor, material, machinery, equipment, loan initiation and loan service fees, project planning, design and construction engineering services, legal fees and expenses directly related to the project, capitalized interest during construction of the project, and all other expansion, construction, and rehabilitation of all or part of a project included in the funding request placed on the draft intended use plan as a fundable project, subject to approval by the commission.

"Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

"Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening.

"Federal cross-cutters" means the federal laws and authorities that apply to projects funded through the DWSRF.

"Filter profile" is a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed.

"Filtration" means a process for removing particulate matter from water by passage through a porous media.

"Finished water" means water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as treatment necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion chemicals).

"First draw sample" means a one-liter sample of tap water, collected in accordance with 567—paragraph 41.4(1)*"c"* that has been standing in plumbing pipes at least six hours and is collected without flushing the tap.

"Fiscal year" means the federal fiscal year starting October 1 and ending September 30.

"Flocculation" means a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means.

"Flowing stream" means a course of running water flowing in a definite channel.

"GAC10" means granular activated carbon filter beds with an empty-bed contact time of ten minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 is 120 days when used as a best available technology for compliance with the maximum contaminant level locational running annual average for total trihalomethanes and haloacetic acids.

"GAC20" means granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

"Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample.

"Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample.

"Haloacetic acids (HAA5)" means the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition.

"Halogen" means one of the chemical elements chlorine, bromine or iodine.

"Health advisory (HA)" means a group of levels set by EPA below which no harmful health effect is expected from a given contaminant in drinking water. The HAs used by the department are listed in the most current edition of the EPA "Drinking Water Regulations and Health Advisories" bulletin. The lifetime HA is the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects over a lifetime of exposure, with a margin of safety. The long-term HA is the concentration of a chemical in drinking water that is not expected to cause any adverse noncarcinogenic effects up to approximately seven years (10 percent of an individual's lifetime of exposure), with a margin of safety.

"Human consumption" means water used as part of or in connection with drinking; washing; food processing or incidental to commercial food preparation, such as: water used in beverages or other food items; ice used in drinks or in salad bars; water for washing of vegetables or other food items; water used for washing dishes; pans or utensils used in food preparation or service; water used for cleanup and washing of food preparation or service areas; water for bathing, showering, hand washing, or oral hygiene purposes. Human consumption does not include: water for production of packaged or bulk food products regulated by other state or federal regulatory agencies, such as livestock slaughtering or bottled or canned food and beverages; cooling water; industrial or commercial wash waters used for nonfood products; irrigation water; water used in toilets or urinals.

"Impoundment" means a reservoir, pond, or lake in which surface water is retained for a period of time, ranging from several months upward, created by constructing a barrier across a watercourse and used for storage, regulation or control of water.

"Influenced groundwater (IGW)" means any groundwater which is under the direct or indirect influence of surface water, as determined by the presence of (1) significant occurrence of insects or other macroorganisms, algae or large-diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*; or (2) significant and relatively rapid shifts in water characteristics such as turbidity (particulate content), temperature, conductivity, or pH which correlate to climatological or surface water conditions, or other parameters as specified in 567—43.5(455B).

"Initial compliance period" means the first full three-year compliance period of a compliance cycle.

"Intended use plan (IUP)" means a plan identifying the intended uses of funds available for loans in the DWSRF for each fiscal year as described in Section 1452 of the Safe Drinking Water Act.

"Lake or reservoir" means a natural or man-made basin or hollow on the Earth's surface in which water collects or is stored that may or may not have a current or single direction of flow.

"Large water system" means a water system that serves more than 50,000 persons.

"Lead free," when used with respect to solder and flux, refers to solders and flux containing not more than 0.2 percent lead; when used with respect to pipes and pipe fittings, refers to pipes and pipe fittings

containing not more than 8.0 percent lead; and, when used with respect to plumbing fittings and fixtures intended by the manufacturer to dispense water for human ingestion, refers to fittings and fixtures that are in compliance with standards established in accordance with 42 U.S.C. 300-g-6(e).

"Lead service line" means a service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting which is connected to such lead line. A lead gooseneck is not considered a lead service line unless it exceeds 10 feet.

"Legionella" means a genus of bacteria, some species of which have caused a type of pneumonia called legionnaires' disease.

"Level 1 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform bacteria monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 1 assessment is conducted by the system operator or owner. Minimum elements of the assessment include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system owner or operator must conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

"Level 2 assessment" means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform bacteria monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. A Level 2 assessment is conducted by a department water supply inspector and will typically include the system operator. Minimum elements of the assessment include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a groundwater system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The department may tailor specific assessment elements with respect to the size and type of the system and the size, type and characteristics of the distribution system. The system must comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

"Locational running annual average (LRAA)" means the average of the analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

"Maintenance" means the replacement of equipment or materials that are necessary to maintain the operation of the public water supply system but do not alter capacity, water quality or treatment method or effectiveness.

"Man-made beta particle and photon emitters" means all radionuclides emitting beta particles or photons or both listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, NBS Handbook 69, except the daughter products of thorium-232, uranium-235 and uranium-238.

"Maximum contaminant level" means the maximum permissible level of a contaminant in water which is delivered to any user of a public water system.

"Maximum contaminant level goal (MCLG)" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MCLGs are nonenforceable health goals.

"Maximum residual disinfectant level (MRDL)" means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects.

"Maximum residual disinfectant level goal (MRDLG)" means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

"Medium-size water system" means a water system that serves greater than 3,300 and less than or equal to 50,000 persons.

"Membrane filtration" means a pressure- or vacuum-driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

"Nonacute health effect" means the health effect of a contaminant which is a long-term rather than immediate risk to health.

"Noncommunity water system" means a public water system that is not a community water system. A noncommunity water system is either a "transient noncommunity water system (TNC)" or a "nontransient noncommunity water system (NTNC)."

"Nontransient noncommunity water system" or *"NTNC"* means a public water system other than a community water system which regularly serves at least 25 of the same persons four hours or more per day, for four or more days per week, for 26 or more weeks per year. Examples of NTNCs are schools, day-care centers, factories, offices and other public water systems which provide water to a fixed population of 25 or more people. In addition, other service areas, such as hotels, resorts, hospitals and restaurants, are considered as NTNCs if they regularly serve at least 25 or more of the same persons for four or more hours per day, for four or more days per week, for 26 or more weeks of the year.

"Optimal corrosion control treatment" means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while ensuring that the treatment does not cause the water system to violate any drinking water standards (567—Chapters 40 to 43).

"Performance evaluation sample" means a reference sample provided to a laboratory for the purpose of demonstrating that a laboratory can successfully analyze the sample within limits of performance specified by the department. The true value of the concentration of the reference material is unknown to the laboratory at the time of analysis.

"Picocurie (pCi)" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

"Plant intake" means the works or structures at the head of a conduit through which water is diverted from a surface water source (e.g., river, reservoir, or lake) into the treatment plant.

"Point of disinfectant application" is the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff.

"Point-of-entry treatment device (POE)" is a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building.

"Point-of-use treatment device (POU)" is a treatment device applied to a single tap or multiple taps used for the purpose of reducing contaminants in drinking water at those taps, but is not intended to treat all of the water in the facility.

"Population served" means the total number of persons served by a public water supply that provides water intended for human consumption. For municipalities which serve only the population within their incorporated boundaries, it is the last official U.S. census population (or officially amended census population). For all other community public water supply systems, it is either the actual population counted which is verifiable by the department, or population as calculated by multiplying the number of service connections by an occupancy factor of 2.5 persons per service connection. For municipalities which also serve outside their incorporated boundaries, the served population must be

added to the official census population determined either by verifiable count or by the 2.5 persons per service connection occupancy factor. For nontransient noncommunity (NTNC) and transient noncommunity (TNC) systems, it is the average number of daily employees plus the average number of other persons served such as customers or visitors during the peak month of the year regardless if each person actually uses the water for human consumption. Where a system provides water to another public water supply system (consecutive public water supply system) which is required to have an operation permit, the population of the recipient water supply shall not be counted as a part of the water system providing the water. Community and nontransient noncommunity public water supply systems will pay their operation permit fees based upon the population served.

"Presedimentation" means a preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

"Privy" means a structure used for the deposition of human body wastes.

"Project" includes the planning, design, construction, alteration or extension of any public water supply system but does not include the maintenance of a system.

"Project priority list" means the list of projects in priority order that may qualify for DWSRF loan assistance contained in the IUP document prepared pursuant to rule 567—44.8(455B). The priority list shall identify all projects eligible for funding and the points assigned to each project pursuant to 567—subrule 44.7(7).

"Public water supply system control" is defined as one of the following forms of authority over a service line: authority to set standards for construction, repair, or maintenance of the service line; authority to replace, repair, or maintain the service line; or ownership of the line. Contaminants added to the water under circumstances controlled by the water consumer or user, with the exception of those contaminants resulting from the corrosion of piping and plumbing caused by water quality, are excluded from this definition of control.

"Public water supply system (PWS)" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any "special irrigation district." A public water system is either a "community water system" or a "noncommunity water system."

"Regional water system" means a public water supply system in which the projected number of service connections in at least 50 percent of the length of the distribution system does not average more than eight service connections per linear mile of water main.

"Rem" means the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A "millirem" (mrem) is 1/1000 of a rem.

"Repeat compliance period" means any subsequent compliance period after the initial compliance period.

"Residual disinfectant concentration" ("C" in CT calculations) means the concentration of disinfectant measured in mg/l in a representative sample of water.

"Sanitary defect" means a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

"Sanitary sewer pipe" means a sewer complying with the department's standards for sewer construction.

"Sanitary survey" means a review and on-site inspection conducted by the department of the water source, facilities, equipment, operation and maintenance and records of a public water supply system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water and identifying improvements necessary to maintain or improve drinking water quality, pursuant to 567—subrule 43.1(7).

"SDWA" means the Safe Drinking Water Act.

"Seasonal system" means a noncommunity water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

"Sedimentation" means a water treatment process for removal of solid particles from a suspension before filtration by gravity or separation.

"Septic tank" means a watertight tank which receives sewage.

"Service connections" means the total number of active and inactive service lines originating from a water distribution main for the purpose of delivering water intended for human consumption. For municipalities, rural water districts, mobile home parks, housing developments, and similar facilities, this includes, but is not limited to, occupied and unoccupied residences and buildings, provided that there is a service line connected to the water main (or another service line), and running onto the property. For rental properties which are separate public water supply systems, this includes, but is not limited to, the number of rental units such as apartments. Connections to a system that delivers water by a constructed conveyance other than a pipe are excluded from the definition, if:

1. The water is used exclusively for purposes other than human consumption;
2. The department determines that alternative water to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulation is provided for human consumption; or
3. The department determines that the water provided for human consumption is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.

"Service line sample" means a one-liter sample of water, collected in accordance with 567—paragraph 41.4(1)*"c"* for the purpose of determining the concentration of lead and copper which has been standing for at least six hours in a service line.

"Shallow well" means a well located and constructed in such a manner that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Significant deficiency" includes a defect in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the department determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

"Significant noncompliance" means the failure to comply with any national primary drinking water standard as adopted by the state of Iowa according to criteria established by the administrator of the federal Environmental Protection Agency.

"Single-family structure" means a building constructed as a single-family residence that is currently used as either a residence or a place of business.

"Slow sand filtration" means a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 m/h (0.02 ft/min)) resulting in substantial particulate removal by physical and biological mechanisms.

"Small water system" means a water system that serves 3,300 persons or fewer.

"Special irrigation district" means an irrigation district in existence prior to May 18, 1994, that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system comply with numbered paragraphs "2" and "3" in the definition of "service connections."

"Standard methods" means "Standard Methods for the Examination of Water and Wastewater," American Public Health Association, 1015 15th Street N.W., Washington, DC 20005.

"Standard sample" means the aliquot of finished drinking water that is examined for the presence of coliform bacteria.

"Standard specifications" means specifications submitted to the department for use as a reference in reviewing future plans for proposed water main construction.

"Supplier of water" means any person who owns or operates a public water supply system.

"Surface water" means all water which is open to the atmosphere and subject to surface runoff.

"SUVA" means Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (in m^{-1}) by its concentration of dissolved organic carbon (in mg/L).

"Ten States Standards" means the "Recommended Standards for Water Works," 2012 edition as adopted by the Great Lakes—Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.

"Too numerous to count" means that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

"Total organic carbon (TOC)" means total organic carbon in milligrams per liter, measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

"Total trihalomethanes (TTHM)" means the sum of the concentration in milligrams per liter of the trihalomethane compounds trichloromethane (chloroform), dibromochloromethane, bromodichloromethane and tribromomethane (bromoform), rounded to two significant figures.

"Transient noncommunity water system (TNC)" means a noncommunity water system that does not regularly serve at least 25 of the same persons over six months per calendar year.

"Treatment technique (TT)" means a treatment process required to minimize the level of a contaminant in drinking water. A treatment technique is specified in cases where it is not technically or economically feasible to establish an MCL, and it is an enforceable procedure or level of technological performance which public water systems must follow to ensure control of a contaminant.

"Trihalomethane (THM)" means one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

"Two-stage lime softening" means a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.

"Uncovered finished water storage facility" means a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere. Such facilities are prohibited.

"Unregulated contaminant" means a contaminant for which no MCL has been set, but which does have federal monitoring requirements for certain public water systems set forth in CFR Title 40, Part 141.40, and additional reporting requirements in rule 567—42.3(455B).

"Viability" means the technical, financial, and managerial ability to comply with applicable national primary drinking water standards as adopted by the state of Iowa. Viability is the ability of a system to remain in compliance insofar as the requirements of the SDWA.

"Virus" means a virus of fecal origin which is infectious to humans by waterborne transmission.

"Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the Iowa department of public health.

"Water distribution system" means that portion of the water supply system in which water is conveyed from the water treatment plant or other supply point to the premises of the consumer, including any storage facilities and pumping stations.

"Water main pipe" means a water main complying with the department's standards for water main construction.

"Wholesale system" means a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—40.3(17A,455B) Forms. The following forms are used by the public to apply for department approvals and to report on activities related to the public water supply program of the department. All

forms may be obtained from the department's website at www.iowadnr.gov (water supply pages) or from the Environmental Services Division, Administrative Support Station, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319-0034. Properly completed application forms shall be submitted to the Water Supply Section, Environmental Services Division. Water supply system monthly and other operation reporting forms shall be submitted to the appropriate field office (see 567—subrule 42.4(3)). Properly completed laboratory forms (reference 567—Chapter 83) shall be submitted to the State Hygienic Laboratory or as otherwise designated by the department.

40.3(1) *Construction permit application forms.* Schedules "1a" through "16d" are required.

Schedule No.	Name of Form	Form Number
"1a"	General Information	542-3178
"lb"	Minor Water Main Construction Permit	542-3151
"lc"	Fee Schedule	542-3179
"2a"	Water Mains, General	542-3030
"2b"	Water Mains, Specifications	542-3031
"2c"	Notification of Minor Water Main Construction	542-3152
"3a"	Water System, Preliminary Data	542-3032
"3b"	Water Quality Data	542-3029
"3c"	Surface Water Quality Data	542-3028
"4"	Site Selection	542-3078
"5a"	Well Construction	542-1005
"5b"	Well Appurtenances	542-3026
"5c"	Well Profile	542-1006
"5d"	Surface Water Supply	542-3139
"6a"	Distribution Water Storage Facilities	542-3140
"7"	Schematic Flow Diagram	542-3142
"8"	Aeration	542-3143
"9"	Clarification/Sedimentation	542-3144
"10"	Suspended Solids Contact	542-3145
"11"	Cation Exchange Softening	542-3146
"12"	Filters	542-3147
"13a"	Chemical Addition	542-3241
"13b"	Dry Chemical Addition	542-3130
"13c"	Gas Chlorination	542-3131
"13d"	Fluoridation	542-3132
"13e"	Sampling and Tests	542-3133
"14"	Pumping Station	542-3134
"15"	Process Water Storage Facilities	542-3135
"16a"	Wastewater, General	542-3136
"16b"	Waste Treatment Ponds	542-3137
"16c"	Filtration and Mechanical	542-3138
"16d"	Discharge to Sewer	542-3103

40.3(2) *Operation permit application forms.*

a. Form 13-2 — application for a new water supply 542-1300

b. Form 13-3 — renewal application for an existing water supply 542-1301

40.3(3) *Water supply reporting forms.* The monthly water supply operation report forms are available from the department's water supply operations section website. The laboratory analyses for compliance samples are reported via electronic means directly to the department by each certified laboratory.

40.3(4) *Laboratory certification application forms.* Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—40.4(17A,455B) Public water supply construction permit application procedures.

40.4(1) *General procedures.* Applications for written approval from the department for any new construction or for reconstruction pursuant to 567—Chapter 43 shall consist of complete plans and specifications, application fee, and appropriate water supply construction permit application schedules. Upon review, the department will issue a construction permit for approval of a project if the review shows that the project meets all departmental design standards in accordance with 567—Chapter 43. Approval of a project which does not meet all department design standards will be denied unless a variance as provided by 567—paragraph 43.3(2)*"b"* is granted. A variance may be requested at the time plans and specifications are submitted or after the design discrepancy is pointed out to the applicant.

The department may review submitted project plans and specifications and provide comments and recommendations to the applicant. Departmental comments and recommendations are advisory, except when departmental review determines that a facility does not comply with the plans or specifications as approved by the department or comply with the design standards pursuant to the criteria for certification of project design. The owner of the system must correct the deficiency in a timely manner as set forth by the department.

40.4(2) *Public water sources and below-ground level water storage facilities—site survey.* For public water sources and for below-ground level finished water storage facilities, a site survey and approval must be made by the department. The manner and procedures for applying for and processing a site survey are the same as in 40.4(1) except that the following information must be submitted by the applicant's engineer.

a. A preliminary engineering report or a cover letter which contains a brief description of the proposed source or storage facility and assurance that the project is in conformance with the long-range planning of the area.

b. Completed Schedule 1a — General Information

c. Completed Schedule 4 — Water Supply Facility Site Selection

d. A detailed map showing all potential sources of contamination (see 567—Chapter 43, Table A) within:

(1) 1,000 feet of a proposed well location. The scale shall not be smaller than 1 inch = 200 feet.

(2) 200 feet of a proposed below-ground level finished water storage facility.

(3) 2,500 feet from a proposed surface water source and a plat showing all facilities more than 2,500 feet from an impoundment (within the drainage area) that may be potential sources of contamination. The scale shall not be smaller than 1 inch = 660 feet.

(4) Six miles upstream of a proposed river intake.

40.4(3) *Modifications of an approved water supply construction project.* Persons seeking to make modifications to a water supply construction project after receiving a prior construction permit from the department shall submit an addendum to plans and specifications, a change order or revised plans and specifications at least 30 days prior to planned construction, and the appropriate fee. The department shall review the submitted material within 30 days of submission and shall issue a supplemental permit if the proposed modifications meet departmental standards.

40.4(4) *Certification of project design.* A permit shall be issued for the construction, installation or modification of a public water supply system or part of a system or for a water supply distribution system extension if a qualified, licensed professional engineer certifies that the plans and specifications comply with federal and state laws and regulations or that a variance to standards has been granted by the department. Refer to Schedule 1a.

567—40.5(17A,455B) Public water supply operation permit application procedures. A person requesting a water supply operation permit pursuant to 567—43.2(455B) must complete the appropriate application form, which will be provided by the department. Upon receipt of a completed application, the department will review the application and, if approved, will prepare and issue a water supply operation permit or draft permit, as applicable, and transmit it to the applicant. An annual operation fee pursuant to 567—subrule 43.2(1) is due by September 1 of each year. A permit or renewal will be denied when the applicant does not meet one or more requirements for issuance or renewal of this permit. An operation permit may be denied for any of the following reasons: system failed to pay the operation fee; system is not viable; system is not in compliance with the applicable maximum contaminant levels, treatment techniques, or action levels; system is in significant noncompliance with the provisions of 567—Chapter 41, 42, or 43.

567—40.6(455B) Drinking water state revolving fund loan application procedures. A person requesting a drinking water state revolving fund loan pursuant to 567—44.7(455B) must complete the appropriate application form, which will be provided by the department. The department will review the application package pursuant to 567—44.9(455B). Eligible projects will be ranked according to priority, with the highest-ranked projects receiving funding priority.

567—40.7(455B) Viability assessment procedures. A person required to complete a viability assessment pursuant to 567—43.8(455B) must submit the appropriate information as outlined in 567—43.8(455B) to the department. Self-assessment worksheets which can be used to prepare the viability assessment are available from the Water Supply Section, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319-0034.

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

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◊ Two or more ARCs

1 Effective date of definitions "Population served" and "Service connections" and rule 40.5(17A,455B) delayed until adjournment of the 1995 General Assembly by the Administrative Rules Review Committee at its meeting held March 13, 1995.

CHAPTER 41
WATER SUPPLIES

[These rules transferred from Health Department, 1971 IDR (Title II, Chs 1 and 2)]
[Prior to 7/1/83, DEQ Ch 22]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—41.1(455B) Primary drinking water regulations—coverage. 567—Chapters 40 through 44 and 83 shall apply to each public water supply system, unless the public water supply system meets all of the following conditions:

1. Consists only of distribution and storage facilities (and does not have any collection and treatment facilities);
2. Obtains all of its water from, but is not owned or operated by, a public water supply system to which such regulations apply;
3. Does not sell water to any person; and
4. Is not a carrier which conveys passengers in interstate commerce.

567—41.2(455B) Biological maximum contaminant level (MCL), treatment technique (TT), and monitoring requirements.

41.2(1) *Coliform bacteria and E. coli.* The provisions of this subrule include both maximum contaminant level and treatment technique requirements. The provisions of this subrule apply to all public water systems. Failure to comply with the applicable requirements in this subrule is a violation of the national primary drinking water regulations.

a. Maximum contaminant level. A public water system must determine compliance with the MCL for *E. coli* for each month in which the system is required to monitor for total coliforms. A system is in compliance with the MCL for *E. coli* for samples taken under this subrule unless any of the following conditions occur. For purposes of the public notification requirements in 567—42.1(455B), violation of the MCL may pose an acute risk to health.

(1) *E. coli*-positive repeat sample. The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

(2) *E. coli*-positive routine sample. The system has a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

(3) Failure to collect all required repeat samples following *E. coli*-positive routine samples. The system fails to take all required repeat samples following an *E. coli*-positive routine sample.

(4) Failure to test for *E. coli* on any total coliform-positive repeat sample. The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

b. Analytical methodology.

(1) Sample volume. The standard sample volume required for analysis is 100 mL, regardless of the analytical method used.

(2) Presence/absence required. Only the presence or absence of total coliforms and *E. coli* is required to be determined in any compliance sample; a determination of density is acceptable but is not required.

(3) Holding time and temperature. The time from sample collection to initiation of test medium incubation may not exceed 30 hours. Systems are encouraged but not required to hold samples below 10° C during transit.

(4) Dechlorinating agent required for chlorinated water. If water having a residual chlorine (measured as free, combined, or total chlorine) is to be analyzed, sufficient sodium thiosulfate ($Na_2S_2O_3$) must be added to the sample bottle before sterilization to neutralize any residual chlorine in the water sample. Dechlorination procedures are addressed in Section 9060A.2 of Standard Methods for the Examination of Water and Wastewater (20th and 21st editions).

(5) Systems must conduct total coliform and *E. coli* analyses in accordance with one of the analytical methods in the following table.

Methodology Category	Method[1]	Citation[1]
Total Coliform Bacteria Methods:		
Lactose Fermentation Methods	Standard Total Coliform Fermentation Technique	Standard Methods 9221 B.1, B.2 (20th, 21st, and 22nd ed.)[2, 3] Standard Methods Online 9221 B.1, B.2-99, B-06[2, 3]
	Presence-Absence (P-A) Coliform Test	Standard Methods 9221 D.1, D.2 (20th and 21st ed.)[2, 7] Standard Methods Online 9221 D.1, D.2-99[2, 7]
Membrane Filtration Methods	Standard Total Coliform Membrane Filter Procedure	Standard Methods 9222 B, C (20th and 21st ed.)[2, 4] Standard Methods Online 9222 B-97[2, 4], 9222 C-97[2, 4]
	Membrane Filtration using MI Medium	EPA Method 1604[2]
	m-ColiBlue24 Test[2, 4]	
	Chromocult[2, 4]	
Enzyme Substrate Methods	Colilert	Standard Methods 9223 B (20th, 21st and 22nd ed.)[2, 5] Standard Methods Online 9223 B-97, B-04[2, 5]
	Colilert-18	Standard Methods 9223 B (21st and 22nd ed.)[2, 5] Standard Methods Online 9223 B-04[2, 5]
	Colisure	Standard Methods 9223 B (20th, 21st and 22nd ed.)[2, 5, 6] Standard Methods Online 9223 B-97, B-04[2, 5, 6]
	E*Colite Test[2]	
	Readycult Test[2]	
	modified Colitag Test[2]	
	Tecta EC/TC Test[2]	
***Escherichia coli (E. coli)* Methods:**		
Escherichia coli Procedures (following Lactose Fermentation Methods)	EC-MUG Medium	Standard Methods 9221 F.1 (20th, 21st and 22nd ed.)[2] Standard Methods Online 9221 F-06[2]
Escherichia coli Partition Method	EC broth with MUG (EC-MUG)	Standard Methods 9222 G.1*c*(2) (20th and 21st ed.)[2, 8]
	NA-MUG Medium	Standard Methods 9222 G.1*c*(1) (20th and 21st ed.)[2]
Membrane Filtration Methods	Membrane Filtration using MI Medium	EPA Method 1604[2]
	m-ColiBlue24 Test[2, 4]	
	Chromocult[2, 4]	
Enzyme Substrate Methods	Colilert	Standard Methods 9223 B (20th, 21st and 22nd ed.)[2, 5] Standard Methods Online 9223 B-97, B-04[2, 5, 6]
	Colilert-18	Standard Methods 9223 B (21st and 22nd ed.)[2, 5] Standard Methods Online 9223 B-04[2, 5]
	Colisure	Standard Methods 9223 B (20th, 21st and 22nd ed.)[2, 5, 6] Standard Methods Online 9223 B-97, 04[2, 5, 6]
	E*Colite Test[2]	
	Readycult Test[2]	
	modified Colitag Test[2]	
	Tecta EC/TC Test[2]	

[1]The procedures must be done in accordance with the documents listed in 41.2(1)*"a"*(6). For Standard Methods, either the 20th (1998) or 21st (2005) edition may be used. For Standard Methods Online, the year in which each method was approved by the Standard Methods Committee is designated by the last two digits following the hyphen in the method number. The methods listed are the only

online versions that may be used. For vendor methods, the date of the method listed in 41.2(1)*"a"*(6) is the date/version of the approved method. The methods listed are the only versions that may be used for compliance with this rule. Laboratories should be careful to use only the approved versions of the methods, as product package inserts may not be the same as the approved versions of the methods.

[2]Incorporated by reference. See 41.2(1)*"a"*(6).

[3]Lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth if the system conducts at least 25 parallel tests between lactose broth and lauryl tryptose broth using the water normally tested and if the findings from this comparison demonstrate that the false-positive rate and the false-negative rate for total coliforms, using lactose broth, is less than 10 percent.

[4]All filtration series must begin with membrane filtration equipment that has been sterilized by autoclaving. Exposure of filtration equipment to UV light is not adequate to ensure sterilization. Subsequent to the initial autoclaving, exposure of the filtration equipment to UV light may be used to sanitize the funnels between filtrations within a filtration series. Alternatively, membrane filtration equipment that is presterilized by the manufacturer (i.e., disposable funnel units) may be used.

[5]Multiple-tube and multi-well enumerative formats for this method are approved for use in presence-absence determination under this subrule.

[6]Colisure results may be read after an incubation time of 24 hours.

[7]A multiple-tube enumerative format, as described in Standard Methods for the Examination of Water and Wastewater 9221, is approved for this method for use in presence-absence determination under this subrule.

[8]The following changes must be made to the EC broth with MUG (EC-MUG) formulation: Potassium dihydrogen phosphate, KH_2PO_4, must be 1.5 g, and 4-methylumbelliferyl-beta-D-glucuronide must be 0.05 g.

(6) Methods incorporated by reference. The standards required in this subrule are incorporated by reference with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR Part 51. All approved material is available for inspection either electronically at www.regulations.gov, in hard copy at the Water Docket, or from the sources indicated below. The Docket ID is EPA-HQ-OW-2008-0878. Hard copies of these documents may be viewed at the Water Docket in the EPA Docket Center, (EPA/DC) EPA West, Room 3334, 1301 Constitution Avenue, NW, Washington, DC. The EPA Docket Center Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202)566-1744, and the telephone number for the Water Docket is (202)566-2426. Copyrighted materials are only available for viewing in hard copy. These documents are also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202)741-6030 or go to www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

1. American Public Health Association, 800 I Street, NW, Washington, DC 20001. Standard Methods for the Examination of Water and Wastewater, 20th edition (1998):

- Standard Methods 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," B.1, B.2, "Standard Total Coliform Fermentation Technique."
- Standard Methods 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," D.1, D.2, "Presence-Absence (P-A) Coliform Test."
- Standard Methods 9222, "Membrane Filter Technique for Members of the Coliform Group," B, "Standard Total Coliform Membrane Filter Procedure."
- Standard Methods 9222, "Membrane Filter Technique for Members of the Coliform Group," C, "Delayed-Incubation Total Coliform Procedure."
- Standard Methods 9223, "Enzyme Substrate Coliform Test," B, "Enzyme Substrate Test," Colilert and Colisure.
- Standard Methods 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," F.1, "*Escherichia coli* Procedure: EC-MUG Medium."
- Standard Methods 9222, "Membrane Filter Technique for Members of the Coliform Group," G.1*c*(2), "*Escherichia coli* Partition Method: EC Broth with MUG (EC-MUG)."
- Standard Methods 9222, "Membrane Filter Technique for Members of the Coliform Group," G.1*c*(1), "*Escherichia coli* Partition Method: NA-MUG Medium."

2. American Public Health Association, 800 I Street, NW, Washington, DC 20001. Standard Methods for the Examination of Water and Wastewater, 21st edition (2005):

- Standard Methods 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," B.1, B.2, "Standard Total Coliform Fermentation Technique."
- Standard Methods 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," D.1, D.2, "Presence-Absence (P-A) Coliform Test."
- Standard Methods 9221, "Membrane Filter Technique for Members of the Coliform Group," B, "Standard Total Coliform Membrane Filter Procedure."
- Standard Methods 9222, "Membrane Filter Technique for Members of the Coliform Group," C, "Delayed-Incubation Total Coliform Procedure."
- Standard Methods 9223, "Enzyme Substrate Coliform Test," B, "Enzyme Substrate Test," Colilert and Colisure.
- Standard Methods 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," F.1, "*Escherichia coli* Procedure: EC-MUG Medium."
- Standard Methods 9222, "Membrane Filter Technique for Members of the Coliform Group," G.1.*c*(2), "*Escherichia coli* Partition Method: EC Broth with MUG (EC-MUG)."
- Standard Methods 9222, "Membrane Filter Technique for Members of the Coliform Group," G.1.*c*(1), "*Escherichia coli* Partition Method: NA-MUG Medium."

3. American Public Health Association, 800 I Street, NW, Washington, DC 20001. "Standard Methods Online" available at www.standardmethods.org:

- Standard Methods Online 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group" (1999), B.1, B.2-99, B-06, "Standard Total Coliform Fermentation Technique."
- Standard Methods Online 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group" (1999), D.1, D.2-99, "Presence-Absence (P-A) Coliform Test."
- Standard Methods Online 9222, "Membrane Filter Technique for Members of the Coliform Group" (1997), B-97, "Standard Total Coliform Membrane Filter Procedure."
- Standard Methods Online 9222, "Membrane Filter Technique for Members of the Coliform Group" (1997), C-97, "Delayed-Incubation Total Coliform Procedure."
- Standard Methods Online 9223, "Enzyme Substrate Coliform Test" (1997), B-97, "Enzyme Substrate Test," Colilert and Colisure.

4. Charm Sciences, Inc., 659 Andover Street, Lawrence, MA 01843-1032; telephone (800)343-2170: E*Colite—"Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Drinking Water," January 9, 1998.

5. CPI International, Inc., 5580 Skylane Blvd., Santa Rosa, CA 95403; telephone (800)878-7654: modified Colitag, ATP D05-0035—"Modified Colitag Test Method for the Simultaneous Detection of *E. coli* and other Total Coliforms in Water," August 28, 2009.

6. EMD Millipore (a division of Merck KGaA, Darmstadt, Germany), 290 Concord Road, Billerica, MA 01821; telephone (800)645-5476:

- Chromocult—"Chromocult Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and *Escherichia coli* for Finished Waters," November 2000, Version 1.0.
- Readycult—"Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," January 2007, Version 1.1.

7. EPA's Water Resource Center (MC-4100T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460; telephone (202)566-1729: EPA Method 1604, EPA 821-R-02-024—"EPA Method 1604: Total Coliforms and *Escherichia coli* in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium)," September 2002, www.nemi.gov.

8. Hach Company, P.O. Box 389, Loveland, CO 80539; telephone (800)604-3493: m-ColiBlue24—"Membrane Filtration Method m-ColiBlue24 Broth," Revision 2, August 17, 1999.

9. American Public Health Association, 800 I Street, NW, Washington, DC 20001. Standard Methods for the Examination of Water and Wastewater, 22nd edition (2012):

- Standard Methods 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," B.1, B.2, "Standard Total Coliform Fermentation Technique."

- Standard Methods 9223, "Enzyme Substrate Coliform Test," B, "Enzyme Substrate Test," Colilert and Colisure.
- Standard Methods 9221, "Multiple-Tube Fermentation Technique for Members of the Coliform Group," F.1, "*Escherichia coli* Procedure: EC-MUG Medium."

10. Veolia Water Solutions and Technologies, Suite 4697, Biosciences Complex, 116 Barrie Street, Kingston, Ontario, Canada K7L 3N6: Tecta EC/TC. "Presence/Absence Method for Simultaneous Detection of Total Coliforms and *Escherichia coli* in Drinking Water," April 2014.

(7) Laboratory certification. Systems must have all compliance samples required under this subrule analyzed by a laboratory certified by the department in accordance with 567—Chapter 83 to analyze drinking water samples. The laboratory used by the system must be certified for each method and associated contaminant used for compliance monitoring analyses under this subrule.

c. Sampling plan.

(1) Written sampling plan required. Systems must collect total coliform samples according to the written sampling plan.

1. Systems must develop a written sampling plan that identifies sample locations and a sample collection schedule that are representative of water throughout the distribution system. Major elements of the plan shall include, but not be limited to, the following:

- Map of the distribution system served by the system;
- List of routine compliance sample locations for each sample period;
- List of repeat compliance sample locations for each routine compliance sample location;
- Any other sample locations necessary to meet the requirements of this subrule;
- Sample collection schedule;
- Proper sampling technique instructions;
- Log of samples taken; and
- For groundwater systems subject to 567—41.7(455B), triggered source water monitoring plan.

2. The system shall review the sampling plan every two years and update it as needed and shall retain the sampling plan on file at the facility. The plan must be made available to the department upon request and for review during sanitary surveys and must be revised by the system at the direction of the department.

3. Monitoring under this subrule may take place at a customer's premises, dedicated sampling station, or other designated compliance sampling location.

(2) Sampling schedule. Systems must collect routine samples at regular time intervals throughout the month. Systems that use only groundwater and serve 4,900 or fewer people, or regional water systems that use only groundwater and serve less than 121 miles of pipe, may collect all required routine samples on a single day if the samples are taken from different sites.

(3) Minimum number of required routine samples. Systems must take at least the minimum number of required routine samples even if the system has had an *E. coli* MCL violation or has exceeded the coliform treatment technique triggers in 41.2(1)*"l."* Such samples must be designated as "routine" when submitted to the laboratory.

(4) Additional compliance monitoring samples. A system may conduct more compliance monitoring than is required to investigate potential problems in the distribution system and may use monitoring as a tool to assist in uncovering problems. A system may take more than the minimum number of required routine samples and must include the results when calculating whether the coliform treatment technique trigger in 41.2(1)*"l"*(1)"1" and "2" has been exceeded only if the samples are taken in accordance with the existing sampling plan and are representative of water throughout the distribution system. Such samples must be designated as "routine" when submitted to the laboratory.

(5) Repeat samples. Systems must identify repeat monitoring locations in the sampling plan. Repeat samples must be analyzed at the same laboratory as the corresponding original routine sample(s), unless written approval for use of a different laboratory is granted by the department. The system must collect at least one repeat sample from the sampling tap where the original routine total coliform-positive sample was taken, at least one repeat sample at a tap within five service connections upstream of the original sample location, and at least one repeat sample at a tap within five service

connections downstream of the original sample location. Such samples must be designated as "repeat" when submitted to the laboratory.

1. If the sampling location of a total coliform-positive sample is at or within one service connection from the end of the distribution system, the system must still take all required repeat samples. However, the department may allow an alternative sampling location in lieu of one of the upstream or downstream sampling locations.

2. A groundwater system with two or more wells that is required to conduct triggered source water monitoring under subrule 41.7(3) must collect groundwater source sample(s) in addition to the required repeat samples.

3. A groundwater system with a single well that is required to conduct triggered source water monitoring may, with written department approval, collect one of its required repeat samples at the triggered source water sample monitoring location. The system must demonstrate to the department's satisfaction that the sampling plan remains representative of water quality in the distribution system. If approved, the sample result may be used to meet the requirements of subrule 41.7(3) and this subrule. If a repeat sample taken at the triggered source water monitoring location is *E. coli*-positive, the system has violated the *E. coli* MCL, and must also comply with the requirements for additional source water samples under 41.7(3)*"a"*(3).

4. The department may review, revise, and approve, as appropriate, repeat sampling proposed by the system under 41.2(1)*"c"*(5). The system must demonstrate that the sampling plan remains representative of the water quality in the distribution system.

(6) Special purpose samples. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, must not be used to determine whether the coliform treatment technique trigger has been exceeded. Repeat samples are not considered special purpose samples and must be used to determine whether the coliform treatment technique trigger has been exceeded. Such samples must be designated as "special" when submitted to the laboratory and cannot be used for compliance.

(7) Residual disinfectant measurement. Any system adding a chemical disinfectant to the water must meet the requirements specified in 567—subparagraph 42.4(3)*"b"*(1). The minimum required residual disinfectant measurements are as follows, unless otherwise directed by the department in writing:

1. Groundwater systems. A system that uses only groundwater and adds a chemical disinfectant or provides water that contains a disinfectant must measure and record the free and total chlorine residual disinfectant concentration at least at the same points in the distribution system and at the same time as routine and repeat total coliform bacteria samples are collected, as specified in 41.2(1)*"e"* through 41.2(1)*"j."* The system shall report the residual disinfectant concentration to the laboratory with the bacteria sample and comply with the applicable reporting requirements of 567—subrule 42.4(3).

2. Surface water and influenced groundwater systems.

- Any surface water or IGW PWS must meet the requirements for minimum residual disinfectant entering the distribution system pursuant to 567—paragraph 43.5(4)*"b"*(2)"1"; and
- A system that uses surface water or IGW must comply with the requirements specified in 567—paragraph 43.5(4)*"b"*(2)"2" for daily distribution system residual disinfectant monitoring. The system must measure and record the free and total chlorine residual disinfectant concentration at least at the same points in the distribution system and at the same time as routine and repeat total coliform bacteria samples are collected, as specified in 41.2(1)*"e"* through 41.2(1)*"j."* The residual disinfectant measurements required as a part of this subrule may be used to satisfy the requirement in 567—paragraph 43.5(4)*"b"*(2)"2" on the day(s) when a routine or repeat total coliform bacteria sample(s) is collected, in lieu of separate samples. The system shall report the residual disinfectant concentration to the laboratory with the bacteria sample and comply with the applicable reporting requirements of 567—subrule 42.4(3).

d. Invalidation of total coliform samples. A total coliform-positive sample invalidated under this paragraph does not count toward meeting the minimum monitoring requirements of this subrule.

(1) The department may invalidate a total coliform-positive sample only if the following conditions are met:

1. The laboratory establishes that improper sample analysis caused the total coliform-positive result.

2. The department, on the basis of the results of the required repeat samples, determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. "Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken. The department cannot invalidate a sample on the basis of repeat sample results unless all repeat samples collected at the same tap as the original total coliform-positive sample are also total coliform-positive and all repeat samples collected at a location other than the original tap are total coliform-negative. The department cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative or if the system has only one service connection.

3. The department has substantial grounds to believe that the total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. The system must still collect all repeat samples required under 41.2(1)*"j"* and use them to determine whether a coliform treatment technique trigger in 41.2(1)*"l"* has been exceeded.

The decision and supporting rationale for invalidating a total coliform-positive sample under 41.2(1)*"d"*(1) must be documented in writing, and approved and signed by the supervisor of the water supply operations section or water supply engineering section and the department official who recommended the decision. The department must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample and what action the system has taken, or will take, to correct this problem. The department may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative or because of poor sampling technique.

(2) Laboratory invalidation. A laboratory must invalidate a total coliform sample (unless total coliforms are detected, in which case the sample is valid) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the multiple-tube fermentation technique), produces a turbid culture in the absence of an acid reaction in the presence-absence (P-A) coliform test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., membrane filter technique). If a laboratory invalidates a sample because of such interference, the system must collect another sample from the same location as that of the original sample within 24 hours of being notified of the interference problem and must have the sample analyzed for the presence of total coliforms. The system must continue to resample within 24 hours and have the samples analyzed until a valid result is obtained. The department may waive the 24-hour time limit on a case-by-case basis.

e. Routine monitoring for specific groundwater noncommunity water systems serving 1,000 or fewer people. This paragraph applies to noncommunity water systems using only groundwater (not IGW) as a source and serving 1,000 or fewer people. Groundwater noncommunity water systems that serve schools, preschools, and child care facilities, and all public water systems owned or managed by state agencies, such as parks and rest areas, must monitor at the same frequency as a like-sized community water system, in accordance with 41.2(1)*"f,"* 41.2(1)*"g,"* or 41.2(1)*"h."*

(1) General. Following any total coliform-positive sample taken under 41.2(1)*"e,"* systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)*"j."* Once all monitoring required by 41.2(1)*"e"* and 41.2(1)*"j"* for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)*"l"* have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)*"l."*

(2) Monitoring frequency for total coliforms. Systems must monitor each calendar quarter that the system provides water to the public, with the following exceptions:

1. A system on quarterly monitoring that experiences any of the following events must begin monthly monitoring in the month following the event. The system must continue on monthly monitoring until the system meets the requirements for returning to quarterly monitoring.

- The system has an *E. coli* MCL violation.
- The system triggers one Level 2 assessment under the provisions of 41.2(1)*"l"* in a rolling 12-month period.
- The system triggers two Level 1 assessments under the provisions of 41.2(1)*"l"* in a rolling 12-month period.
- The system has a coliform treatment technique violation.
- The system has two coliform monitoring violations in a rolling 12-month period.
- The system has one monitoring coliform violation and one Level 1 assessment under the provisions of 41.2(1)*"l"* in a rolling 12-month period.

2. A system on monthly monitoring for reasons other than those identified in 41.2(1)*"e"*(2)"1" is not considered to be on increased monitoring for the purposes of 41.2(1).

3. Seasonal systems must sample each month in which they are in operation. All seasonal systems must also demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative start-up sample.

(3) Evaluation of sampling frequency during a sanitary survey. During each sanitary survey, the department must evaluate the status of the system including the distribution system, to determine whether the system is on an appropriate monitoring schedule. The department may modify the system's monitoring schedule, as necessary, or may allow the system to stay on its existing monitoring schedule, consistent with the provisions of 41.2(1)*"e."*

(4) Requirements for returning from monthly to quarterly sampling frequency for nonseasonal noncommunity systems. The department may reduce the monitoring frequency for a nonseasonal noncommunity system on monthly monitoring triggered under 41.2(1)*"e"*(2)"1" to quarterly monitoring if the system meets the following criteria. For the purposes of 41.2(1)*"e"*(4), "protected water source" means the well meets separation distances from sources of microbial contamination pursuant to 567—subrule 43.3(7), Table A; or the system has 4-log virus inactivation treatment that is approved by the department and is in continuous usage.

1. Within the previous 12 months, the system must have a completed sanitary survey or voluntary Level 2 assessment, be free of sanitary defects, and have a protected water source;

2. The system must have a clean compliance history for a minimum of the previous 12 months; and

3. The department must review the approved sampling plan, which must designate the time period(s) for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). The system must collect compliance samples during these time periods.

(5) Additional routine monitoring for systems on quarterly sampling in the month following a total coliform-positive routine sample. Systems collecting samples on a quarterly frequency must conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Systems must collect at least three routine samples during the next month. Systems may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Systems must use the results of additional routine samples in coliform treatment technique trigger calculations under 41.2(1)*"l."*

f. Routine monitoring for groundwater community water systems serving 1,000 or fewer people. This paragraph applies to community water systems using only groundwater (not IGW) as a source and serving 1,000 or fewer people.

(1) General. Following any total coliform-positive sample taken under 41.2(1)*"f,"* systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)*"j."* Once all monitoring required by 41.2(1)*"f"* and 41.2(1)*"j"* for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)*"l"* have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)*"l."*

(2) Monitoring frequency for total coliforms. The routine monitoring frequency for total coliforms is one sample per month.

g. Routine monitoring requirements for SW/IGW public water systems serving 1,000 or fewer people. This paragraph applies to all public water supply systems serving 1,000 or fewer people that use surface water/influenced groundwater sources, including consecutive systems.

(1) General. Following any total coliform-positive sample taken under 41.2(1)*"g,"* systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)*"j."* Once all monitoring required by 41.2(1)*"g"* and 41.2(1)*"j"* for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)*"l"* have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)*"l."*

(2) Monitoring frequency for total coliforms. The routine monitoring frequency for total coliforms is one sample per month. Systems may not reduce monitoring frequency.

(3) Seasonal systems must sample each month in which they are in operation, and the monitoring frequency cannot be reduced. All seasonal systems must also demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative start-up sample.

h. Routine monitoring requirements for public water systems serving more than 1,000 people. The provisions of this paragraph apply to all public water systems serving more than 1,000 people except regional water systems. The requirements for regional water systems are listed in 41.2(1)*"i."*

(1) General. Following any total coliform-positive sample taken under 41.2(1)*"h,"* systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)*"j."* Once all monitoring required by 41.2(1)*"h"* and 41.2(1)*"l"* for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)*"l"* have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)*"l."*

(2) Monitoring frequency for total coliforms. The routine monitoring frequency for total coliforms is based upon the population served by the system, as follows:

Population Served	Minimum Number of Routine Samples per Month
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80

Population Served	Minimum Number of Routine Samples per Month
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300

(3) Seasonal systems must sample each month in which they are in operation, and the monitoring frequency cannot be reduced. All seasonal systems must also demonstrate completion of a department-approved start-up procedure before serving water to the public, which includes a requirement for a coliform-negative start-up sample.

(4) Reduced monitoring. Community systems may not reduce the number of required routine samples.

(5) Increased monitoring. If the department, on the basis of a sanitary survey or monitoring results history, determines that some greater frequency of monitoring is more appropriate, that frequency shall be the frequency required under these rules. The increased frequency shall be confirmed or changed on the basis of subsequent surveys.

i. Routine monitoring requirements for regional public water systems. The provisions of 41.2(1)*"i"* apply to all regional water systems. The supplier of water for a regional water system as defined in 567—40.2(455B) shall sample for coliform bacteria at a frequency based upon the miles of pipe in its distribution system.

(1) General. Following any total coliform-positive sample taken under 41.2(1)*"i,"* systems must comply with the repeat monitoring requirements and *E. coli* analytical requirements in 41.2(1)*"j."* Once all monitoring required by 41.2(1)*"i"* and 41.2(1)*"j"* for a calendar month has been completed, systems must determine whether any coliform treatment technique triggers specified in 41.2(1)*"l"* have been exceeded. If any trigger has been exceeded, systems must complete assessments as required by 41.2(1)*"l."*

(2) Monitoring frequency for total coliforms. The routine monitoring frequency for total coliforms is based upon the miles of pipe in the system's distribution system, as indicated in the following chart. In no case shall the sampling frequency for a regional water system be less than as set forth in 41.2(1)*"h"* based upon the population equivalent served. The following chart represents sampling frequency per miles of pipe in the distribution system and is determined by calculating one-half the square root of the miles of pipe.

Miles of Pipe	Minimum Number of Routine Samples per Month
0 – 9	1
10 – 25	2
26 – 49	3
50 – 81	4
82 – 121	5
122 – 169	6

Miles of Pipe	Minimum Number of Routine Samples per Month
170 – 225	7
226 – 289	8
290 – 361	9
362 – 441	10
442 – 529	11
530 – 625	12
626 – 729	13
730 – 841	14
842 – 961	15
962 – 1,089	16
1,090 – 1,225	17
1,226 – 1,364	18
1,365 – 1,521	19
1,522 – 1,681	20
1,682 – 1,849	21
1,850 – 2,025	22
2,026 – 2,209	23
2,210 – 2,401	24
2,402 – 2,601	25
2,602 – 2,809	26
2,810 – 3,025	27
3,026 – 3,249	28
3,250 – 3,481	29
3,482 – 3,721	30
3,722 – 3,969	31
3,970 – 4,225	32
4,226 – 4,489	33
4,490 – 4,671	34
4,672 – 5,041	35
5,042 – 5,329	36
5,330 – 5,625	37
5,626 – 5,929	38
5,930 – 6,241	39
6,242 – 6,561	40
6,562 and greater	41

(3) Reduced monitoring. Regional water systems may not reduce the number of required routine samples.

(4) Increased monitoring. If the department, on the basis of a sanitary survey or monitoring results history, determines that some greater frequency of monitoring is more appropriate, that frequency shall be the frequency required under these rules. The increased frequency shall be confirmed or changed on the basis of subsequent surveys.

j. *Repeat monitoring.* If a routine sample taken under 41.2(1)*"e"* through 41.2(1)*"i"* is total coliform-positive, the system must collect a set of repeat samples. The department cannot waive the requirement for a system to collect repeat samples.

(1) The system must collect no fewer than three repeat samples for each total coliform-positive routine sample found.

(2) The system must collect the repeat samples within 24 hours of being notified of the positive routine sample result. The department may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. In the case of an extension, the department must specify how much time the system has to collect the repeat samples.

(3) The system must collect all repeat samples on the same day, except that the department may allow a system with a single service connection to collect the required set of repeat samples over a three-day period. "System with a single service connection" means a system which supplies drinking water to consumers through a single service line.

(4) The system must collect an additional set of repeat samples in the manner specified in 41.2(1)*"j"*(1) to (3) if one or more repeat samples in the current set of repeat samples is total coliform-positive. The system must collect the additional set of repeat samples within 24 hours of being notified of the positive result, unless the department extends the limit as provided in 41.2(1)*"j"*(2). The system must continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the system determines that a coliform treatment technique trigger specified in 41.2(1)*"l"* has been exceeded as a result of a total coliform-positive repeat sample and notifies the department. If a trigger identified in 41.2(1)*"l"* is exceeded as a result of a total coliform-positive routine sample, systems are required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.

(5) Results of all routine and repeat samples taken under 41.2(1)*"e"* through 41.2(1)*"i"* that are not invalidated by the department must be used to determine whether a coliform treatment technique trigger specified in 41.2(1)*"l"* has been exceeded.

k. *E. coli testing requirements.*

(1) If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine the presence of *E. coli*. If *E. coli* are present, the system must notify the department by the end of the same day when the system is notified of the test result. If the notification is outside of the department's routine office hours, the system shall call the department's Environmental Emergency Reporting Hotline at (515)725-8694.

(2) The department has the discretion to allow a system, on a case-by-case basis, to forgo *E. coli* testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is *E. coli*-positive. Accordingly, the system must notify the department as specified in 41.2(1)*"k"*(1), and the provisions of 41.2(1)*"a"* apply.

l. *Coliform treatment technique triggers.* Systems must conduct assessments in accordance with 41.2(1)*"m"* after exceeding any treatment technique trigger.

(1) Level 1 treatment technique triggers.

1. For systems taking 40 or more samples per month, the system exceeds 5.0 percent total coliform-positive samples for the month.

2. For systems taking fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month.

3. The system fails to take every required repeat sample after any single total coliform-positive sample.

(2) Level 2 treatment technique triggers.

1. An *E. coli* MCL violation, as specified in 41.2(1)*"p"*(1).

2. A second Level 1 trigger as defined in 41.2(1)*"l"*(1) within a rolling 12-month period, unless the department has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the system has corrected the problem.

m. Assessment requirements. Systems must ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 1 assessments may be conducted by the system owner or operator. Level 2 assessments must be conducted by the department with the assistance of the system owner or operator.

(1) General. When conducting assessments, systems must ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small groundwater systems); and existing water quality monitoring data. The system must conduct the assessment consistent with any department directives that tailor specific assessment elements with respect to the size and type of the system, and the size type, and characteristics of the distribution system.

(2) Level 1 assessment. A system must conduct a Level 1 assessment consistent with the department requirements if the system exceeds one of the treatment technique triggers in 41.2(1)*"l"*(1).

1. The system must complete the Level 1 assessment as soon as practical after any trigger in 41.2(1)*"l"*(1). In the completed assessment form, the system must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The system may also note on the assessment form that no sanitary defects were identified. The system must submit the completed Level 1 assessment form to the department within 30 days after the system learns that it has exceeded a trigger.

2. If the department reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the department must consult with the system. If the department requires revisions after consultation, the system must submit a revised assessment form to the department on an agreed-upon schedule not to exceed 30 days from the date of the consultation.

3. Upon completion and submission of the assessment form by the system, the department must determine if the system has identified the likely cause for the Level 1 trigger and, if so, establish that the system has corrected the problem or has included a schedule acceptable to the department for correction of the problem.

(3) Level 2 assessment. A system must ensure that a Level 2 assessment is conducted if the system exceeds one of the treatment technique triggers in 41.2(1)*"l"*(2). The system must comply with any expedited actions or additional actions required by the department in the case of an *E. coli* MCL violation.

1. The system must ensure that a Level 2 assessment is completed by the department as soon as practical after any trigger in 41.2(1)*"l"*(2). The system must submit a completed Level 2 assessment form to the department within 30 days after the system learns that it has exceeded a trigger. The assessment form must contain a description of the sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. It may also be noted on the assessment form that no sanitary defects were identified.

2. If the department reviews the completed Level 2 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the department must consult with the system. If the department requires revisions after consultation, the system must submit a revised assessment form to the department on an agreed-upon schedule not to exceed 30 days.

3. Upon completion and submission of the assessment form by the system, the department must determine if the system has identified the likely cause for the Level 2 trigger and determine whether the system has corrected the problem or has included a schedule acceptable to the department for correction of the problem.

(4) Corrective actions. A system must correct sanitary defects found through either a Level 1 or 2 assessment conducted under 41.2(1)*"l."* For corrections not completed by the time of submission of the assessment form, the system must complete the corrective action(s) in compliance with a timetable

approved by the department in consultation with the system. The system must notify the department when each scheduled corrective action is completed.

(5) Consultation. At any time during the assessment or corrective actions phase, either the water system or the department may request a consultation with the other party to determine the appropriate actions to be taken. The system may consult with the department on all relevant information that may impact on its ability to comply with a requirement of this subrule, including the method of accomplishment, an appropriate time frame, and other relevant information.

n. Reporting requirements.

(1) *E. coli*.

1. The system must notify the department by the end of the same day when the system learns of an *E. coli*-positive violation. If the notification is outside of the department's routine office hours, the system shall call the department's Environmental Emergency Reporting Hotline at (515)725-8694.

2. The system must notify the department by the end of the same day when the system learns of the *E. coli*-positive routine sample. If the notification is outside of the department's routine office hours, the system shall call the department's Environmental Emergency Reporting Hotline at (515)725-8694.

(2) A system that has violated the treatment technique for coliforms in 41.2(1)*"l"* must report the violation to the department no later than the end of the next business day after it learns of the violation, and must notify the public in accordance with rule 567—42.1(455B).

(3) A system required to conduct an assessment under the provisions of 41.2(1)*"l"* must submit the assessment report within 30 days. The system must notify the department in accordance with 41.2(1)*"m"*(4) when each scheduled corrective action is completed for any corrections that were not completed by the time of submission of the assessment form.

(4) A system that has failed to comply with a coliform monitoring requirement must report the monitoring violation to the department within 10 days after the system discovers the violation, and must notify the public in accordance with rule 567—42.1(455B).

(5) A seasonal system must certify, prior to serving water to the public, that it has complied with the department-approved start-up procedure.

o. Record-keeping requirements. Additional record-keeping requirements are listed in 567—paragraph 42.5(1)*"j."*

p. Violations.

(1) *E. coli* MCL violation. A system is in violation of the MCL for *E. coli* when any of the following occurs, and must conduct public notice in accordance with rule 567—42.1(455B):

1. The system has an *E. coli*-positive repeat sample following a total coliform-positive routine sample.

2. The system has a total coliform-positive repeat sample following an *E. coli*-positive routine sample.

3. The system fails to take all required repeat samples following an *E. coli*-positive routine sample.

4. The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

(2) Treatment technique violation. A system is in violation of a treatment technique trigger when any of the following occurs, and must conduct public notice in accordance with rule 567—42.1(455B):

1. A system exceeds a treatment technique trigger specified in 41.2(1)*"l"* and then fails to conduct the required assessment within the time frame specified in 41.2(1)*"m."*

2. A system exceeds a treatment technique trigger specified in 41.2(1)*"l"* and then fails to conduct the required corrective actions within the time frame specified in 41.2(1)*"m"*(4).

3. A seasonal system fails to complete a department-approved start-up procedure prior to serving water to the public, including collection of a finished water sample that tests total coliform-negative.

(3) Monitoring violation. A system is in violation of monitoring requirements when any of the following occurs, and must conduct public notice in accordance with rule 567—42.1(455B):

1. Failure to take every required routine or additional routine sample in a compliance period.

2. Failure to analyze for *E. coli* following a total coliform-positive routine sample.

(4) Reporting violation. A system is in violation of reporting requirements when any of the following occurs, and must conduct public notice in accordance with rule 567—42.1(455B):

1. Failure to submit a monitoring report after a system properly conducts monitoring in a timely manner.

2. Failure to submit a completed assessment form after a system properly conducts an assessment in a timely manner.

3. Failure to notify the department following an *E. coli*-positive sample as required by 41.2(1)*"k"*(1) in a timely manner.

4. Failure to submit the certification of completion of department-approved start-up procedure by a seasonal system.

q. Best available technology (BAT). The U.S. Environmental Protection Agency (EPA) identifies, and the department has adopted, the following as the best technology, treatment techniques, or other means available for all systems in achieving compliance with the maximum contaminant level for *E. coli* in 41.2(1)*"a."* The following is also identified as affordable technology, treatment techniques, or other means available to systems serving 10,000 or fewer people for achieving compliance with the *E. coli* maximum contaminant level.

(1) Well protection. Protection of wells from fecal contamination by appropriate placement and construction.

(2) Disinfectant residual. Maintenance of a disinfectant residual throughout the distribution system.

(3) Distribution system maintenance. Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tanks and reservoirs, cross-connection control, and continual maintenance of a minimum positive water pressure of 20 psi in all parts of the distribution system at all times.

(4) Filtration or disinfection. Filtration and disinfection of surface water or groundwater under the direct influence of surface water in accordance with 567—43.5(455B), 567—43.9(455B), and 567—43.10(455B), or disinfection of groundwater in accordance with rule 567—41.7(455B) using strong oxidants such as, but not limited to, chlorine, chlorine dioxide, or ozone.

(5) Wellhead protection program. For groundwater systems, compliance with the requirements of the department's wellhead protection program.

41.2(2) *Giardia.* Reserved.

41.2(3) *Heterotrophic plate count bacteria (HPC).*

a. Applicability. All public water systems that use a surface water source or source under the direct influence of surface water must provide treatment consisting of disinfection, as specified in 567—subrule 43.5(2), and filtration treatment which complies with 567—subrule 43.5(3). The heterotrophic plate count is an alternate method to demonstrate a detectable disinfectant residual in accordance with 567—paragraph 43.5(2)*"d."*

b. Maximum contaminant levels. Reserved.

c. Monitoring requirements. Reserved.

d. BAT. Reserved.

e. Analytical methodology. Public water systems shall conduct heterotrophic plate count bacteria analysis in accordance with 567—subrule 43.5(2) and the following analytical method. Measurements for heterotrophic plate count bacteria must be conducted by a laboratory certified by the department to do such analysis, when heterotrophic plate count bacteria are being measured in lieu of a detectable residual disinfectant pursuant to 567—paragraph 43.5(2)*"d."* In addition, the time from sample collection to initiation of analysis may not exceed eight hours, and the systems must hold the samples below 10 degrees Celsius during transit to the laboratory.

(1) Method. The heterotrophic plate count shall be performed in accordance with one of the following methods:

1. Method 9215B Pour Plate Method, Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, 20th edition, 1998, 21st edition, 2005, and 22nd edition, 2012. The cited method in any of these editions may be used. Standard Methods Online method 9215 B-04 may be used.

2. SimPlate Method, "IDEXX SimPlate TM HPC Test Method for Heterotrophs in Water," November 2000, IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092, telephone (800)321-0207.

(2) Reporting. The public water system shall report the results of heterotrophic plate count in accordance with 567—subparagraph 42.4(3)*"c"*(2).

41.2(4) *Macroscopic organisms and algae.*

a. Applicability. These rules apply to both community and noncommunity public water supply systems using surface water or groundwater under direct influence of surface water as defined by 567—subrule 43.5(1).

b. Maximum contaminant levels (MCLs) for macroscopic organisms and algae. Finished water shall be free of any macroscopic organisms such as plankton, worms, or cysts. The finished water algal cell count shall not exceed 500 organisms per milliliter or 10 percent of the total cells found in the raw water, whichever is greater.

c. Monitoring requirements. Reserved.

d. BAT. Reserved.

e. Analytical methodology. Measurement of the algal cells shall be in accordance with Method 10200F: Phytoplankton Counting Techniques, Standard Methods for the Examination of Water and Wastewater, 18th edition, pp. 10-13 to 10-16. Such measurement shall be required only when the department determines on the basis of complaints or otherwise that excessive algal cells may be present.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—41.3(455B) Maximum contaminant levels (MCLs) and monitoring requirements for inorganic contaminants other than lead or copper.

41.3(1) *MCLs and other requirements for inorganic contaminants.*

a. Applicability. Maximum contaminant levels for inorganic contaminants (IOCs) specified in 41.3(1)*"b"* apply to community water systems and nontransient noncommunity water systems as specified herein. The maximum contaminant level specified for fluoride applies only to community water systems and nontransient noncommunity systems which primarily serve children (child care facilities and schools). The maximum contaminant levels specified for nitrate, nitrite, and total nitrate and nitrite apply to community, nontransient noncommunity, and transient noncommunity water systems. At the discretion of the department, nitrate levels not to exceed 20.0 mg/L may be allowed in a noncommunity water system if the supplier of water demonstrates to the satisfaction of the department that:

(1) Such water will not be available to children under 6 months of age; and

(2) The system is meeting the public notification requirements of rule 567—42.1(455B), including continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure; and

(3) The following public health authorities will be notified annually of nitrate levels that exceed 10 mg/L, in addition to the reporting requirements of 567—Chapters 41 and 42: county board of health, county health department, county sanitarian, county public health administrator, and Iowa department of public health; and

(4) No adverse health effects shall result.

The requirements also contain monitoring requirements, best available technology (BAT) identification, and analytical method requirements pursuant to 41.3(1)*"c,"* and 567—paragraphs 41.3(1)*"e"* and 43.3(10)*"b,"* respectively.

b. Maximum contaminant levels for inorganic chemicals (IOCs).

(1) IOC MCLs. The following table specifies the MCLs for IOCs:

Contaminant	EPA Contaminant Code	Maximum Contaminant Level (mg/L)
Antimony	1074	0.006
Arsenic*	1005	0.010
Asbestos	1094	7 million fibers/liter (longer than 10 micrometers in length)
Barium	1010	2
Beryllium	1075	0.004
Cadmium	1015	0.005
Chromium	1020	0.1
Cyanide (as free Cyanide)	1024	0.2
Fluoride**	1025	4.0
Mercury	1035	0.002
Nitrate	1040	10 (as nitrogen)
Nitrite	1041	1.0 (as nitrogen)
Total Nitrate and Nitrite	1038	10 (as nitrogen)
Selenium	1045	0.05
Thallium	1085	0.002

*The arsenic MCL changed from 0.05 mg/L to 0.010 mg/L on January 23, 2006.

**The recommended fluoride level is 0.7 milligrams per liter as published by the U.S. Department of Health and Human Services, Public Health Service (July-August 2015). At this optimum level in drinking water, fluoride has been shown to have beneficial effects in reducing the occurrence of tooth decay.

(2) Compliance calculations. Compliance with 41.3(1)*"b"*(1) shall be determined based on the analytical result(s) obtained at each source/entry point. When the department requires a system to collect nitrate or nitrite samples in its distribution system, compliance with 41.3(1)*"b"*(1) shall also be determined based on the analytical result(s) obtained at each discrete sampling point in the distribution system. Arsenic sampling results must be reported to the nearest 0.001 mg/L.

1. Sampling frequencies greater than annual (e.g., monthly or quarterly). For public water supply systems which are conducting monitoring at a frequency greater than annual, compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium is determined by a running annual average at any sampling point. If the average at any sampling point is greater than the MCL, then the system is out of compliance. If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately. Any sample below the method detection limit shall be calculated at zero for the purpose of determining the annual average. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

2. Sampling frequencies of annual or less. For public water supply systems which are monitoring annually, or less frequently, the system is out of compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium if the level of a contaminant at any sampling point is greater than the MCL. If a confirmation sample is required by the department, it must be collected as soon as possible from the same sampling location, but not to exceed two weeks, and the determination of compliance will be based on the average of the two samples. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

3. Compliance calculations for nitrate and nitrite. Compliance with the maximum contaminant levels for nitrate and nitrite is determined based on one sample if the level of these contaminants is below the MCLs. If the level of nitrate or nitrite exceeds the MCLs in the initial sample, a confirmation sample may be required in accordance with 41.3(1)*"c"*(7)"2," and compliance shall be determined based on the average of the initial and confirmation samples.

(3) Additional requirements. The department may assign additional requirements as deemed necessary to protect the public health, including public notification requirements and earlier compliance dates than indicated in rule. When a system is not in compliance with an MCL as determined in subparagraph 41.3(1)*"b"*(2), the supplier of the water shall notify the department according to 567—subrule 42.4(1) and give notice to the public according to 567—42.1(455B).

c. Inorganic chemicals—monitoring requirements.

(1) Routine IOC monitoring (excluding asbestos, nitrate, and nitrite). Community public water supply systems and nontransient noncommunity water systems shall conduct monitoring to determine compliance with the MCLs specified in 41.3(1)*"b"* in accordance with this subrule. Transient noncommunity water systems shall conduct monitoring to determine compliance with the nitrate and nitrite maximum contaminant levels in 41.3(1)*"b"* as required by 41.3(1)*"c"*(5) and (6). All new systems or systems that use a new source of water must demonstrate compliance with the MCLs specified in 41.3(1)*"b"* within a period of time specified by the department. The system must also comply with the initial sampling frequencies specified by the department to ensure the system can demonstrate compliance with the MCLs. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in paragraph 41.3(1)*"c."* A source of water that is determined by the department to be a new source/entry point is considered to be a new source for the purposes of this rule.

(2) Department designated sampling schedules: Each public water system shall monitor at the time designated by the department during each compliance period. The monitoring protocol is as follows:

1. Groundwater sampling points. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a source/entry point) beginning in the compliance period starting January 1, 1993. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

2. Surface water sampling points. Surface water systems shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment (hereafter called a source/entry point) beginning in the compliance period starting January 1, 1993. (For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.) The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

3. Multiple sources. If a public water supply system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

4. Composite sampling. The department may reduce the total number of samples which must be analyzed by the use of compositing. In systems serving less than or equal to 3,300 persons, composite samples from a maximum of five samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples must be done in the laboratory. If the concentration in the composite sample is greater than or equal to one-fifth of the MCL of any inorganic chemical, then a follow-up sample must be taken within 14 days at each sampling point included in the composite. These samples must be analyzed for the contaminants which exceeded one-fifth of the MCL in the composite sample. If duplicates of the original sample taken from each sampling point used in the composite are available, the system may use these duplicates instead of resampling, provided the holding time of the duplicate samples is not exceeded. The duplicate must be analyzed and the results reported to the department within 14 days after completing analysis of the composite sample. If the population served by the system is greater than 3,300 persons, then compositing may only be permitted by the department as sampling points within a single system. In systems serving less than or equal to 3,300 persons, the department may permit compositing among different systems provided the five-sample limit is maintained. Detection limits for each inorganic contaminant analytical method are contained in 41.3(1)*"e"*(1).

(3) Asbestos routine and repeat monitoring frequency. The frequency of monitoring conducted to determine compliance with the maximum contaminant level for asbestos specified in 41.3(1)*"b"* shall be conducted as follows:

1. Initial sampling frequency. Each community and nontransient noncommunity water system is required to monitor for asbestos during the first three-year compliance period of each nine-year compliance cycle beginning in the compliance period starting January 1, 1993.

2. Sampling during waiver. If the public water supply system believes it is not vulnerable to either asbestos contamination in its source water or due to corrosion of asbestos-cement pipe, or both, it may apply for a waiver of the monitoring requirement in 41.3(1)*"c"*(3)"1." If the department grants the waiver, the system is not required to monitor.

3. Bases of an asbestos waiver. The department may grant a waiver based on a consideration of potential asbestos contamination of the water source, the use of asbestos-cement pipe for finished water distribution, and the corrosive nature of the water.

4. Effect of an asbestos waiver. A waiver remains in effect until the completion of the three-year compliance period. Systems not receiving a waiver must monitor in accordance with 41.3(1)*"c"*(3)"1."

5. Distribution system vulnerability for asbestos. A public water supply system vulnerable to asbestos contamination due solely to corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

6. Source water vulnerability for asbestos. A public water supply system vulnerable to asbestos contamination due solely to source water shall monitor in accordance with the provision of 41.3(1)*"c"*(2).

7. Combined asbestos vulnerability. A public water supply system vulnerable to asbestos contamination due both to its source water supply and corrosion of asbestos-cement pipe shall take one sample at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.

8. Exceedance of the asbestos MCL. A public water supply system which exceeds the maximum contaminant levels as determined in 41.3(1)*"b"* shall monitor quarterly beginning in the next quarter after the violation occurred.

9. Asbestos reliably and consistently below the MCL. The department may decrease the quarterly monitoring requirement to the frequency specified in 41.3(1)*"c"*(3)"1" provided the system is reliably and consistently below the maximum contaminant level. In no case can the department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface (or combined surface/ground) water system takes a minimum of four quarterly samples.

10. Grandfathered asbestos data. If monitoring data collected after January 1, 1990, are generally consistent with the requirements of 41.3(1)*"c"*(3), then the department may allow public water supply systems to use that data to satisfy the monitoring requirement for the initial compliance period beginning January 1, 1993.

(4) Monitoring frequency for other IOCs. The frequency of monitoring conducted to determine compliance with the maximum contaminant levels in 41.3(1)*"b"* for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, selenium, and thallium shall be as follows:

1. IOCs sampling frequency. Groundwater systems shall take one sample at each sampling point once every three years. Surface water systems (or combined surface/groundwater systems) shall take one sample annually at each sampling point.

2. IOC sampling waiver. The public water supply system may apply for a waiver from the monitoring frequencies specified in 41.3(1)*"c"*(4)"1."

3. IOC sampling during a waiver. A condition of the waiver shall require that a public water supply system shall take a minimum of one sample while the waiver is effective. The term during which the waiver is effective shall not exceed one compliance cycle (i.e., nine years).

4. Bases of an IOC waiver and grandfathered data. The department may grant a waiver provided surface water systems have monitored annually for at least three years and groundwater systems have conducted a minimum of three rounds of monitoring. (At least one sample shall have been taken since

January 1, 1990.) Both surface and groundwater systems shall demonstrate that all previous analytical results were less than the maximum contaminant level. Systems that use a new water source are not eligible for a waiver until three rounds of monitoring from the new source have been completed. Systems may be granted a waiver for monitoring of cyanide, provided that the department determines that the system is not vulnerable due to lack of any industrial source of cyanide.

5. Bases of the IOC sampling frequency during a waiver. In determining the appropriate reduced monitoring frequency, the department will consider: reported concentrations from all previous monitoring; the degree of variation in reported concentrations; and other factors which may affect contaminant concentrations such as changes in groundwater pumping rates, changes in the system's configuration, changes in the system's operating procedures, or changes in stream flows or characteristics.

6. Effect of an IOC waiver. A decision to grant a waiver shall be made in writing and shall include the basis for the determination. The determination may be initiated by the department or upon an application by the public water supply system. The public water supply system shall specify the basis for its request. The department may review and, where appropriate, revise its determination of the appropriate monitoring frequency when the system submits new monitoring data or when other data relevant to the system's appropriate monitoring frequency become available.

7. Exceedance of an IOC MCL. Public water supply systems which exceed the maximum contaminant levels as calculated in 41.3(1)*"b"* shall monitor quarterly beginning in the next quarter after the violation occurred.

8. IOCs reliably and consistently below the MCL. The department may decrease the quarterly monitoring requirement to the frequencies specified in 41.3(1)*"c"*(4)"1" and "3" provided it has determined that the public water supply system is reliably and consistently below the maximum contaminant level. In no case can the department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

(5) Routine and repeat monitoring frequency for nitrates. All public water supply systems (community; nontransient noncommunity; and transient noncommunity systems) shall monitor to determine compliance with the maximum contaminant level for nitrate in 41.3(1)*"b."*

1. Initial nitrate sampling. Community and nontransient noncommunity water systems served by groundwater systems shall monitor annually beginning January 1, 1993; systems served by surface water shall monitor quarterly beginning January 1, 1993. Transient noncommunity water systems shall monitor annually beginning January 1, 1993.

2. Groundwater repeat nitrate sampling frequency. For community and noncommunity water systems, the repeat monitoring frequency for groundwater systems shall be:

- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 5.0 mg/L as N. The department may allow a groundwater system to reduce the sampling frequency to annually after four consecutive quarterly samples are reliably and consistently less than 5.0 mg/L as N.
- Monthly for at least one year following any one sample in which the concentration is greater than or equal to 10.0 mg/L as N.

3. Surface water repeat nitrate sampling frequency. For community and noncommunity water systems, the department may allow a surface water system to reduce the sampling frequency to:

- Annually if all analytical results from four consecutive quarters are less than 5.0 mg/L as N.
- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 5.0 mg/L as N. The department may allow a surface water system to reduce the sampling frequency to annually after four consecutive quarterly samples are reliably and consistently less than 5.0 mg/L as N.
- Monthly for at least one year following any nitrate MCL exceedance.

4. Scheduling annual nitrate repeat samples. After the initial round of quarterly sampling is completed, each community and nontransient noncommunity system which is monitoring annually shall take subsequent samples during the quarter(s) which previously resulted in the highest analytical result.

(6) Routine and repeat monitoring frequency for nitrite. All public water supply systems (community; nontransient noncommunity; and transient noncommunity systems) shall monitor to determine compliance with the maximum contaminant level for nitrite in 41.3(1)*"b."*

1. Initial nitrite sampling. All public water systems shall take one sample at each sampling point in the compliance period beginning January 1, 1993, and ending December 31, 1995.

2. Nitrite repeat monitoring. After the initial sample, systems where an analytical result for nitrite is less than 0.50 mg/L as N shall monitor at the frequency specified by the department.

3. Nitrite increased monitoring. For community, nontransient noncommunity, and transient noncommunity water systems, the repeat monitoring frequency for any water system shall be:

- Quarterly for at least one year following any one sample in which the concentration is greater than or equal to 0.50 mg/L as N. The department may allow a system to reduce the sampling frequency to annually after determining the system is reliably and consistently less than 0.50 mg/L.
- Monthly for at least one year following any nitrite MCL exceedance.

4. Scheduling of annual nitrite repeat samples. Systems which are monitoring annually shall take each subsequent sample during the quarter(s) which previously resulted in the highest analytical result.

(7) Confirmation sampling.

1. Deadline for IOCs confirmation samples. Where the results of an analysis for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, or thallium indicate an exceedance of the maximum contaminant level, the department may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point.

2. Deadline for nitrate and nitrite confirmation samples. Where nitrate or nitrite sampling results indicate an exceedance of the maximum contaminant level and the sampling frequency is quarterly or annual, the system shall take a confirmation sample within 24 hours of the system's receipt of notification of the analytical results of the first sample. Public water supply systems unable to comply with the 24-hour sampling requirement must immediately notify the consumers served by the area served by the public water system in accordance with 567—42.1(455B) Tier 1 public notice and complete an analysis of a confirmation sample within two weeks of notification of the analytical results of the first sample. Where the sampling frequency is monthly, a confirmation sample will not be used to determine compliance with the MCL.

3. Rescinded IAB 1/7/04, effective 2/11/04.

4. Compliance calculations and confirmation samples. If a required confirmation sample as collected within the time specified in 41.3(1)*"c"*(7)"1" is taken for any contaminant, then the results of the initial and confirmation sample shall be averaged. The resulting average shall be used to determine the system's compliance in accordance with 41.3(1)*"b."* The department has the discretion to invalidate results of obvious sampling errors.

(8) Designation of increased sampling frequency. The department may require more frequent monitoring than specified in 41.3(1)*"c"*(3) through (6) or may require confirmation samples for positive and negative results at its discretion. Public water supply systems may apply to conduct more frequent monitoring than the minimum monitoring frequencies specified in this subrule. Any increase or decrease in monitoring under this subparagraph will be designated in an operation permit or administrative order. To increase or decrease such frequency, the department shall consider the following factors:

1. Reported concentrations from previously required monitoring,

2. The degree of variation in reported concentrations,

3. Blending or treatment processes conducted for the purpose of complying with a maximum contaminant level, treatment technique, or action level, and

4. Other factors include changes in pumping rates in groundwater supplies or significant changes in the system's configuration, operating procedures, source of water and changes in streamflows.

(9) Grandfathered data. For the initial analysis required by 41.3(1)*"c,"* data for surface waters acquired within one year prior to the effective date and data for groundwaters acquired within three years prior to the effective date of 41.3(1)*"c"* may be substituted at the discretion of the department.

d. Best available treatment technologies (BATs) for IOCs. Rescinded IAB 8/11/99, effective 9/15/99.

e. Analytical methodology.

(1) Analytical methods for IOCs. Analysis for the listed inorganic contaminants shall be conducted using the following methods, or their equivalent as determined by EPA. Criteria for analyzing arsenic, barium, beryllium, cadmium, chromium, copper, lead, nickel, selenium, sodium, and thallium with digestion or directly without digestion, and other analytical test procedures are contained in Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October, 1994. This document is available from the National Technical Information Service, NTIS PB95-104766, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. The toll-free number is (800)553-6847.

INORGANIC CONTAMINANTS ANALYTICAL METHODS

Contaminant	Methodology[15]	EPA	ASTM[3]	SM	SM Online[26]	Other	Detection Limit, mg/L
Antimony	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, B-10		0.003
	Atomic absorption; platform	200.9[2]					0.0008[12]
	ICP-Mass spectrometry	200.8[2]					0.0004
	Atomic absorption; hydride		D3697-92, 02, 07, 12				0.001
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Arsenic[16]	ICP-Mass spectrometry	200.8[2]					0.0014
	Atomic absorption; platform	200.9[2]					0.0005[15]
	Atomic absorption; furnace		D2972-97C, 03C, 08C	3113B[4, 27, 33]	3113 B-04, B-10		0.001
	Atomic absorption; hydride		D2972-97B, 03B, 08B	3114B[4, 27, 33]	3114 B-09		0.001
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Asbestos	Transmission electron microscopy	100.1[9]					0.01 MFL
	Transmission electron microscopy	100.2[10]					
Barium	Inductively coupled plasma	200.7[2]		3120B[18, 27, 33]	3120 B-99		0.002
	ICP-Mass spectrometry	200.8[2]					
	Atomic absorption; direct			3111D[4, 27, 33]	3111 D-99		0.1
	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, B-10		0.002
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Beryllium	Inductively coupled plasma	200.7[2]		3120B[18, 27, 33]	3120 B-99		0.0003
	ICP-Mass spectrometry	200.8[2]					0.0003
	Atomic absorption; platform	200.9[2]					0.00002[12]
	Atomic absorption; furnace		D3645-97B, 03B, 08B	3113B[4, 27, 33]	3113 B-04, B-10		0.0002
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Cadmium	Inductively coupled plasma	200.7[2]					0.001
	ICP-Mass spectrometry	200.8[2]					
	Atomic absorption; platform	200.9[2]					
	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, B-10		0.0001

Contaminant	Methodology[15]	EPA	ASTM[3]	SM	SM Online[26]	Other	Detection Limit, mg/L
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Chromium	Inductively coupled plasma	200.7[2]		3120B[18, 27, 33]	3120 B-99		0.007
	ICP-Mass spectrometry	200.8[2]					
	Atomic absorption; platform	200.9[2]					
	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, B-10		0.001
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Cyanide	Manual distillation (followed by one of the following four analytical methods:)		D2036-98A, D2036-06A	4500-CN-C[18, 27, 33]			
	Spectrophotometric; amenable[14]		D2036-98B, D2036-06B	4500-CN-G[18, 27, 33]	4500-CN-G-99		0.02
	Spectrophotometric; manual[13]		D2036-98A, D2036-06A	4500-CN-E[18, 27, 33]	4500-CN-E-99	I-3300-85[5]	0.02
	Spectrophotometric; semi-automated[13]	335.4[6]					0.005
	Selective electrode[13]			4500-CN-F[18, 27, 33]	4500-CN-F-99		0.05
	UV, distillation, spectrophotometric[22]					Kelada 01[20]	0.0005
	Micro distillation, flow injection, spectrophotometric[13]					QuikChem 10-204-00-1-X[21]	0.0006
	Ligand exchange with amperometry[14]		D6888-04			OIA-1677, DW[25]	0.0005
	Gas chromatography/mass spectrometry headspace					ME355.01[29]	
Fluoride	Ion chromatography	300.0[6], 300.1[23]	D4327-97, 03, 11	4110B[18, 27, 33]	4110 B-00		
	Manual distillation; colorimetric; SPADNS			4500F⁻B,D[18, 27, 33]	4500 F⁻B,D-97		
	Manual electrode		D1179-93B, 99B, D1179-04B, 10B	4500F⁻C[18, 27, 33]	4500 F⁻C-97		
	Automated electrode					380-75WE[11]	
	Automated alizarin			4500F⁻E[18, 27, 33]	4500 F⁻E-97	129-71W[11]	
	Capillary ion electrophoresis					D6508, Rev.2[24]	
	Arsenite-free colorimetric; SPADNS					Hach SPADNS 2 Method 10225[31]	
Magnesium	Atomic absorption; direct		D511-93, 03B, 09B, 14B	3111B[4, 27, 33]	3111 B-99		
	ICP	200.7[1]		3120B[18, 27, 33]	3120 B-99		
	Complexation Titrimetric Methods		D511-93, 03A, 09A, 14B	3500-Mg E[4]			
				3500-Mg B[19, 27, 33]	3500-Mg B-97		
	Ion chromatography		D6919-03, 09				

Contaminant	Methodology[15]	EPA	ASTM[3]	SM	SM Online[26]	Other	Detection Limit, mg/L
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Mercury	Manual, cold vapor	245.1[2]	D3223-97, 02, 12	3112B[4, 27, 33]	3112 B-09		0.0002
	Automated, cold vapor	245.2[1]					0.0002
	ICP-Mass spectrometry	200.8[2]					
Nickel	Inductively coupled plasma	200.7[2]		3120B[18, 27, 33]	3120 B-99		0.005
	ICP-Mass spectrometry	200.8[2]					0.0005
	Atomic absorption; platform	200.9[2]					0.0006[12]
	Atomic absorption; direct			3111B[4, 27, 33]	3111 B-99		
	Atomic absorption; furnace			3113B[4, 27, 33]	3113 B-04, 10		0.001
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Nitrate	Ion chromatography	300.0[6], 300.1[23]	D4327-97, 03, 11	4110B[18, 27, 33]	4110 B-00	B-1011[8]	0.01
	Automated cadmium reduction	353.2[6]	D3867-90A	4500-NO_3-F[18, 27, 33]	4500-NO_3-F-00		0.05
	Ion selective electrode			4500-NO_3-D[18, 27, 33]	4500-NO_3-D-00	601[7]	1
	Manual cadmium reduction		D3867-90B	4500-NO_3-E[18, 27, 33]	4500-NO_3-E-00		0.01
	Capillary ion electrophoresis					D6508, Rev.2[24]	0.076
	Reduction/colorimetric					Systea Easy (1-Reagent)[30] NECi Nitrate-Reductase[34]	
	Colorimetric; direct					Hach TNTplus™ 835/836 Method 10206[32]	
Nitrite	Ion chromatography	300.0[6], 300.1[23]	D4327-97, 03, 11	4110B[18, 27, 33]	4110 B-00	B-1011[8]	0.004
	Automated cadmium reduction	353.2[6]	D3867-90A	4500-NO_3-F[18, 27, 33]	4500-NO_3-F-00		0.05
	Manual cadmium reduction		D3867-90B	4500-NO_3-E[18, 27, 33]	4500-NO_3-E-00		0.01
	Spectrophotometric			4500-NO_2-B[18, 27, 33]	4500-NO_2-B-00		0.01
	Capillary ion electrophoresis					D6508, Rev. 2[24]	0.103
	Reduction/colorimetric					Systea Easy (1-Reagent)[30] NECi Nitrate-Reductase[34]	
Selenium	Atomic absorption; hydride		D3859-98, 03A, 08A	3114B[4, 27, 33]	3114 B-09		0.002
	ICP-Mass spectrometry	200.8[2]					
	Atomic absorption; platform	200.9[2]					
	Atomic absorption; furnace		D3859-98, 03B, 08B	3113B[4, 27, 33]	3113 B-04, 10		0.002
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					

Contaminant	Methodology[15]	EPA	ASTM[3]	SM	SM Online[26]	Other	Detection Limit, mg/L
Sodium	Inductively coupled plasma	200.7[2]					
	Atomic absorption; direct			3111B[4, 27, 33]	3111 B-99		
	Ion chromatography		D6919-03, 09				
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Revision 4.2[28]					
Thallium	ICP-Mass spectrometry	200.8[2]					
	Atomic absorption; platform	200.9[2]					0.0007[12]

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW, Room B102, Washington, DC 20460 (telephone: (202)566-2426); or at the Office of Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

[1]"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983. Available at NTIS, PB84-128677.

[2]"Methods for the Determination of Metals in Environmental Samples—Supplement I," EPA-600/R-94-111, May 1994. Available at NTIS, PB95-125472.

[3]Annual Book of ASTM Standards, 1994, 1996, 1999 or 2003, Vols. 11.01 and 11.02, American Society for Testing and Materials (ASTM) International; the methods listed are the only versions that may be used. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

[4]18th and 19th editions of Standard Methods for the Examination of Water and Wastewater, 1992 and 1995, respectively, American Public Health Association; either edition may be used. Copies may be obtained from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[5]Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3rd edition, 1989, Method I-3300-85. Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

[6]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA-600-R-93-100, August 1993. Available at NTIS, PB94-120821.

[7]The procedure shall be done in accordance with the Technical Bulletin 601, "Standard Method of Test for Nitrate in Drinking Water," July 1994, PN221890-001, Analytical Technology, Inc. Copies may be obtained from ATI Orion, 529 Main Street, Boston, MA 02129.

[8]Method B-1011, "Waters Test Method for Determination of Nitrite/Nitrate in Water Using Single Column Ion Chromatography," August 1987. Copies may be obtained from Waters Corporation, Technical Services Division, 34 Maple Street, Milford, MA 01757; telephone: (508)482-2131.

[9]Method 100.1, "Analytical Method for Determination of Asbestos Fibers in Water," EPA-600/4-83-043, EPA, September 1983. Available at NTIS, PB83-260471.

[10]Method 100.2, "Determination of Asbestos Structure Over 10 Microns in Length in Drinking Water," EPA-600/R-94-134, June 1994. Available at NTIS, PB94-201902.

[11]Industrial Method No. 129-71W, "Fluoride in Water and Wastewater," December 1972, and Method No. 380-75WE, "Fluoride in Water and Wastewater," February 1976, Technicon Industrial Systems. Copies may be obtained from Bran & Luebbe, 1025 Busch Parkway, Buffalo Grove, IL 60089.

[12]Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.

[13]Screening method for total cyanides.

[14]Measures "free" cyanides when distillation, digestion, or ligand exchange is omitted.

[15]Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2X preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. For direct analysis of cadmium by Method 200.7, sample preconcentration using pneumatic nebulization may be required to achieve lower detection limits. Preconcentration may also be required for direct analysis of antimony and thallium by Method 200.9, and antimony by Method 3113B, unless multiple in-furnace depositions are made.

[16]If ultrasonic nebulization is used in the determination of arsenic by Method 200.8, the arsenic must be in the pentavalent state to provide uniform signal response. For direct analysis of arsenic with Method 200.8 using ultrasonic nebulization, samples and standards must contain 1 mg/L of sodium hypochlorite.

[17]Reserved.

[18]The 18th, 19th, and 20th editions of Standard Methods for the Examination of Water and Wastewater, 1992, 1995, and 1998, respectively, American Public Health Association; any edition may be used, except that the versions of 3111B, 3111D, 3113B, and 3114B in the 20th edition may not be used. Copies may be obtained from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[19]The 20th edition of Standard Methods for the Examination of Water and Wastewater, 1998, American Public Health Association. Copies may be obtaining from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[20]The description for the Kelada 01 Method, "Kelada Automated Test Methods for Total Cyanide, Acid Dissociable Cyanide, and Thiocyanate," Revision 1.2, August 2001, EPA #821-B-01-009 for cyanide is available from NTIS PB 2001-108275. NOTE: A 450W UV lamp may be used in this method instead of the 550W lamp specified if it provides performance within the quality control acceptance criteria of the method in a given instrument. Similarly, modified flow cell configurations and flow conditions may be used in the method, provided that the quality control acceptance criteria are met.

[21]The description for the QuikChem Method 10-204-00-1-X, "Digestion and distillation of total cyanide in drinking water and wastewaters using MICRO DIST and determination of cyanide by flow injection analysis," Revision 2.1, November 30, 2000, for cyanide is available from Lachat Instruments, 6645 W. Mill Road, Milwaukee, WI 53218, telephone (414)358-4200.

[22]Measures total cyanides when UV-digestor is used, and "free" cyanides when UV-digestor is bypassed.

[23]"Methods for the Determination of Organic and Inorganic Compounds in Drinking Water," Volume 1, EPA 815-R-00-014, August 2000. Available at NTIC, PB2000-106981.

[24]Method D6508, Rev. 2, "Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte," available from Waters Corp., 34 Maple Street, Milford, MA 01757; telephone: (508)482-2131; fax: (508)482-3625.

[25]Method OIA-1677, DW "Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry," January 2004. EPA-821-R-04-001. Available from ALPKEM, a division of OI Analytical, P.O. Box 9010, College Station, TX 77542-9010.

[26]Standard Methods Online is available at www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[27]Standard Methods for the Examination of Water and Wastewater, 21st edition (2005). Available from American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[28]EPA Method 200.5, Revision 4.2: "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry," 2003. EPA/600/R-06/115. Available at www.nemi.gov.

[29]Method ME355.01, Revision 1.0, "Determination of Cyanide in Drinking Water by GC/MS Headspace," May 26, 2009. Available at www.nemi.gov or from H & E Testing Laboratory, 221 State Street, Augusta, ME 04333; telephone: (207)287-2727.

[30]Systea Easy (1-Reagent), "Systea Easy (1-Reagent) Nitrate Method," February 4, 2009. Available at www.nemi.gov or from Systea Scientific, LLC, 900 Jorie Blvd., Suite 35, Oak Brook, IL 60523.

[31]Hach Company Method, "Hach Company SPADNS 2 (Arsenic-free) Fluoride Method 10225 – Spectrophotometric Measurement of Fluoride in Water and Wastewater," January 2011. 5600 Lindbergh Drive, P.O. Box 389, Loveland, CO 80539. Available at www.hach.com.

[32]Hach Company Method, "Hach Company TNTplus™ 835/836 Nitrate Method 10206 – Spectrophotometric Measurement of Nitrate in Water and Wastewater," January 2011. 5600 Lindbergh Drive, P.O. Box 389, Loveland, CO 80539. Available at www.hach.com.

[33]Standard Methods for the Examination of Water and Wastewater, 22nd edition (2012), American Public Health Association. Available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[34]Nitrate Elimination Company, Inc. (NECi). "Method for Nitrate Reductase Nitrate-Nitrogen Analysis of Drinking Water," February 2016. Superior Enzymes, Inc., 334 Hecla Street, Lake Linden, MI 49945.

(2) Sampling methods for IOCs. Sample collection for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, nitrate, nitrite, selenium, and thallium under this subparagraph shall be conducted using the sample preservation, container, and maximum holding time procedures specified in the table below:

SAMPLING METHODS FOR IOCs

Contaminant	Preservative[1]	Container[2]	Time[3]
Antimony	HNO_3	P or G	6 months
Arsenic	HNO_3	P or G	6 months
Asbestos	4 degrees C	P or G	48 hours for filtration[5]
Barium	HNO_3	P or G	6 months
Beryllium	HNO_3	P or G	6 months
Cadmium	HNO_3	P or G	6 months
Chromium	HNO_3	P or G	6 months
Cyanide	4 degrees C, NaOH	P or G	14 days
Fluoride	None	P or G	1 month
Mercury	HNO_3	P or G	28 days
Nickel	HNO_3	P or G	6 months
Nitrate[4]	4 degrees C	P or G	48 hours
Nitrate-Nitrite[4]	H_2SO_4	P or G	28 days
Nitrite[4]	4 degrees C	P or G	48 hours
Selenium	HNO_3	P or G	6 months
Thallium	HNO_3	P or G	6 months

[1]When indicated, samples must be acidified at the time of collection to pH < 2 with concentrated acid, or adjusted with sodium hydroxide to pH > 12. Samples collected for metals analysis may be preserved by acidification at the laboratory, using a 1:1 nitric acid solution (50 percent by volume), provided the shipping time and other instructions in Section 8.3 of EPA Methods 200.7, 200.8, and 200.9 are followed. When chilling is indicated, the sample must be shipped and stored at 4 degrees C or less.

[2]P: plastic, hard or soft; G: glass, hard or soft.

[3]In all cases, samples should be analyzed as soon after collection as possible. Follow additional (if any) information on preservation, containers, or holding times that is specified in the method.

[4]Nitrate may only be measured separate from nitrite in samples that have not been acidified. Measurement of acidified samples provides a total nitrate (sum of nitrate plus nitrite) concentration. Acidification of total nitrate (nitrate plus nitrite) samples must be done in the field at the time of sample collection.

[5]Instructions for containers, preservation procedures, and holding times as specified in Method 100.2 must be adhered to for all compliance analyses, including those conducted with Method 100.1.

f. *Unregulated inorganic chemicals.* Rescinded IAB 1/7/04, effective 2/11/04.

41.3(2) *Other inorganic chemical contaminants.* Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—41.4(455B) Lead, copper, and corrosivity.

41.4(1) *Lead, copper, and corrosivity regulation by the setting of a treatment technique requirement.* The lead and copper rules establish a treatment technique that includes requirements for corrosion control treatment, source water treatment, lead service line replacement, and public education. These requirements are triggered, in some cases, by lead and copper action levels measured in samples collected at consumers' taps.

a. *Applicability.* Unless otherwise indicated, each of the provisions of this subrule applies to community water systems and nontransient noncommunity water systems (hereinafter referred to as "water systems" or "systems").

b. *Action levels.*

(1) Lead action level. The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with 41.4(1)*"c"* is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L).

(2) Copper action level. The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with 41.4(1)*"c"* is greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

(3) Calculation of 90th percentile. The 90th percentile lead and copper levels shall be computed as follows:

1. The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.

2. The number of samples taken during the monitoring period shall be multiplied by 0.9.

3. The contaminant concentration in the numbered sample yielded by this calculation is the 90th percentile contaminant level.

4. For water systems serving fewer than 100 people that collect five samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentrations.

5. For a public water system that has been allowed by the department to collect fewer than five samples in accordance with 41.4(1)*"c"*(3), the sample result with the highest concentration is considered the 90th percentile value.

c. Lead and copper tap water monitoring requirements.

(1) Sample site selection.

1. General. Public water supply systems shall complete a materials evaluation of their distribution systems by the date indicated in 41.4(1)*"c"*(4) in order to identify a pool of sampling sites that meets the requirements of this subrule, and which is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in 41.4(1)*"c"*(3). All sites from which first-draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

2. Information sources. A public water supply system shall use the information on lead, copper and galvanized steel that it is required to collect under 41.4(1)*"f"* as part of its responsibility for the special monitoring for corrosivity characteristics when conducting a materials evaluation. When an evaluation of the information collected is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in 41.4(1)*"c"*(1), the water system shall review all plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system; all inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and all existing water quality information, which includes the results of all prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations. In addition, the system shall seek to collect such information where possible in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities).

3. Tier 1 community sampling sites. The sampling sites selected for a community water system's sampling pool ("tier 1 sampling sites") shall consist of single-family structures that contain copper pipes with lead solder installed after 1982 or contain lead pipes; or are served by a lead service line. When multiple-family residences comprise at least 20 percent of the structures served by a water system, the system may include these types of structures in its sampling pool.

4. Tier 2 community sampling sites. Any community water system with insufficient tier 1 sampling sites shall complete its sampling pool with "tier 2 sampling sites," consisting of buildings, including multiple-family residences that contain copper pipes with lead solder installed after 1982 or contain lead pipes; or are served by a lead service line.

5. Tier 3 community sampling sites. Any community water system with insufficient Tier 1 and Tier 2 sampling sites shall complete its sampling pool with "Tier 3 sampling sites," consisting of single-family structures that contain copper pipes with lead solder installed before 1983. A community water system with insufficient Tier 1, Tier 2, and Tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. A representative site is defined as a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

6. Tier 1 NTNC sampling sites. The sampling sites selected for a nontransient noncommunity water system ("tier 1 sampling sites") shall consist of buildings that: contain copper pipes with lead solder installed after 1982 or contain lead pipes; or are served by a lead service line.

7. Other NTNC sampling sites. A nontransient noncommunity water system with insufficient Tier 1 sites that meet the targeting criteria in 41.4(1)*"c"*(1)"6" shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the NTNC system shall use representative sites throughout the distribution system. A representative site is defined as a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

8. LSL sampling sites. Any public water supply system whose distribution system contains lead service lines shall draw 50 percent of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50 percent of those samples from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first-draw samples from all of the sites identified as being served by such lines.

(2) Sample collection methods.

1. Tap samples for lead and copper collected in accordance with this subparagraph, with the exception of lead service line samples collected under 567—subrule 43.7(4) and 41.4(1)*"c"*(2)"5," shall be first-draw samples.

2. First-draw tap samples for lead and copper shall be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours. First-draw samples from residential housing shall be collected from the cold-water kitchen tap or bathroom sink tap. First-draw samples from a nonresidential building shall be collected at an interior tap from which water is typically drawn for consumption. Non-first-draw samples collected in lieu of first-draw samples pursuant to 41.4(1)*"c"*(2)"5" shall be one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. First-draw samples may be collected by the system or the system may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this paragraph. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

3. Service line samples collected to determine if the service line is directly contributing lead (as described in 567—subrule 43.7(4)) shall be one liter in volume and have stood motionless in the lead service line for at least six hours and be collected at the tap after flushing the volume of water between the tap and the lead service line. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line; tapping directly into the lead service line; or if the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.

4. A public water supply system shall collect each first-draw tap sample from the same sampling site from which it collected a previous sample. If, for any reason, the water system cannot gain entry to a sampling site in order to collect a follow-up tap sample, the system may collect the follow-up tap

sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity of the original site.

5. An NTNC system, or a CWS system that meets the criteria of 567—subparagraph 42.2(2)*"b"*(7) that does not have enough taps that can supply first-draw samples, as defined in 567—40.2(455B), may apply to the department in writing to substitute non-first-draw samples. Such systems must collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. The department may waive the requirement for prior department approval of non-first-draw sample sites selected by the system, through written notification to the system.

(3) Number of samples. Water systems shall collect at least one sample during each monitoring period specified in 41.4(1)*"c"*(4) from the number of sites as listed in the column below titled "standard monitoring." A system conducting reduced monitoring under 41.4(1)*"c"*(4) shall collect at least one sample from the number of sites specified in the column titled "reduced monitoring" during each monitoring period specified in 41.4(1)*"c"*(4). Such reduced monitoring sites shall be representative of the sites required for standard monitoring. A public water system that has fewer than five drinking water taps that can be used for human consumption meeting the sample site criteria of 41.4(1)*"c"*(1) to reach the required number of sample sites listed in 41.4(1)*"c"*(3) must collect at least one sample from each tap and then must collect additional samples from those taps on different days during the monitoring period to meet the required number of sites. Alternatively, the department may allow these systems to collect a number of samples less than the number of sites specified in 41.4(1)*"c"*(1), provided that 100 percent of all taps that can be used for human consumption are sampled. The department must approve this reduction of the minimum number of samples in writing based upon a request from the system or on-site verification by the department. The department may specify sampling locations when a system is conducting reduced monitoring.

REQUIRED NUMBER OF LEAD/COPPER SAMPLES

System Size (Number of People Served)	Standard Monitoring (Number of Sites)	Reduced Monitoring (Number of Sites)
greater than 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
less than or equal to 100	5	5

(4) Timing of monitoring.

1. Initial tap sampling. The first six-month monitoring period for small, medium-size and large systems shall begin on the following dates:

System Size (Number of People Served)	First Six-month Monitoring Period Begins on:
greater than 50,000 (large system)	January 1, 1992
3,301 to 50,000 (medium system)	July 1, 1992
less than or equal to 3,300 (small system)	July 1, 1993

All large systems shall monitor during two consecutive six-month periods. All small and medium-size systems shall monitor during each six-month monitoring period until the system exceeds the lead or copper action level and is, therefore, required to implement the corrosion control treatment requirements under 567—paragraph 43.7(1)*"a,"* in which case the system shall continue monitoring in accordance with 41.4(1)*"c"*(4), or the system meets the lead and copper action levels during two consecutive

six-month monitoring periods, in which case the system may reduce monitoring in accordance with 41.4(1)*"c"*(4).

2. Monitoring after installation of corrosion control and source water treatment. Large systems which install optimal corrosion control treatment pursuant to 567—subparagraph 43.7(1)*"d"*(4) shall monitor during two consecutive six-month monitoring periods by the date specified in 567—subparagraph 43.7(1)*"d"*(5). Small or medium-size systems which install optimal corrosion control treatment pursuant to 567—subparagraph 43.7(1)*"e"*(5) shall monitor during two consecutive six-month monitoring periods as specified in 567—subparagraph 43.7(1)*"e"*(6). Systems which install source water treatment shall monitor during two consecutive six-month monitoring periods by the date specified in 567—subparagraph 43.7(3)*"a"*(4).

3. Monitoring after the department specifies water quality parameter values for optimal corrosion control. After the department specifies the values for water quality control parameters under 567—paragraph 43.7(2)*"f,"* the system shall monitor during each subsequent six-month monitoring period, with the first monitoring period to begin on the date the department specifies the optimal values under 567—paragraph 43.7(2)*"f."*

4. Reduced monitoring.

- A small or medium-size water system that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the number of lead and copper samples according to 41.4(1)*"c"*(3) and reduce the frequency of sampling to once per year. A small or medium-size water system collecting fewer than five samples as specified in 41.4(1)*"c"*(3) that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the frequency of sampling to once per year. The system may not ever reduce the number of samples required below the minimum of one sample per available tap. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.
- Any public water supply system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f"* during each of two consecutive six-month monitoring periods may reduce the monitoring frequency to once per year and reduce the number of lead and copper samples according to 41.4(1)*"c"*(3), upon written approval by the department. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period. The department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with 567—subrule 42.4(2), and shall notify the system in writing when it determines that the system is eligible to commence reduced monitoring. The department will review and, where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.
- A small or medium-size water system that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f"* during three consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three years if it receives written approval by the department. Samples collected once every three years shall be collected no later than every third calendar year. The department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with 567—subrule 42.4(2), and shall notify the system in writing when it determines that the system is eligible to reduce the monitoring frequency to once every three years. The department will review and, where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.
- A water system that reduces the number and frequency of sampling shall collect these samples from sites included in the pool of targeted sampling sites identified in 41.4(1)*"c"*(1). Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June

through September, unless the department, at its discretion, has approved a different sampling period. If approved by the department, the period shall be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. The department shall designate a period that represents a time of normal operation for an NTNC system that does not operate during the months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known. This sampling shall begin during the period approved or designated by the department in the calendar year immediately following the end of the second consecutive six-month monitoring period for systems initiating annual monitoring and during the three-year period following the end of the third consecutive calendar year of annual monitoring for systems initiating triennial monitoring.

Systems monitoring annually that have been collecting samples during the months of June through September and that receive department approval to alter their sample collection period must collect their next round of samples during a time period that ends no later than 21 months after the previous round of sampling.

Systems monitoring triennially that have been collecting samples during the months of June through September and that receive department approval to alter the sampling collection period must collect their next round of samples during a time period that ends no later than 45 months after the previous round of sampling.

Subsequent rounds of sampling must be collected annually or triennially, as required by 41.4(1)*"c."*

Small systems that have been granted waivers pursuant to 41.4(1)*"c"*(7), that have been collecting samples during the months of June through September and that receive department approval to alter their sample collection period as previously stated must collect their next round of samples before the end of the nine-year period.

- Any water system that demonstrates for two consecutive six-month monitoring periods that the 90th percentile tap water level computed under 41.4(1)*"b"*(3) is less than or equal to 0.005 mg/L for lead and is less than or equal to 0.65 mg/L for copper may reduce the number of samples in accordance with 41.4(1)*"c"*(3) and reduce the frequency of sampling to once every three calendar years, if approved by the department.
- A small or medium-size water system subject to reduced monitoring that exceeds the lead or copper action level shall resume sampling according to 41.4(1)*"c"*(4)"3" and collect the number of samples specified for standard monitoring in 41.4(1)*"c"*(3). Any such system shall also conduct water quality parameter monitoring in accordance with 41.4(1)*"d"*(2), (3), or (4), as appropriate, during the monitoring period in which it exceeded the action level. Any such system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in 41.4(1)*"c"*(3) after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of 41.4(1)*"c"*(4)"4," first bulleted paragraph, and may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either 41.4(1)*"c"*(4)"4," third bulleted paragraph or fifth bulleted paragraph, and has received department approval.

Any water system subject to reduced monitoring frequency that fails to meet the lead action level during any four-month monitoring period or that fails to operate at or above the minimum value or within the range of values for the water quality control parameters specified by the department under 567—paragraph 43.7(2)*"f"* for more than nine days in any six-month period specified in 41.4(1)*"d"*(4) shall resume tap water sampling according to 41.4(1)*"c"*(4)"3," collect the number of samples specified for standard monitoring in 41.4(1)*"c"*(3), and resume monitoring for water quality parameters within the distribution system in accordance with 41.4(1)*"d"*(4). This standard tap water sampling shall begin no later than the six-month period beginning January 1 of the calendar year following the lead action level exceedance or water quality parameter excursion. The system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in 41.4(1)*"c"*(3) after it has completed two subsequent six-month rounds of monitoring

that meet the criteria of 41.4(1)*"c"*(4)"4," second bulleted paragraph, and upon written approval from the department to resume reduced annual monitoring. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either 41.4(1)*"c"*(4)"4," third bulleted paragraph or fifth bulleted paragraph, and upon written approval from the department to resume triennial monitoring.

The system may reduce the number of water quality parameter tap water samples required in 41.4(1)*"d"*(5)"1" and the sampling frequency required in 41.4(1)*"d"*(5)"2." Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates that it has requalified for triennial monitoring, pursuant to 41.4(1)*"d"*(5)"2."

- Any water system subject to a reduced monitoring frequency under 41.4(1)*"c"*(4)"4" must notify the department in writing in accordance with 567—subparagraph 42.4(2)*"a"*(3) of any upcoming long-term change in treatment or addition of a new source as described in that subparagraph. The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the system. The department may require the system to resume sampling pursuant to 41.4(1)*"c"*(4)"3" and collect the number of samples specified for standard monitoring under 41.4(1)*"c"*(3), or take other appropriate steps such as increased water quality parameter monitoring or reevaluation of its corrosion control treatment given the potentially different water quality considerations.

(5) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of 41.4(1)*"c"* shall be considered by the system and the department in making any determinations (i.e., calculating the 90th percentile lead or copper level) under this subrule.

(6) Invalidation of lead or copper tap water samples. A sample invalidated under this paragraph does not count toward determining the lead or copper 90th percentile levels under 41.4(1)*"b"*(3) or toward meeting the minimum monitoring requirements of 41.4(1)*"c"*(3).

1. The department may invalidate a lead or copper tap water sample if at least one of the following conditions is met:

- The laboratory establishes that improper sample analysis caused erroneous results.
- The department determines that the sample was taken from a site that did not meet the site selection criteria of 567—41.4(455B).
- The sample container was damaged in transit to the laboratory.
- There is a substantial reason to believe that the sample was subject to tampering.
- The sample is not representative of water that would be consumed from the tap.
- The department determined that a major disruption of the water flow occurred in the system or building plumbing prior to sample collection, which resulted in lead or copper levels that were not representative of the system.

2. The system must report the results of all samples to the department and all supporting documentation for samples the system believes should be invalidated.

3. To invalidate a sample under 41.4(1)*"c"*(6)"1," the decision and the rationale for the decision must be documented in writing. The department may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

4. The system must collect replacement samples for any samples invalidated under subparagraph 41.4(1)*"c"*(6) if, after the invalidation of one or more samples, the system has too few samples to meet the minimum requirements of 41.4(1)*"c"*(3). Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the department invalidates the sample, or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(7) Monitoring waivers for small systems. Any small system that meets the criteria of this subparagraph may apply to the department to reduce the frequency of monitoring for lead and copper

under subrule 41.4(1) to once every nine years if it meets all of the materials criteria specified in 41.4(1)*"c"*(7)"1" and the monitoring criteria specified in 41.4(1)*"c"*(7)"2."

1. Materials criteria. The system must demonstrate that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and copper-containing materials, as defined below:

- Lead. The water system must provide certification and supporting documentation to the department that the system is free of all lead-containing materials. The system does not contain any plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers. The system must be free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to 42 U.S.C. 300-g-6(e).
- Copper. The water system must provide certification and supporting documentation to the department that the system contains no copper pipes or copper service lines.

2. Monitoring criteria. The system must have completed at least one six-month round of standard tap water monitoring for lead and copper at sites approved by the department and from the number of sites required by 41.4(1)*"c"*(3), and demonstrate that the 90th percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing and copper-containing materials meet the following criteria:

- Lead levels. The system must demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.
- Copper levels. The system must demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

3. Department approval of waiver application. The department shall notify the system of its waiver determination in writing, including the basis of its decision and any condition of the waiver. The department may require as a waiver condition that the system conduct specific activities, such as limited monitoring and periodic outreach to customers to remind them to avoid installation of materials that would void the waiver. The system must continue monitoring for lead and copper at the tap as required by 41.4(1)*"c"*(4)"1" through "4," as appropriate, until the system receives written approval for the waiver from the department.

4. Monitoring frequency of systems with waivers.

- A system must conduct tap water monitoring for lead and copper in accordance with 41.4(1)*"c"*(4)"4" at the reduced number of sampling sites identified in subparagraph 41.4(1)*"c"*(3) at least once every nine years and provide the materials certification specified in 41.4(1)*"c"*(7)"1" for both lead and copper to the department along with the monitoring results. Samples collected every nine years shall be collected no later than every ninth calendar year.
- A system with a waiver must notify the department in writing pursuant to 567—subparagraph 42.4(2)*"a"*(3) of any upcoming long-term change in treatment or addition of a new source, as described in that subparagraph. The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the system. The department has the authority to require the system to add or modify waiver conditions, such as to require recertification that the system is free of lead-containing and copper-containing materials or to require additional monitoring, if the department deems such modifications are necessary to address treatment or source water changes at the system.
- If a system with a waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, such as from new construction or repairs, the system shall notify the department in writing no later than 60 days after becoming aware of such a change.

5. Continued eligibility. If the system continues to satisfy the requirements of 41.4(1)*"c"*(7)"4," the waiver will be renewed automatically, unless any of the conditions listed below occur. A system whose waiver has been revoked may reapply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of 41.4(1)*"c"*(7)"1" and 41.4(1)*"c"*(7)"2."

● A system no longer satisfies the materials criteria of 41.4(1)*"c"*(7)"1," or has a 90th percentile lead level greater than 0.005 mg/L or a 90th percentile copper level greater than 0.65 mg/L.

● The department notifies the system in writing that the waiver has been revoked, including the basis of its decision.

6. Requirements following waiver revocation. A system whose waiver has been revoked by the department is subject to the corrosion control treatment and lead and copper tap water monitoring requirements as follows:

● If the system exceeds the lead or copper action level, the system must implement corrosion control treatment in accordance with the deadlines specified in 567—paragraph 43.7(1)*"e,"* and any other applicable parts of 567—41.4(455B).

● If the system meets both the lead and copper action levels, the system must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sample sites specified in subparagraph 41.4(1)*"c"*(3).

d. Water quality parameter monitoring requirements. All large public water supply systems (and all small and medium-size public water supply systems that exceed the lead or copper action level) shall monitor water quality parameters in addition to lead and copper in accordance with this subrule. The requirements of this subrule are summarized in the table at the end of 41.4(1)*"d"*(6). The water quality parameters must be reported in accordance with the monthly operation report requirements listed in 567—subrule 42.4(3).

(1) General requirements.

1. Sample collection methods. Tap samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the system, and seasonal variability. Tap sampling under this subrule is not required to be conducted at taps targeted for lead and copper sampling under 41.4(1)*"c"*(1)"1." Systems may conduct tap sampling for water quality parameters at sites used for coliform sampling. Samples collected at the entry point(s) to the distribution system shall be from locations representative of each source after treatment. If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

2. Number of samples.

● Systems shall collect two tap samples for applicable water quality parameters during each monitoring period specified in 41.4(1)*"d"*(2) through (5) from the following number of sites.

REQUIRED NUMBER OF SAMPLES: WATER QUALITY PARAMETERS

System Size (Number of People Served)	Number of Sites for Water Quality Parameters
greater than 100,000	25
10,001 to 100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
less than or equal to 100	1

● Except as provided in 41.4(1)*"d"*(3)*"*3," systems shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period specified in 41.4(1)*"d"*(2). During each monitoring period specified in 41.4(1)*"d"*(2). During each monitoring period specified in 41.4(1)*"d"*(3) through (5), systems shall collect one sample for each applicable water quality parameter at each entry point to the distribution system.

(2) Initial sampling. Large water systems shall measure the applicable water quality parameters as specified below at taps and at each entry point to the distribution system during each six-month monitoring period specified in 41.4(1)*"c"*(4)"1." Small and medium-size systems shall measure the

applicable water quality parameters at taps and at each entry point to the distribution system during each six-month monitoring period specified in 41.4(1)*"c"*(4)"1" during which the system exceeds the lead or copper action level. Tap water and entry point monitoring shall include: pH; alkalinity; orthophosphate, when an inhibitor containing a phosphate compound is used; silica, when an inhibitor containing a silicate compound is used; calcium; conductivity; and water temperature.

(3) Monitoring after installation of corrosion control. Large systems which install optimal corrosion control treatment pursuant to 567—subparagraph 43.7(1)*"d"*(4) shall measure the water quality parameters at the locations and frequencies specified below during each six-month monitoring period specified in 41.4(1)*"c"*(4)"2." Small or medium-size systems which install optimal corrosion control treatment shall conduct such monitoring during each six-month monitoring period specified in 41.4(1)*"c"*(4)"2" in which the system exceeds the lead or copper action level.

1. Tap water monitoring shall include two samples for: pH; alkalinity; orthophosphate, when an inhibitor containing a phosphate compound is used; silica, when an inhibitor containing a silicate compound is used; calcium, when calcium carbonate stabilization is used as part of corrosion control.

2. Except as provided for in 41.4(1)*"d"*(3)*"*3," monitoring at each entry point to the distribution system shall include one sample every two weeks (biweekly) for: pH; a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration when alkalinity is adjusted as part of optimal corrosion control; and a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica (whichever is applicable) when a corrosion inhibitor is used as part of optimal corrosion control.

3. Any groundwater system can limit entry point sampling described in 41.4(1)*"d"*(3)"3" to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated groundwater sources mixes with water from treated groundwater sources, the system must monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this paragraph, the system shall provide to the department written information identifying the selected entry points and documentation sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system, including information on seasonal variability.

(4) Monitoring after the department specifies water quality parameter values for optimal corrosion control. After the department specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment, all large systems shall measure the applicable water quality parameters according to 41.4(1)*"d"*(3) and determine compliance with the requirements of 567—paragraph 43.7(2)*"g"* every six months, with the first six-month period to begin on either January 1 or July 1, whichever comes first, after the department specifies the optimal values under 567—paragraph 43.7(2)*"f."* Any small or medium-size system shall conduct such monitoring during each monitoring period specified in 41.4(1)*"c"*(4)"3" in which the system exceeds the lead or copper action level. For any such small and medium-size system that is subject to a reduced monitoring frequency pursuant to 41.4(1)*"c"*(4)"4" at the time of the action level exceedance, the start of the applicable six-month monitoring period under this paragraph shall coincide with the end of the applicable monitoring period under 41.4(1)*"c"*(4)"4." Compliance with department-designated optimal water quality parameter values shall be determined as specified in 567—paragraph 43.7(2)*"g."*

(5) Reduced monitoring.

1. Public water supply systems that maintain the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month monitoring periods under 41.4(1)*"c"*(4) shall continue monitoring at the entry point(s) to the distribution system as specified in 567—paragraph 43.7(2)*"f."* Such system may collect two tap samples for applicable water quality parameters from the following reduced number of sites during each six-month monitoring period.

REDUCED WATER QUALITY PARAMETER MONITORING

System Size (Number of People Served)	Reduced Number of Sites for Water Quality Parameters
greater than 100,000	10
10,001 to 100,000	7
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
less than or equal to 100	1

2. A public water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f"* during three consecutive years of monitoring may reduce the frequency with which the system collects the number of tap samples for applicable water quality parameters specified in 41.4(1)*"d"*(5) from every six months to annually. This sampling shall begin during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six-month monitoring occurs. Any system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f"* during three consecutive years of annual monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in 41.4(1)*"d"*(5) from annually to every three years. This sampling shall begin no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in 41.4(1)*"d"*(5)"1" to every three years if it demonstrates during two consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to 0.005 mg/L, that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L, and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the department under 567—paragraph 43.7(2)*"f."* Monitoring conducted every three years shall be done no later than every third calendar year.

3. A public water system that conducts sampling annually shall collect these samples evenly throughout the year so as to reflect seasonal variability.

4. Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the department under 567—paragraph 43.7(2)*"f"* for more than nine days in any six-month period specified in 567—paragraph 43.7(2)*"g"* shall resume distribution system tap water sampling in accordance with the number and frequency requirements in 41.4(1)*"d"*(3). Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in 41.4(1)*"d"*(5)"1" after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of that paragraph or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria in 41.4(1)*"d"*(5)"2."

(6) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of this subrule shall be considered in making any determinations (i.e., determining concentrations of water quality parameters) under this subrule or 567—subrule 43.7(2).

SUMMARY OF MONITORING REQUIREMENTS FOR WATER QUALITY PARAMETERS[1]

Monitoring Period	Location	Parameters[2]	Frequency
Initial Monitoring	Taps and at entry point(s) to distribution systems	pH, alkalinity, orthophosphate or silica[3], calcium, conductivity, temperature	Every 6 months
After Installation of Corrosion Control	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months
	Entry point(s) to distribution system[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every two weeks
After Department Specifies Parameter Values for Optimal Corrosion Control	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months
	Entry point(s) to distribution system[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every two weeks
Reduced Monitoring	Taps	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Every 6 months, annually[7], or every 3 years[8], at a reduced number of sites
	Entry point(s) to distribution system[6]	pH, alkalinity, if alkalinity is adjusted as part of corrosion control then include the chemical additive dosage rate and concentration, inhibitor dosage rate and inhibitor residual[5]	At least every two weeks

[1]Table is for illustrative purposes; consult the text of this subrule for precise regulatory requirements.

[2]Small and medium-size systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

[3]Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

[4]Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

[5]Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

[6]Groundwater systems may limit monitoring to representative locations throughout the systems.

[7]Water systems may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during three consecutive years of monitoring.

[8]Water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every three years if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during three consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65mg/L, and the range of water quality parameters designated by the department under 567—paragraph 43.7(2)*"f"* as representing optimal corrosion control during two consecutive six-month monitoring periods.

e. Lead and copper source water monitoring requirements.

(1) Sample location, collection methods, and number of samples.

1. A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with 41.4(1)*"c"* shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

- Groundwater systems shall take a minimum of one sample at every entry point to the distribution system (source entry point) which is representative of each well after treatment. The system shall take one sample at the same source entry point unless conditions make another sampling location more representative of each source or treatment plant.
- Surface water systems and any system with a combination of surface water and groundwater shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point which is representative of each source after treatment. The system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

- If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions, when water is representative of all sources being used.

2. Where the results of sampling indicate an exceedance of maximum permissible source water levels established under 567—subparagraph 43.7(3)*"b"*(4), the department may require that one additional sample be collected as soon as possible after the initial sample was taken (but not to exceed two weeks) at the same sampling point. If a confirmation sample is taken for lead or copper, then the results of the initial and confirmation samples shall be averaged in determining compliance with the maximum permissible levels. Lead and copper analytical results below the detection limit shall be considered to be zero. Analytical results above the detection limit but below the practical quantification level (PQL) shall either be considered as the measured value or be considered one-half the PQL.

(2) Monitoring after system exceeds tap water action level. Any system which exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system no later than six months after the end of the monitoring period during which the lead or copper action level was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs or, if the department has established an alternate monitoring period, the last day of that period.

(3) Monitoring after installation of source water treatment. Any system which installs source water treatment pursuant to 567—subparagraph 43.7(3)*"a"*(3) shall collect an additional source water sample from each entry point to the distribution system during two consecutive six-month monitoring periods by the deadline specified.

(4) Monitoring frequency after the department specifies maximum permissible source water levels or determines that source water treatment is not needed.

1. A system shall monitor at the frequency specified below in cases where the department specifies maximum permissible source water levels under 567—subparagraph 43.7(3)*"b"*(4) or determines that the system is not required to install source water treatment under 567—subparagraph 43.7(3)*"b"*(2). A water system using only groundwater shall collect samples once during the three-year compliance period in effect when the department makes this determination. Such systems shall collect samples once during each subsequent compliance period. Triennial samples shall be collected every third calendar year. A public water system using surface water (or a combination of surface and groundwater) shall collect samples once during each year, the first annual monitoring period to begin during the year in which the department determination is made under this subparagraph.

2. A system using only groundwater is not required to conduct source water sampling for lead or copper if the system meets the action level for the specific contaminant in tap water samples during the entire source water sampling.

(5) Reduced monitoring frequency.

1. A water system using only groundwater may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle provided that the samples are collected no later than every ninth calendar year and if the system meets one of the following criteria:

- The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead or copper concentrations specified by the department in 567—subparagraph 43.7(3)*"b"*(4) during at least three consecutive compliance periods under 41.4(1)*"e"*(4)"1"; or
- The department has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under 41.4(1)*"e"*(4)"1," the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

2. A water system using surface water (or a combination of surface water and groundwater) may reduce the monitoring frequency in 41.4(1)*"e"*(4)"1" to once during each nine-year compliance cycle provided that the samples are collected no later than every ninth calendar year and if that system meets one of the following criteria:

- The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the department in 567—subparagraph 43.7(3)*"b"*(4) for at least three consecutive years; or
- The department has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

3. A water system that uses a new source of water is not eligible for reduced monitoring for lead or copper until concentrations in samples collected from the new source during three consecutive monitoring periods are below the maximum permissible lead and copper concentrations specified.

f. Corrosivity monitoring protocol — special monitoring for corrosivity characteristics. Suppliers of water for community public water systems shall collect samples from a representative entry point to the water distribution system for the purpose of analysis to determine the corrosivity characteristics of the water. The determination of corrosivity characteristics of water shall only include one round of sampling, except in cases where the department concludes additional monitoring is necessary due to variability of the raw water sources. Sampling requirements and approved analytical methods are as follows:

(1) Surface water systems. Systems utilizing a surface water source either in whole or in part shall collect two samples per plant for the purpose of determining the corrosivity characteristics. One of these samples is to be collected during the midwinter months and the other during midsummer.

(2) Groundwater systems. Systems utilizing groundwater sources shall collect one sample per plant or source, except systems with multiple plants that do not alter the corrosivity characteristics identified in 41.4(1)*"f"*(3) or systems served by multiple wells drawing raw water from a single aquifer may, with departmental approval, be considered one treatment plant or source when determining the number of samples required.

(3) Corrosivity characteristics analytical parameters. Determination of corrosivity characteristics of water shall include measurements of pH, calcium hardness, alkalinity, temperature, total dissolved solids (total filterable residue), and calculation of the Langelier Index. In addition, sulfate and chloride monitoring may be required by the department. At the department's discretion, the Aggressiveness Index test may be substituted for the Langelier Index test.

(4) Corrosivity indices methodology. The following methods must be used to calculate the corrosivity indices:

1. Aggressiveness Index—"ANSI/AWWA C401-93: AWWA Standard for the Selection of Asbestos Cement Pressure Pipe, 4″–16″ for Water Distribution Systems," American Water Works Association, Denver, CO.

2. Langelier Index—"Standard Methods for the Examination of Water and Wastewater," 14th edition, American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710, (1975), Method 203, pp. 61-63.

(5) Distribution system construction materials. Community and nontransient noncommunity water supply systems shall identify whether the following construction materials are present in their distribution system and report to the department:

1. Lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing.
2. Copper from piping and alloys, service lines, and home plumbing.
3. Galvanized piping, service lines, and home plumbing.
4. Ferrous piping materials such as cast iron and steel.
5. Asbestos cement pipe.
6. Vinyl lined asbestos cement pipe.
7. Coal tar lined pipes and tanks.
8. Pipe with asbestos cement lining.

g. Lead, copper, and water quality parameter analytical methods.

(1) Analytical methods. Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by a Grade I, II, III, or IV certified operator meeting the requirements

of 567—Chapter 81, any person under the supervision of a Grade I, II, III, or IV certified operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform analysis under 567—Chapter 83. Analyses under this subrule for lead and copper shall only be conducted by laboratories that have been certified by the department, pursuant to 567—Chapter 83. The following methods must be used:

LEAD, COPPER AND WATER QUALITY PARAMETER ANALYTICAL METHODS

Contaminant	Methodology[9]	Reference (Method Number)				
		EPA	ASTM[3]	SM	SM Online[16]	USGS[5] or Other
Alkalinity	Titrimetric		D1067-92B, 02B, 06B, 11B	2320 B[11, 15, 18]	2320 B-97	
	Electrometric titration					I-1030-85
Calcium	EDTA titrimetric		D511-93A, 03A, 09A, 14A	3500-Ca D[4]	3500-Ca B-97	
				3500-Ca B[12, 15, 18]	3500-Ca B-97	
	Atomic absorption; direct aspiration		D511-93B, 03B, 09B, 14B	3111 B[4, 15, 18]	3111 B-99	
	Inductively coupled plasma	200.7[2]		3120 B[11, 15, 18]	3120 B-99	
	Ion chromatography		D6919-03, 09			
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Rev. 4.2[17]				
Chloride	Ion chromatography	300.0[8], 300.1[13]	D4327-97, 03	4110 B[11, 15]	4550 B-00	
	Potentiometric titration			4500-Cl⁻ D[11, 15]	4500-Cl⁻ D-97	
	Argentometric titration		D512-89B (reapproved 1999), D512-04B	4500-Cl⁻ B[11, 15]	4500-Cl⁻ B-97	
	Capillary ion electrophoresis					D6508, Rev. 2[14]
Conductivity	Conductance		D1125-95A (reapproved 1999), 14A	2510 B[11, 15, 18]	2510 B-97	
Copper[6]	Atomic absorption; furnace technique		D1688-95C, 02C, 07C, 12C	3113 B[4, 15, 18]	3113 B-99, 04, 10	
	Atomic absorption; direct aspiration		D1688-95A, 02A, 07A, 12A	3111 B[4, 15, 18]	3111 B-99	
	Inductively coupled plasma	200.7[2]		3120 B[11, 15, 18]	3120 B-99	
	Inductively coupled plasma; mass spectrometry	200.8[2]				
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Rev. 4.2[17]				
	Atomic absorption; platform furnace	200.9[2]				

Contaminant	Methodology[9]	Reference (Method Number)				
		EPA	ASTM[3]	SM	SM Online[16]	USGS[5] or Other
	Colorimetric					Hach Method 8026[19]; Hach Method 10272[20]
Lead[6]	Atomic absorption; furnace technique		D3559-96D, 03D, 08D	3113 B[4, 15, 18]	3113 B-99, 04, 10	
	Inductively coupled plasma; mass spectrometry	200.8[2]				
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Rev. 4.2[17]				
	Atomic absorption; platform furnace technique	200.9[2]				
	Differential pulse anodic stripping voltammetry					Method 1001[10]
pH	Electrometric	150.1[1]	D1293-95, 99, 12	4500-H^+ B[11, 15, 18]	4500-H^+ B-00	
		150.2[1]				
Orthophosphate (Unfiltered, no digestion or hydrolysis)	Colorimetric, automated, ascorbic acid	365.1[8]		4500-P F[11, 15, 18]	4500-P F-99	Thermo Fisher Discrete Analyzer[21]
	Colorimetric, ascorbic acid, single reagent		D515-88A	4500-P E[11, 15, 18]	4500-P E-99	
	Colorimetric, phosphomolybdate;					I-1602-85
	Automated-segmented flow					I-2601-90[8]
	Automated discrete					I-2598-85
	Ion chromatography	300.0[7], 300.1[13]	D4327-97, 03, 11	4110 B[11, 15, 18]	4110 B-00	
	Capillary ion electrophoresis					D6508, Rev. 2[14]
Silica	Colorimetric, molybdate blue					I-1700-85
	Automated-segmented flow					I-2700-85
	Colorimetric		D859-95, 00, 05, 10			
	Molybdosilicate			4500-Si D[4]	4500-SiO_2 C-97	
				4500-SiO_2 C[12, 15, 18]	4500-SiO_2 C-97	
	Heteropoly blue			4500-Si E[15]	4500-SiO_2 D-97	
				4500-SiO_2 D[12, 15, 18]	4500-SiO_2 D-97	
	Automated method for molybdate-reactive silica			4500-Si F 4500-SiO_2 E[12, 15, 18]	4500-SiO_2 E-97	
	Inductively coupled plasma[6]	200.7[2]		3120 B[11, 15, 18]	3120 B-99	

Contaminant	Methodology[9]	Reference (Method Number)				
		EPA	ASTM[3]	SM	SM Online[16]	USGS[5] or Other
	Axially viewed inductively coupled plasma-atomic emission spectrometry (AVICP-AES)	200.5, Rev. 4.2[17]				
Sulfate	Ion chromatography	300.0[7], 300.1[13]	D4327-97, 03	4110[11, 15, 18]	4110 B-00	
	Automated methylthymol blue	375.2[7]		4500-SO_4 F[11, 15]	4500-SO_4^{-2} F-97	
	Gravimetric			4500-SO_4 C[11, 15]	4500-SO_4^{-2} C-97	
				4500-SO_4 D[11, 15]	4500-SO_4^{-2} D-97	
	Turbidimetric		D516-90, 02, 07	4500-SO_4 E[11, 15]	4500-SO_4^{-2} E-97	
	Capillary ion electrophoresis					D6508, Rev. 2[14]
Temperature	Thermometric			2550 B[11, 15, 18]	2550-00, 10	
Total Filterable Residue (TDS)	Gravimetric			2540 C[11, 15]	2540 C-97	

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street, SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

[1]"Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983. Available at NTIS as PB84-128677.

[2]"Methods for the Determination of Metals in Environmental Samples," EPA-600/4-91-010, June 1991. Available at NTIS as PB91-231498.

[3]Annual Book of ASTM Standards, 1994, 1996, 1999, or 2003, Vols. 11.01 and 11.02, American Society for Testing and Materials, International; the methods listed are the only versions that may be used. The previous versions of D1688-95A and D1688-95C (copper), D3559-95D (lead), D1293-95 (pH), D1125-91A (conductivity), and D859-94 (silica) are also approved. These previous versions, D1688-90A, C, D3559-90D, D1293-84, D1125-91A and D859-88, respectively, are located in the Annual Book of ASTM Standards, 1994, Volume 11.01. Copies may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428 or www.astm.org.

[4]18th and 19th editions of Standard Methods for the Examination of Water and Wastewater, 1992 and 1995, respectively, American Public Health Association. Either edition may be used. Copies may be obtained from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[5]Techniques of Water Resources Investigation of the U.S. Geological Survey, Book 5, Chapter A-1, 3rd ed., 1989. Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

[6]Samples may not be filtered. Samples that contain less than 1 NTU (Nephelometric turbidity unit) and are properly preserved (concentrated nitric acid to pH < 2) may be analyzed directly (without digestion) for total metals; otherwise, digestion is required. When digestion is required, the total recoverable technique as defined in the method must be used.

[7]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA/600/R-93/100, August 1993. Available at NTIS as PB94-120821.

[8]"Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of Inorganic and Organic Constituents in Water and Fluvial Sediments, Open File Report 93-125." Available from Information Services, U.S. Geological Survey, Federal Center, Box 25286, Denver, CO 80225-0425.

[9]Because MDLs reported in EPA Methods 200.7 and 200.9 were determined using a 2X preconcentration step during sample digestion, MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher. Preconcentration may be required for direct analysis of lead by Methods 200.9, 3113B, and 3559-90D unless multiple in-furnace depositions are made.

[10]The description for Method 1001 is available from Palintest, Ltd., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY 41018; or from the Hach Company, P.O. Box 389, Loveland, CO 80538.

[11]The 18th, 19th, and 20th editions of Standard Methods for the Examination of Water and Wastewater, 1992, 1995, and 1998, respectively, American Public Health Association. Any edition may be used, except that the versions of 3111B and 3113B in the 20th edition may not be used. Copies may be obtained from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[12]The 20th edition of Standard Methods for the Examination of Water and Wastewater, 1998, American Public Health Association. Copies may be obtained from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[13]"Methods for the Determination of Organic and Inorganic Compounds in Drinking Water," Vol. 1, EPA 815-R-00-014, August 2000. Available at NTIS, PB2000-106981.

[14]Method D6508, Rev. 2, "Test Method for Determination of Dissolved Inorganic Anions in Aqueous Matrices Using Capillary Ion Electrophoresis and Chromate Electrolyte," available from Waters Corp., 34 Maple Street, Milford, MA 01757; telephone: (508)482-2131.

[15]Standard Methods for the Examination of Water and Wastewater, 21st edition (2005), American Public Health Association. Available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[16]Standard Methods Online is available at www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[17]EPA Method 200.5, Revision 4.2: "Determination of Trace Elements in Drinking Water by Axially Viewed Inductively Coupled Plasma-Atomic Emission Spectrometry," 2003. EPA/600/R-06/115. Available at www.nemi.gov.

[18]Standard Methods for the Examination of Water and Wastewater, 22nd edition (2012), American Public Health Association. Available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[19]Hach Company. "Hach Method 8026 – Spectrophotometric Measurement of Copper in Finished Drinking Water," December 2015, Revision 1.2. Available from www.hach.com.

[20]Hach Company. "Hach Method 10272 – Spectrophotometric Measurement of Copper in Finished Drinking Water," December 2015, Revision 1.2. Available from www.hach.com.

[21]Thermo Fisher. "Thermo Fisher Scientific Drinking Water Orthophosphate Method for Thermo Scientific Gallery Discrete Analyzer," February 2016. Revision 5. Thermo Fisher Scientific, Ratastie 2 01620 Vantaa, Finland.

(2) Certified laboratory requirements. Lead and copper analyses under this subrule shall only be conducted by laboratories that have been certified by the department and are in compliance with the requirements of 567—Chapter 83.

(3) All lead and copper levels measured between the practical quantitation limit (PQL) and method detection limit (MDL) must be either reported as measured or they can be reported as one-half the PQL specified for lead and copper in 567—paragraph 83.6(7)*"a"*(5)"2." All levels below the lead and copper MDLs must be reported as zero.

41.4(2) *Lead, copper, and corrosivity regulation by the setting of an MCL.* Reserved.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—41.5(455B) Organic chemicals.

41.5(1) *MCLs and other requirements for organic chemicals.* Maximum contaminant levels for two classes of organic chemical contaminants specified in 41.5(1)*"b"* apply to community water systems and nontransient noncommunity water systems as specified herein. The two referenced organic chemical classes are volatile organic chemicals (VOCs) and synthetic organic chemicals (SOCs).

The requirements also contain analytical method requirements and monitoring requirements referenced in 41.5(1)*"b"* and *"c."* Best available technology (BAT) for control of these organic contaminants is referenced in 567—paragraph 43.3(10)*"a."*

a. Applicability. The maximum contaminant levels for volatile and synthetic organic contaminants apply to community and nontransient noncommunity water systems. Compliance with the volatile and synthetic organic contaminant maximum contaminant level is calculated pursuant to 41.5(1)*"b."*

b. Maximum contaminant levels (MCLs) and analytical methodology for organic compounds. The maximum contaminant levels for organic chemicals are listed in the table in subparagraph 41.5(1)*"b"*(1). Analyses for the contaminants in this subrule shall be conducted using the following methods, or their

equivalent as approved by EPA. For analysis of a compliance sample, a certified laboratory must be able to achieve at least the method detection limit for the specific contaminant as listed in the following table.

(1) Table:

ORGANIC CHEMICAL CONTAMINANTS, CODES, MCLS, ANALYTICAL METHODS, AND DETECTION LIMITS

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology[1]	Detection Limit (mg/L)
Volatile Organic Chemicals (VOCs):				
Benzene	2990	0.005	502.2, 524.2, 524.3, 524.4[7]	0.0005
Carbon tetrachloride	2982	0.005	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
Chlorobenzene (mono)	2989	0.1	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,2-Dichlorobenzene (ortho)	2968	0.6	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,4-Dichlorobenzene (para)	2969	0.075	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,2-Dichloroethane	2980	0.005	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,1-Dichloroethylene	2977	0.007	502.2, 524.2, 524.3, 524.4[7]	0.0005
cis-1,2-Dichloroethylene	2380	0.07	502.2, 524.2, 524.3, 524.4[7]	0.0005
trans-1,2-Dichloroethylene	2979	0.1	502.2, 524.2, 524.3, 524.4[7]	0.0005
Dichloromethane	2964	0.005	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,2-Dichloropropane	2983*	0.005	502.2, 524.2, 524.3, 524.4[7]	0.0005
Ethylbenzene	2992	0.7	502.2, 524.2, 524.3, 524.4[7]	0.0005
Styrene	2996	0.1	502.2, 524.2, 524.3, 524.4[7]	0.0005
Tetrachloroethylene	2987	0.005	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
Toluene	2991	1	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,1,1-Trichloroethane	2981	0.2	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
Trichloroethylene	2984	0.005	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
1,2,4-Trichlorobenzene	2378	0.07	502.2, 524.2, 524.3, 524.4[7]	0.0005
1,1,2-Trichloroethane	2985	0.005	502.2, 524.2, 524.3, 524.4[7], 551.1	0.0005
Vinyl chloride	2976	0.002	502.2, 524.2, 524.3, 524.4[7]	0.0005
Xylenes (total)	2955*	10	502.2, 524.2, 524.3, 524.4[7]	0.0005
Synthetic Organic Chemicals (SOCs):				
Alachlor[3]	2051	0.002	505, 507, 508.1, 525.2, 525.3, 551.1	0.0002
Aldicarb	2047	0.003	531.1, 6610	0.0005

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology[1]	Detection Limit (mg/L)
Aldicarb sulfone	2044	0.002	531.1, 6610	0.0008
Aldicarb sulfoxide	2043	0.004	531.1, 6610	0.0005
Atrazine[3]	2050	0.003	505, 507, 508.1, 523, 525.2, 525.3, 536, 551.1, Syngenta AG-625[5]	0.0001
Benzo(a)pyrene	2306	0.0002	525.2, 525.3, 550, 550.1	0.00002
Carbofuran	2046	0.04	531.1, 531.2, 6610, 6610B, 6610 B-04[2]	0.0009
Chlordane[3]	2959	0.002	505, 508, 508.1, 525.2, 525.3	0.0002
2,4-D[6] (as acids, salts, and esters)	2105	0.07	515.1, 515.2, 515.3, 515.4, 555, D5317-93, 98 (Reapproved 2003), 6610B, 6640-B, 6640 B-01, 6640 B-06	0.0001
Dalapon	2031	0.2	515.1, 515.3, 515.4, 552.1, 552.2, 552.3, 557, 6640, 6610B, 6640-B, 6640 B-01, 6640 B-06	0.001
1,2-Dibromo-3-chloropropane (DBCP)	2931	0.0002	504.1, 524.3, 551.1	0.00002
Di(2-ethylhexyl)adipate	2035	0.4	506, 525.2, 525.3	0.0006
Di(2-ethylhexyl)phthalate	2039	0.006	506, 525.2, 525.3	0.0006
Dinoseb[6]	2041	0.007	515.1, 515.2, 515.3, 515.4, 555, 6610B, 6640-B, 6640 B-01, 6640 B-06	0.0002
Diquat	2032	0.02	549.2	0.0004
Endothall	2033	0.1	548.1	0.009
Endrin[3]	2005	0.002	505, 508, 508.1, 525.2, 525.3, 551.1	0.00001
Ethylene dibromide (EDB)	2946	0.00005	504.1, 524.3, 551.1	0.00001
Glyphosate	2034	0.7	547, 6651, 6651B, 6651 B-00, 6640 B-05	0.006
Heptachlor[3]	2065	0.0004	505, 508, 508.1, 525.2, 525.3, 551.1	0.00004
Heptachlor epoxide[3]	2067	0.0002	505, 508, 508.1, 525.2, 525.3, 551.1	0.00002
Hexachlorobenzene[3]	2274	0.001	505, 508, 508.1, 525.2, 525.3, 551.1	0.0001
Hexachlorocyclopentadiene[3]	2042	0.05	505, 508, 508.1, 525.2, 525.3, 551.1	0.0001
Lindane (gamma BHC)[3]	2010	0.0002	505, 508, 508.1, 525.2, 525.3, 551.1	0.00002
Methoxychlor[3]	2015	0.04	505, 508, 508.1, 525.2, 525.3, 551.1	0.0001
Oxamyl	2036	0.2	531.1, 531.2, 6610, 6610B, 6610 B-04[2]	0.002
Pentachlorophenol	2326	0.001	515.1, 515.2, 515.3, 515.4, 525.2, 525.3, 555, D5317-93, 98 (Reapproved 2003), 6610B, 6640-B, 6640 B-01, 6640 B-06	0.00004

Contaminant	EPA Contaminant Code	MCL (mg/L)	Methodology[1]	Detection Limit (mg/L)
Picloram[3, 6]	2040	0.5	515.1, 515.2, 515.3, 515.4, 555, D5317-93, 98 (Reapproved 2003), 6610B, 6640-B, 6640 B-01, 6640 B-06	0.0001
Polychlorinated biphenyls[4] (as decachlorobiphenyl) (as Arochlors)[3]	2383	0.0005	508A 505, 508, 508.1, 525.2, 525.3	0.0001
Simazine[3]	2037	0.004	505, 507, 508.1, 523, 525.2, 525.3, 536, 551.1	0.00007
2,3,7,8-TCDD (dioxin)	2063	$3x10^{-8}$	1613	$5x10^{-9}$
2,4,5-TP[6] (Silvex)	2110	0.05	515.1, 515.2, 515.3, 515.4, 555, D5317-93, 98 (Reapproved 2003), 6610B, 6640-B, 6640 B-01, 6640 B-06	0.0002
Toxaphene[3]	2020	0.003	505, 508, 508.1, 525.2, 525.3	0.001

*As of January 1, 1999, the contaminant codes for the following compounds were changed from the Iowa Contaminant Code to the EPA Contaminant Code:

Contaminant	Iowa Contaminant Code (Old)	EPA Contaminant Code (New)
1,2 Dichloropropane	2325	2983
Xylenes (total)	2974	2955

[1]Analyses for the contaminants in this section shall be conducted using the following EPA methods or their equivalent as approved by EPA. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW, Room 3334, Washington, DC 20460 (telephone: (202)566-2426); or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202)741-6030, or via Internet at www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847).

Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88-039, December 1988, Revised July 1991 (NTIS PB91-231480): Methods 508A and 515.1.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement I, EPA-600/4-90-020, July 1990 (NTIS PB91-146027): Methods 547, 550, 550.1.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement II, EPA-600/R-92-129, August 1992 (NTIS PB92-207703): Methods 548.1, 552.1, 555.

Methods for the Determination of Organic Compounds in Drinking Water—Supplement III, EPA-600/R-95-131, August 1995 (NTIS PB95-261616): Methods 502.2, 504.1, 505, 506, 507, 508, 508.1, 515.2, 524.2, 525.2, 531.1, 551.1, 552.2.

EPA Method 523, "Determination of Triazine Pesticides and Their Degradates in Drinking Water by Gas Chromatography/Mass Spectrometry (GC/MS)," 2011. EPA-815-R-11-002. Available at www.nepis.epa.gov.

EPA Method 524.3, Version 1.0. "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry," June 2009. EPA 815-B-09-009. Available at www.nemi.gov.

EPA Method 525.3, "Determination of Semivolatile Organic Chemicals in Drinking Water by Solid Phase Extraction and Capillary Column Gas Chromatograph/Mass Spectrometry (GC/MS)," 2012. EPA/600/R-12-010. Available at www.nepis.epa.gov.

EPA Method 536, "Determination of Triazine Pesticides and Their Degradates in Drinking Water by Liquid Chromatography Electrospray Ionization Tandem Mass Spectrometry (LC/ESI-MS/MS)," 2007. EPA/815-B-07-002. Available at www.nepis.epa.gov.

EPA Method 557, "Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)," September 2009. EPA 815-B-09-012. Available at www.nemi.gov.

Method 1613 "Tetra-through Octa-Chlorinated Dioxins and Furans by Isotope-Dilution HRGC/HRMS," EPA-821-B-94-005, October 1994 (NTIS PB95-104774).

The following American Public Health Association (APHA) documents are available from APHA, 800 I Street, NW, Washington, DC 20001-3710.

Supplement to the 18th Edition of Standard Methods for the Examination of Water and Wastewater, 1994, Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995, 20th edition, 1998, 21st edition, 2005, or 22nd edition, 2012 (any of these editions may be used), APHA: Method 6610 and (carbofuran and oxamyl only) 6610B and 6610 B-04; Method 6640B (21st and 22nd editions only) and SM online 6640 B-01 for 2,4-D, 2,4,5-TP Silvex, dalapon, dinoseb, pentachlorophenol, and picloram; Method 6651B (21st and 22nd editions only) and SM online 6670-B-00 for glyphosate.

Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, or 20th edition, 1998, (any of these editions may be used), APHA: Method 6651.

The following American Society for Testing and Materials (ASTM) method is available from ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

Annual book of ASTM Standards, 1999, Vol. 11.02 (or any edition published after 1993), ASTM: D5317-93, 98 (Reapproved 2003).

Methods 515.3 and 549.2 are available from U.S. EPA NERL, 26 W. Martin Luther King Drive, Cincinnati, OH 45268.

Method 515.4, "Determination of Chlorinated Acids in Drinking Water by Liquid-Liquid Microextraction, Derivatization and Fast Gas Chromatography with Electron Capture Detection," Revision 1.0, April 2000, EPA 815/B-00/001 and EPA Method 552.3, "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection," Revision 1.0, July 2003, EPA 815-B-03-002, available at www.epa.gov/safewater/methods/sourcalt.html.

Method 531.2, "Measurement of n-Methylcarbamoyloximes and n-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Postcolumn Derivatization," Revision 1.0, September 2001, EPA 815/B-01/002, available at www.epa.gov/safewater/methods/sourcalt.html.

Syngenta AG-625 Method, "Atrazine in Drinking Water by Immunoassay," February 2001, is available from Syngenta Crop Protection, Inc., 410 Swing Road, P.O. Box 18300, Greensboro, NC 27419, telephone (336)632-6000.

Other required analytical test procedures germane to the conduct of these analyses are contained in Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October 1994 (NTIS PB95-104766).

[2]Standard Methods Online is available at www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[3]Substitution of the detector specified in Method 505, 507, 508, or 508.1 for the purpose of achieving lower detection limits is allowed as follows. Either an electron capture or nitrogen-phosphorus detector may be used provided all regulatory requirements and quality control criteria are met.

[4]PCBs are qualitatively identified as Aroclors and measured for compliance purposes as decachlorobiphenyl. Users of Method 505 may have more difficulty in achieving the required detection limits than users of Method 508. 508.1, or 525.2.

[5]This method may not be used for the analysis of atrazine in any system where chlorine dioxide is used in the drinking water treatment. In samples from all other systems, any result for atrazine generated by Method AG-625 that is greater than one-half the MCL (i.e., greater than 0.0015 mg/L) must be confirmed using another approved method for this contaminant and should use additional volume of the original sample collected for compliance monitoring. In instances where a result from Method AG-625 triggers such confirmatory testing, the confirmatory result is to be used to determine compliance.

[6]Accurate determination of the chlorinated esters requires hydrolysis of the sample as described in EPA Methods 515.1, 515.2, 515.3, 515.4, and 555, and ASTM Method D5317-93, 98 (Reapproved 2003).

[7]EPA Method 524.4, Version 1.0. "Measurement of Purgeable Organic Compounds in Water by Gas Chromatography/Mass Spectrometry Using Nitrogen Purge Gas," May 2013, EPA 815-R-13-002.

(2) Organic chemical compliance calculations. Compliance with 41.5(1)*"b"*(1) shall be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL listed in 41.5(1)*"b"*(1), the system is in violation of the MCL. If a system fails to collect the required number of samples, compliance will be based on the total number of samples

collected. If a sample result is less than the detection limit, zero will be used when calculating the running annual average. If the system is in violation of an MCL, the water supplier is required to give notice to the department in accordance with 567—subrule 42.4(1) and to notify the public as required by 567—42.1(455B).

1. Systems monitoring more than once per year for VOC or SOC contaminants. For systems which monitor more than once per year, compliance with the MCL is determined by a running annual average of all samples collected at each sampling point.

2. Systems monitoring annually or less frequently for VOC contaminants. Systems which monitor annually or less frequently and whose VOC sample result exceeds the MCL must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. However, if any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is immediately out of compliance with the MCL.

3. Systems monitoring annually or less frequently for SOC contaminants. Systems which monitor annually or less frequently and whose SOC sample result exceeds the regulatory detection limit specified in subparagraph 41.5(1)*"b"*(1) must begin quarterly sampling. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling. However, if any sample result will cause the running annual average to exceed the MCL at any sampling point, the system is immediately out of compliance with the MCL.

(3) Treatment techniques for acrylamide and epichlorohydrin. Each public water supply system must certify annually in writing to the department (using third-party or manufacturer's certification) that when acrylamide and epichlorohydrin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified as follows:

Acrylamide = 0.05% dosed at 1 ppm (or equivalent)

Epichlorohydrin = 0.01% dosed at 20 ppm (or equivalent)

Certifications can rely on information provided by manufacturers or third parties, as approved by the department.

c. Organic chemical monitoring requirements. Each public water system shall monitor at the time designated within each compliance period. All new systems or systems that use a new source of water must demonstrate compliance with the MCLs within the time period specified by the department. The system must also comply with the initial sampling frequencies specified by the department to ensure the system can demonstrate compliance with the MCLs. A source of water that is determined by the department to be a new source/entry point is considered to be a new source for the purposes of paragraph 41.5(1)*"c."* Routine and increased monitoring frequencies shall be conducted in accordance with the requirements in this paragraph.

(1) Routine volatile organic chemical (VOC) monitoring requirements. Beginning on January 1, 1993, community water supplies and NTNC water supplies shall conduct monitoring of the contaminants listed in 41.5(1)*"b"*(1) for the purpose of determining compliance with the maximum contaminant level.

(2) VOC monitoring protocol.

1. VOC groundwater monitoring protocol. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a source/entry point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

2. VOC surface water monitoring protocol. Surface water systems (and combined surface/groundwater systems) shall take a minimum of one sample at each entry point to the distribution system after treatment (hereafter called a source/entry point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

3. Multiple sources. If the system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used). If a

representative sample of all water sources cannot be obtained, as determined by the department, separate source/entry points with the appropriate monitoring requirements will be assigned by the department.

4. Initial VOCs monitoring frequency. Each community and nontransient noncommunity water system shall take four consecutive quarterly samples for each contaminant listed in 41.5(1)*"b"*(1) during each compliance period, beginning in the initial compliance period. If the initial monitoring for contaminants listed in 41.5(1)*"b"*(1) has been completed by December 31, 1992, and the system did not detect any contaminant listed in 41.5(1)*"b"*(1), then each groundwater and surface water system shall take one sample annually beginning with the initial compliance period.

5. Reduced VOC monitoring for groundwater systems. After a minimum of three years of annual sampling, the department may allow groundwater systems with no previous detection of any contaminant listed in 41.5(1)*"b"*(1) to take one sample during each compliance period.

6. VOC monitoring waivers. Each community and nontransient noncommunity groundwater system which does not detect a contaminant listed in 41.5(1)*"b"*(1) may apply to the department for a waiver from the requirements of 41.5(1)*"c"*(2)"4" and "5" after completing the initial monitoring. A waiver shall be effective for no more than six years (two compliance periods). The department may also issue waivers to small systems for the initial round of monitoring for 1,2,4-trichlorobenzene. Detection is defined as greater than or equal to 0.0005 mg/L.

7. Bases of a VOC monitoring waiver. The department may grant a waiver if the department finds that there has not been any knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted.

- Previous analytical results.
- The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.
- The environmental persistence and transport of the contaminants.
- The number of persons served by the public water system and the proximity of a smaller system to a larger system, and
- How well the water source is protected against contamination, such as whether it is a surface or groundwater system. Groundwater systems must consider factors such as depth of the well, the type of soil, and wellhead protection. Surface water systems must consider watershed protection.

8. VOC monitoring waiver requirements for groundwater systems. As a condition of the waiver, a groundwater system must take one sample at each sampling point during the time the waiver is effective (i.e., one sample during two compliance periods or six years) and update its vulnerability assessment considering the factors listed in 41.5(1)*"c"*(2)"7." Based on this vulnerability assessment the department must reconfirm that the system is nonvulnerable. If the department does not reconfirm within three years of the initial vulnerability determination, then the waiver is invalidated and the system is required to sample annually as specified in 41.5(1)*"c"*(2)"4."

9. VOC monitoring waiver requirements for surface water systems. Each community and nontransient noncommunity surface water system which does not detect a contaminant listed in 41.5(1)*"b"*(1) may apply to the department for a waiver from the requirements of 41.5(1)*"c"*(2)"4" after completing the initial monitoring. Systems meeting this criterion must be determined by the department to be nonvulnerable based on a vulnerability assessment during each compliance period. Each system receiving a waiver shall sample at the frequency specified by the department (if any).

10. Increased VOC monitoring. If a contaminant listed in 41.5(1)*"b"*(1) is detected at a level exceeding 0.0005 mg/L in any sample, then:

The system must monitor quarterly at each sampling point which resulted in a detection.

The department may decrease the quarterly monitoring requirement specified in 41.5(1)*"c"*(2)"4" provided it has determined that the system is reliably and consistently below the maximum contaminant level. In no case shall the department make this determination unless a groundwater system takes a

minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.

If the department determines that the system is reliably and consistently below the MCL, the department may allow the system to monitor annually. Systems which monitor annually must monitor during the quarter(s) which previously yielded the highest analytical result.

Systems which have three consecutive annual samples with no detection of a contaminant may apply to the department for a waiver as specified in 41.5(1)*"c"*(2)"6."

Groundwater systems which have detected one or more of the following two-carbon organic compounds: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one or more of the two-carbon organic compounds was detected. If the results of the first analysis do not detect vinyl chloride, the department may reduce the quarterly monitoring frequency of vinyl chloride monitoring to one sample during each compliance period. Surface water systems are required to monitor for vinyl chloride as specified by the department.

11. VOCs reliably and consistently below the MCL. Systems which violate the MCL requirements of 41.5(1)*"b"*(1) must monitor quarterly. After a minimum of four consecutive quarterly samples which show the system is in compliance and the department determines that the system is reliably and consistently below the maximum contaminant level, the system may monitor at the frequency and times specified in 41.5(1)*"c"*(2)"10," third unnumbered paragraph (following approval by the department).

(3) Routine and repeat synthetic organic chemical (SOC) monitoring requirements. Analysis of the synthetic organic contaminants listed in 41.5(1)*"b"*(1) for the purposes of determining compliance with the maximum contaminant level shall be conducted as follows:

1. SOC groundwater monitoring protocols. Groundwater systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a source/entry point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

2. SOC surface water monitoring protocols. Surface water systems shall take a minimum of one sample at each entry point to the distribution system after treatment (hereafter called a source/entry point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. For purposes of this paragraph, surface water systems include systems with a combination of surface and ground sources.

3. Multiple sources. If the system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water representative of all sources is being used). If a representative sample of all water sources cannot be obtained, as determined by the department, separate source/entry points with the appropriate monitoring requirements will be assigned by the department.

4. SOC monitoring frequency. Community and nontransient noncommunity water systems shall take four consecutive quarterly samples for each contaminant listed in 41.5(1)*"b"*(1) during each compliance period beginning with the compliance period starting January 1, 1993. Systems serving more than 3,300 persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of two quarterly samples in one year during each repeat compliance period. Systems serving less than or equal to 3,300 persons which do not detect a contaminant in the initial compliance period may reduce the sampling frequency to a minimum of one sample during each repeat compliance period.

5. SOC monitoring waivers. Each community and nontransient water system may apply to the department for a waiver from the requirements of 41.5(1)*"c"*(3)"4." A system must reapply for a waiver for each compliance period.

6. Bases of an SOC monitoring waiver. The department may grant a waiver if the department finds that there has been no knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If previous use of the contaminant

is unknown or it has been used previously, then the department shall determine whether a waiver may be granted by considering:

- Previous analytical results.
- The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.
- The environmental persistence and transport of the pesticide or PCBs.
- How well the water source is protected against contamination due to such factors as depth of the well and the type of soil and the integrity of the well casing.
- Elevated nitrate levels at the water supply source, and
- Use of PCBs in equipment used in the production, storage, or distribution of water (i.e., PCBs used in pumps and transformers).

7. Increased SOC monitoring. If a synthetic organic contaminant listed in 41.5(1)*"b"*(1) is detected in any sample, then:

- Each system must monitor quarterly at each sampling point which resulted in a detection.
- The department may decrease the quarterly SOC monitoring requirement if the system is reliably and consistently below the maximum contaminant level. In no case shall the department make this determination unless a groundwater system takes a minimum of two quarterly samples and a surface water system takes a minimum of four quarterly samples.
- After the department determines the system is reliably and consistently below the maximum contaminant level, the system may monitor annually. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result.
- Systems which have three consecutive annual samples with no detection of a contaminant may apply to the department for a waiver as specified in 41.5(1)*"c"*(3)"6."
- If monitoring results in detection of one or more of certain related contaminants (aldicarb, aldicarb sulfone, aldicarb sulfoxide, heptachlor, and heptachlor epoxide), then subsequent monitoring shall analyze for all related contaminants.

8. MCL violation and reliably/consistently below the MCL. Systems which violate the requirements of 41.5(1)*"b"* must monitor quarterly. After a minimum of four quarterly samples show the system is in compliance and the department determines the system is reliably and consistently below the MCL, the system shall monitor at the frequency specified in 41.5(1)*"c"*(3)"7."

(4) Organic chemical (SOC and VOC) confirmation samples. The department may require a confirmation sample for positive or negative results. If a confirmation sample is required by the department, the result must be averaged with the first sampling result and the average is used for the compliance determination as specified by 41.5(1)*"b"*(2). The department has discretion to disregard results of obvious sampling errors from this calculation.

(5) Grandfathered organic chemical (SOC and VOC) data. The department may allow the use of monitoring data collected after January 1, 1988, for VOCs and January 1, 1990, for SOCs required under Section 1445 of the Safe Drinking Water Act for purposes of initial monitoring compliance. If the data are generally consistent with the other requirements in this subparagraph, the department may use such data (i.e., a single sample rather than four quarterly samples) to satisfy the initial monitoring requirement for the initial compliance period beginning January 1, 1993. Systems which use grandfathered samples for VOCs and did not detect any contaminants listed in 41.5(1)*"b"*(1) shall begin monitoring annually in accordance with 41.5(1)*"c"*(2) beginning January 1, 1993.

(6) Increased organic chemical (SOC and VOC) monitoring. The department may increase the required monitoring frequency, where necessary, to detect variations within the system (e.g., fluctuations in concentration due to seasonal use, changes in water source, changes to treatment facilities or normal operation thereof).

(7) Organic chemical (SOC and VOC) vulnerability assessment criteria. Vulnerability of each public water system shall be determined by the department based upon an assessment of the following factors.

1. VOC vulnerability assessment criteria—previous monitoring results. A system will be classified vulnerable if any sample was analyzed to contain one or more contaminants listed in 41.5(1)*"b"*(1)-(VOCs) or 41.5(1)*"b"*(3) except for trihalomethanes or other demonstrated disinfection by-products.

2. SOC vulnerability assessment criteria—previous monitoring results. A system will be classified vulnerable if any sample was analyzed to contain one or more contaminants listed in 41.5(1)*"b"*(2)-(SOCs) or 41.5(1)*"b"*(3) except for trihalomethanes or other demonstrated disinfection by-products.

3. Proximity of surface water supplies to commercial or industrial use, disposal or storage of volatile synthetic organic chemicals. Surface waters which withdraw water directly from reservoirs are considered vulnerable if the drainage basin upgradient and within two miles of the shoreline at the maximum water level contains major transportation facilities such as primary highways or railroads or any of the contaminant sources listed in this subparagraph. Surface water supplies which withdraw water directly from flowing water courses are considered vulnerable if the drainage basin upgradient and within two miles of the water intake structure contains major transportation facilities such as primary highways or railroads or any of the contaminant sources listed in this subparagraph.

4. Proximity of supplies to commercial or industrial use, disposal or storage of volatile synthetic organic chemicals. Wells that are not separated from sources of contamination by at least the following distances will be considered vulnerable.

Sources of Contamination	Shallow Wells as defined in 567—40.2(455B)	Deep Wells as defined in 567—40.2(455B)
Sanitary and industrial point discharges	400 ft	400 ft
Mechanical waste treatment plants	400 ft	200 ft
Lagoons	1,000 ft	400 ft
Chemical and mineral storage (aboveground)	200 ft	100 ft
Chemical and mineral storage including underground storage tanks on or below ground	400 ft	200 ft
Solid waste disposal site	1,000 ft	1,000 ft

5. A system is deemed to be vulnerable for a period of three years after any positive measurement of one or more contaminants listed in 41.5(1)*"b"*(1) except for trihalomethanes or other demonstrated disinfection by-products.

(8) PCB analytical methodology. Analysis for PCBs shall be conducted using the methods in 41.5(1)*"b"*(1) and as follows:

1. Each system which monitors for PCBs shall analyze each sample using Method 505, 508, 508.1, or 525.2. Users of Method 505 may have more difficulty in achieving the required Aroclor detection limits than users of Method 508, 508.1, or 525.2.

2. If PCBs (as one of seven Aroclors) are detected in any sample analyzed using Method 505 or 508, the system shall reanalyze the sample using Method 508A to quantitate PCBs as decachlorobiphenyl.

PCB AROCLOR DETECTION LIMITS

Aroclor	Detection Limit (mg/L)
1016	0.00008
1221	0.02
1232	0.0005
1242	0.0003
1248	0.0001
1254	0.0001
1260	0.0002

3. Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using Method 508A.

d. Best available technology(ies) (BATs). Rescinded IAB 8/11/99, effective 9/15/99.

e. Total trihalomethanes sampling, analytical and other requirements. Rescinded IAB 1/7/04, effective 2/11/04.

f. Analytical procedures—organics. Rescinded IAB 1/7/04, effective 2/11/04.

41.5(2) *Organic chemicals occurring as (nontrihalomethane) disinfection by-products.* Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—41.6(455B) Disinfection byproducts maximum contaminant levels and monitoring requirements.

41.6(1) *Stage 1 disinfection byproducts requirements.*

a. Applicability.

(1) This rule establishes criteria under which CWS and NTNC public water supply systems that add a chemical disinfectant to the water in any part of the drinking water treatment process or which provide water that contains a chemical disinfectant must modify their practices to meet the MCLs listed in this rule and the maximum residual disinfectant levels (MRDL) and treatment technique requirements for disinfection byproduct precursors listed in 567—43.6(455B).

(2) Rescinded IAB 1/7/04, effective 2/11/04.

(3) Compliance dates for this rule are based upon the source water type and the population served. Systems are required to comply with this rule as follows, unless otherwise noted. The department may assign an earlier monitoring period as part of the operation permit, but compliance with the maximum contaminant level is not required until the dates stated below.

1. CWS and NTNC systems which use surface water or groundwater under the direct influence of surface water in whole or in part and which serve 10,000 or more persons must comply with this rule beginning January 1, 2002.

2. All other CWS and NTNC systems covered by 41.6(1)*"a"*(1) must comply with this rule by January 1, 2004.

(4) Consecutive systems. Consecutive systems that provide water containing a disinfectant or oxidant are required to comply with this rule.

(5) Systems with multiple water sources. Systems with water sources that are used independently from each other, are not from the same source as determined by the department, or do not go through identical treatment processes are required to conduct the monitoring for the applicable disinfectants or oxidants and disinfection byproducts during operation of each source. The system must comply with this rule during the use of each water source.

b. Maximum contaminant levels for disinfection byproducts.

(1) The maximum contaminant levels (MCLs) for disinfection byproducts are as follows:

Disinfection byproduct	MCL (mg/L)
Bromate	0.010
Chlorite	1.0
Haloacetic acids (HAA5)	0.060
Total trihalomethanes (TTHM)*	0.080

*The TTHM MCL changed from 0.10 mg/L to 0.080 mg/L effective January 1, 2002, for CWS serving at least 10,000 people and effective January 1, 2004, for all other CWS and NTNC systems which are subject to this rule.

(2) Beginning on the date listed in the following table, a system must comply with the total trihalomethanes MCL and the haloacetic acid MCL as a locational running annual average at each monitoring location.

System Size (number of people served)	Date system must comply with MCL at each sampling location*
Systems that are not part of a combined distribution system and systems that serve the largest population in the combined distribution system	
System serving at least 100,000 people	April 1, 2012
System serving 50,000-99,999 people	October 1, 2012
System serving 10,000-49,999 people	October 1, 2013
System serving fewer than 10,000 people	• October 1, 2013, for all groundwater systems and for SW/IGW systems that did not collect *Cryptosporidium* source water samples • October 1, 2014, for SW/IGW systems that collected *Cryptosporidium* source water samples
Other systems that are part of a combined distribution system	
Consecutive or wholesale system	At the same time as the system with the earliest compliance date in the combined distribution system

*The department may grant up to an additional 24 months for compliance with the MCLs and operational evaluation levels if the system requires capital improvements to comply with an MCL.

c. Monitoring requirements for disinfection byproducts.

(1) General requirements.

1. Systems must take all samples during normal operating conditions.

2. Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with department approval.

3. Failure to monitor in accordance with the monitoring plan required under 41.6(1)*"c"*(1)"6" is a monitoring violation.

4. Failure to monitor is a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages, and the system's failure to monitor makes it impossible to determine compliance with MCLs.

5. Systems may use only data collected under the provisions of this rule or 567—43.6(455B) to qualify for reduced monitoring.

6. Each system required to monitor under the provisions of this rule or 567—43.6(455B) must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the department and the general public no later than 30 days following the applicable compliance dates in 41.6(1)*"a"*(3). All systems using surface water or groundwater under the direct influence of surface water and serving more than 3,300 people must submit a copy of the monitoring plan to the department by the applicable date in 41.6(1)*"a"*(3)"1." The department may also require the plan to be submitted by any other system. After review, the department may require changes in any plan elements. The plan must include at least the following elements:

- Specific locations and schedules for collecting samples for any parameters included in this rule.
- How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.

7. The department may require a monthly monitoring frequency for disinfection byproducts, which would be specified in the operation permit.

(2) Bromate. Community and nontransient noncommunity systems using ozone for disinfection or oxidation must conduct monitoring for bromate.

1. Routine monitoring. Systems must take at least one sample per month for each treatment plant in the system using ozone, collected at each source/entry point to the distribution system while the ozonation system is operating under normal conditions.

2. Reduced monitoring. A system may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is less than or equal to 0.0025 mg/L based on monthly bromate measurements for the most recent four quarters. If the system previously qualified for reduced bromate monitoring and is on quarterly sampling frequency, it may remain on reduced monitoring as long as the running annual average of the bromate samples is less than or equal to 0.0025 mg/L. If the running annual average of quarterly bromate samples exceeds 0.0025 mg/L, the system must resume routine bromate monitoring. Only three analytical methods may be used for bromate samples under reduced monitoring: EPA Method 317.0 Revision 2.0, Method 326.0, or Method 321.8.

(3) Chlorite. Community and nontransient noncommunity water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite. If the system does not use chlorine dioxide on a daily basis, the system must conduct the required daily monitoring each day chlorine dioxide is used, and any required monthly monitoring during those months in which chlorine dioxide is used during any portion of the month.

1. Routine daily monitoring. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by 41.6(1)*"c"*(3)"3," which are in addition to the sample required at the entrance to the distribution system. These daily entry point to the distribution system samples may be analyzed by system personnel, in accordance with 41.6(1)*"d."*

2. Routine monthly monitoring. Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted in accordance with 41.6(1)*"c"*(3)"3" to meet the requirement for monitoring in 41.6(1)*"c"*(3)"2." These monthly distribution system samples must be analyzed by a certified laboratory using an approved ion chromatography method, in accordance with 41.6(1)*"d."*

3. Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system). These additional distribution system samples must be analyzed by a certified laboratory using an approved ion chromatography method, in accordance with 41.6(1)*"d."*

4. Reduced monitoring.

- Daily chlorite monitoring at the entrance to the distribution system required by 41.6(1)*"c"*(3)"1" may not be reduced.
- The department may allow systems with monthly chlorite monitoring in the distribution system required by 41.6(1)*"c"*(3)"2" to be reduced to a requirement of 1 three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under 41.6(1)*"c"*(3)"2" has exceeded the chlorite MCL and the system has not been required to conduct additional monitoring under 41.6(1)*"c"*(3)"3." The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under 41.6(1)*"c"*(3)"2" exceeds the chlorite MCL or the system is required to conduct monitoring under 41.6(1)*"c"*(3)"3" of this rule, at which time the system must revert to routine monitoring.

(4) Total trihalomethanes (TTHM) and haloacetic acids (HAA5).

1. Routine monitoring. Systems must monitor at the frequency indicated in the following table. Both the TTHM and HAA5 samples must be collected as paired samples during the same time period in order for each parameter to have the same annual average period for result comparison. A paired sample is one that is collected at the same location and time and is analyzed for both TTHM and HAA5 parameters.

Routine Monitoring Frequency for TTHM and HAA5

Type of System (source water type and population served)	Minimum Monitoring Frequency	Sample Location in the Distribution System
SW/IGW[3] system serving ≥10,000 persons	Four water samples per quarter per treatment plant	At least 25 percent of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods.[1]
SW/IGW[3] system serving 500-9,999 persons	One water sample per quarter per treatment plant	Locations representing maximum residence time.[1]
SW/IGW[3] system serving <500 persons	One sample per year per treatment plant during month of warmest water temperature	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in 41.6(1)*"c"*(4)"2," second bulleted paragraph.
System using only non-IGW groundwater using chemical disinfectant and serving ≥10,000 persons	One water sample per quarter per treatment plant[2]	Locations representing maximum residence time.[1]
System using only non-IGW groundwater using chemical disinfectant and serving <10,000 persons	One sample per year per treatment plant during month of warmest water temperature	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in 41.6(1)*"c"*(4)"2," second bulleted paragraph.

[1]If a system chooses to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

[2]Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with department approval.

[3]SW/IGW indicates those systems that use either surface water (SW) or groundwater under the direct influence of surface water (IGW), in whole or in part.

2. Reduced monitoring. The department may allow systems a reduced monitoring frequency, except as otherwise provided, in accordance with the following table. Source water total organic carbon (TOC) levels must be determined in accordance with 567—subparagraph 43.6(2)*"c"*(1).

Reduced Monitoring Frequency for TTHM and HAA5

If you are a ...	And you have monitored at least one year and your ...	You may reduce monitoring to this level
SW/IGW[1] system serving ≥10,000 persons which has a source water annual average TOC level, before any treatment, of ≤4.0 mg/L.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	One sample per treatment plant per quarter at distribution system location reflecting maximum residence time.
SW/IGW[1] system serving 500 - 9,999 persons that has a source water annual average TOC level, before any treatment, of ≤4.0 mg/L.	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature.
SW/IGW[1] system serving <500 persons	Any SW/IGW[1] system serving <500 persons may not reduce its monitoring to less than one sample per treatment plant per year.	
System using only non-IGW groundwater using chemical disinfectant and serving ≥10,000 persons	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature.
System using only non-IGW groundwater using chemical disinfectant and serving <10,000 persons	TTHM annual average ≤0.040 mg/L and HAA5 annual average ≤0.030 mg/L for two consecutive years; or, TTHM annual average ≤0.020 mg/L and HAA5 annual average ≤0.015 mg/L for one year.	One sample per treatment plant per three-year monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring.

[1]SW/IGW indicates those systems that use either surface water (SW) or groundwater under the direct influence of surface water (IGW), in whole or in part.

- Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is less than or equal to 0.060 mg/L for TTHMs and is less than or equal to 0.045 mg/L for HAA5. Systems that do not meet these levels must resume monitoring at the frequency identified in 41.6(1)*"c"*(4)"1" in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L for TTHMs and 0.045 mg/L for HAA5. For systems using only groundwater not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L, the system must go to increased monitoring identified in 41.6(1)*"c"*(4)"1" in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L for TTHMs or 0.060 mg/L for HAA5.
- The department may allow systems on increased monitoring to return to routine monitoring if, after one year of monitoring, TTHM annual average is less than or equal to 0.060 mg/L and HAA5 annual average is less than or equal to 0.045 mg/L.
- The department may return a system to routine monitoring at the department's discretion.

d. Analytical requirements for disinfection byproducts.

(1) Systems must use only the analytical method(s) specified in this paragraph, or equivalent methods as determined by EPA, to demonstrate compliance with the requirements of this rule.

(2) Systems must measure disinfection byproducts by the methods (as modified by the footnotes) listed in the following table:

Approved Methods for Disinfection Byproduct Compliance Monitoring

Contaminant and Methodology	EPA Method[1]	Standard Method[2]	ASTM Method[3]
TTHM			
P&T/GC/EICD & PID	502.2[4]		
P&T/GC/MS	524.2, 524.3, 524.4		
LLE/GC/ECD	551.1		
HAA5			
LLE (diazomethane)/GC/ECD		6251 B[5], 6251 B-07[12]	
SPE (acidic methanol)/GC/ECD	552.1[5]		
LLE (acidic methanol)/GC/ECD	552.2, 552.3		
Ion chromatography electrospray ionization tandem mass spectrometry (IC-ESI-MS/MS)	557[10]		
Bromate			
Ion chromatography	300.1		D 6581-00
Ion chromatography & postcolumn reaction[9]	317.0 Rev. 2.0[6], 326.0[6]		
IC/ICP-MS[9]	321.8[6, 7]		
Two-dimensional ion chromatography (IC)	302.0[11]		
Ion chromatography electrospray ionization tandem mass spectrometry (IC-ESI-MS/MS)	557[10]		
Chemically suppressed ion chromatography			D 6581-08 A
Electrolytically suppressed ion chromatography			D 6581-08 B
Chlorite[8]			
Amperometric titration		4500-ClO_2 E[8]	
Amperometric sensor			ChlordioX Plus[8, 13]
Spectophotometry	327.0 Rev. 1.1[8]		
Ion chromatography	300.0, 300.1, 317.0 Rev. 2, 326.0		
Chemically suppressed ion chromatography			D 6581-08 A
Electrolytically suppressed ion chromatography			D 6581-08 B

ECD = electron capture detector
EICD = electrolytic conductivity detector
GC = gas chromatography
IC = ion chromatography
LLE = liquid/liquid extraction
MS = mass spectrometer
P&T = purge and trap
PID = photoionization detector
SPE = solid phase extractor

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street, SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC 20408.

[1]EPA: The following methods are available from the National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

Methods 300.0 and 321.8: Methods for the Determination of Organic and Inorganic Compounds in Drinking Water, Volume 1, USEPA, August 2000, EPA 815-R-00-014 (available through NTIS, PB2000-106981).

Method 300.1: "Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0," EPA-600/R-98/118, 1997 (available through NTIS, PB98-169196).

Method 317.0: "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis, Revision 2.0," USEPA, July 2001, EPA 815-B-01-001.

Method 326.0: "Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis, Revision 1.0," USEPA, June 2002, EPA 815-R-03-007.

Method 327.0: "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry, Revision 1.1," USEPA, May 2005, EPA 815-R-05-008.

Methods 502.2, 524.2, 551.1, and 552.2: Methods for the Determination of Organic Compounds in Drinking Water—Supplement III, EPA-600/R-95-131, August 1995 (NTIS PB95-261616).

Method 524.3: "Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry, Version 1.0," June 2009. EPA 815-B-09-009. Available at www.nemi.gov.

Method 524.4: "Measurement of Purgeable Organic Compounds in Water by Gas Chromatography/Mass Spectrometry Using Nitrogen Purge Gas, Version 1.0," May 2013. EPA 815-R-13-002. Available at www.nepis.epa.gov.

Method 552.1: Methods for the Determination of Organic Compounds in Drinking Water—Supplement II, EPA-600/R-92-129, August 1992 (NTIS PB92-207703).

Method 552.3: "Determination of Haloacetic Acids and Dalapon in Drinking Water by Liquid-liquid Microextraction, Derivatization, and Gas Chromatography with Electron Capture Detection, Revision 1.0," USEPA, July 2003, EPA-815-B-03-002.

[2]4500-ClO2 E and 6251B: Standard Methods for the Examination of Water and Wastewater, 19th (1995), 20th (1998), 21st (2005), and 22nd (2012) editions, American Public Health Association, which are available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[3]Method D 6581-00: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428: Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 2001 (or any year containing the cited version).

[4]If TTHMs are the only analytes being measured in the sample, then a PID is not required.

[5]The samples must be extracted within 14 days of sample collection.

[6]Ion chromatography and postcolumn reaction or IC/ICP-MS must be used for bromate analysis for purposes of demonstrating eligibility of reduced monitoring.

[7]Samples must be preserved at sample collection with 50 mg ethylenediamine (EDA)/L of sample and must be analyzed within 28 days.

[8]Amperometric titration or spectrophotometry may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in 41.6(1)*"c"*(3)"1." Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in 41.6(1)*"c"*(3)"2" and "3."

[9]These are the only methods approved for reduced bromate monitoring under 41.6(1)*"c"*(2)"2."

[10]EPA Method 557, "Determination of Haloacetic Acids, Bromate, and Dalapon in Drinking Water by Ion Chromatography Electrospray Ionization Tandem Mass Spectrometry (IC-ESI-MS/MS)," August 2009. EPA 815-B-09-012. Available at www.nemi.gov.

[11]EPA Method 302.0, "Determination of Bromate in Drinking Water Using Two-Dimensional Ion Chromatography with Suppressed Conductivity Detection," September 2009. EPA 815-B-014. Available at www.nemi.gov.

[12]Standard Methods Online is available at www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[13]ChlordioX Plus. "Chlorine Dioxide and Chlorite in Drinking Water by Amperometry Using Disposable Sensors," November 2013. Available from Palintest Ltd., Jamike Avenue (Suite 100), Erlanger, KY 41018.

(3) Certified laboratory requirements. Analyses under this rule for disinfection byproducts shall only be conducted by laboratories that have been certified by the department and are in compliance with the requirements of 567—Chapter 83, except as specified under 41.6(1)*"d"*(4). The performance evaluation sample acceptance limits and minimum reporting levels are listed in 567—subparagraph 83.6(7)*"a"*(6).

(4) Daily chlorite samples at the entrance to the distribution system must be measured by a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform analysis under 567—Chapter 83.

e. Compliance requirements for disinfection byproducts.

(1) General requirements.

1. When compliance is based on a running annual average of monthly or quarterly samples or averages and the system fails to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

2. Unless invalidated by the department, all samples taken and analyzed under the provisions of this rule must be included in determining compliance, even if that number is greater than the minimum required.

3. If, during the first year of monitoring under paragraph 41.6(1)*"c,"* any individual quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

(2) Bromate. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by 41.6(1)*"c"*(2). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 567—42.1(455B), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."* If a PWS fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(3) Chlorite. Compliance must be based on an arithmetic average of each three-sample set taken in the distribution system as prescribed by 41.6(1)*"c"*(3)"1" and 41.6(1)*"c"*(3)"2." If the arithmetic average of any three-sample set exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 567—42.1(455B), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

(4) TTHM and HAA5.

1. For systems monitoring quarterly, compliance with MCLs in 41.6(1)*"b"* must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by 41.6(1)*"c"*(4).

2. For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance if the average of samples taken that year under the provisions of 41.6(1)*"c"*(4) does not exceed the MCLs in 41.6(1)*"b."* If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant and is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase to quarterly monitoring must calculate compliance by including the sample that triggered the increased monitoring plus the following three quarters of monitoring.

3. If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to 567—42.1(455B) in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

4. If a PWS fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

f. Reporting requirements for disinfection byproducts. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected. The specific reporting requirements for disinfection byproducts are listed in 567—subparagraph 42.4(3)*"d"*(2).

41.6(2) *Stage 2 initial distribution system evaluation.* The department is adopting by reference the requirements for the Stage 2 initial distribution system evaluation (IDSE) listed in 40 CFR 141.600-605 as adopted on January 4, 2006. This regulation establishes monitoring and other requirements for identifying compliance monitoring locations that will be used to determine compliance with maximum contaminant levels for total trihalomethanes and haloacetic acids. All CWS required to comply with 41.6(1) and all NTNC serving at least 10,000 people that are required to comply with 41.6(1) are

required to comply with this subrule. The requirements in this subrule constitute national primary drinking water regulations. Only the analytical methods specified in 41.6(1)*"d"* may be used to demonstrate compliance with this subrule.

41.6(3) *Stage 2 disinfection byproducts requirements.* The requirements of this subrule constitute national primary drinking water regulations. This subrule establishes monitoring and other requirements for achieving compliance with MCLs based on locational running annual averages (LRAA) for TTHM and HAA5.

a. Applicability. All CWS and NTNC systems that use a primary or residual disinfectant other than ultraviolet light or deliver water that has been treated with a primary or residual disinfectant other than ultraviolet light must comply with the requirements in this subrule.

(1) Schedule. Systems must comply with the dates listed in the appropriate schedule. For the purposes of this subrule, the combined distribution system (CDS) as defined in 567—40.2(455B) only includes active connections; emergency connections are excluded. Any CWS or NTNC that purchases or sells water on a routine basis through an active connection to another CWS or NTNC is part of a combined distribution system. All systems included in a CDS must adhere to the schedule of the system that serves the largest population in that CDS. The system must comply with the requirements on the schedule for systems that are not a part of a CDS and for systems that serve the largest population in the CDS. The schedule for the other systems that are a part of a CDS, either wholesale or consecutive, is the same schedule as that of the system with the earliest compliance date in the CDS.

Schedule	System Population	Date by which system must begin Stage 2 compliance monitoring
1	At least 100,000	April 1, 2012
2	50,000-99,999	October 1, 2012
3	10,000-49,999	October 1, 2013
4	Fewer than 10,000	• October 1, 2013, for all GW systems and any SW/IGW systems that did not conduct *Cryptosporidium* sampling under 567—paragraph 43.11(3)*"b"*(2)"4" • October 1, 2014, for SW/IGW systems that conducted *Cryptosporidium* sampling under 567—paragraph 43.11(3)*"b"*(2)"4"

(2) Initiation of compliance monitoring under Stage 2. Systems shall switch from Stage 1 compliance monitoring (41.6(1)) to Stage 2 monitoring as follows:

1. Systems required to conduct quarterly monitoring must start monitoring in the first full calendar quarter that includes the compliance date in the preceding table.

2. Systems that conducted IDSE monitoring and have an approved report and that are required to conduct monitoring at a frequency less than quarterly must start monitoring in the calendar month recommended in the approved IDSE report.

3. Systems that were not required to prepare an IDSE report under 41.6(2) must update their Stage 1 monitoring plan to meet the Stage 2 requirements and submit it to the department for approval six months prior to the compliance date in the preceding table.

(3) Timing of initial determination of compliance under Stage 2.

1. Systems required to conduct quarterly monitoring must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the results of subsequent sampling. Compliance determination must continue at the end of each subsequent quarter.

2. Systems required to conduct monitoring at a frequency that is less than quarterly must make compliance calculations beginning with the first compliance sample taken after the compliance date.

(4) Monitoring and compliance.

1. Systems required to monitor quarterly must calculate LRAAs for TTHM and HAA5 using the monitoring results collected under this subrule and determine that each LRAA does not exceed the MCL.

If the system does not complete the four consecutive quarters of monitoring, the system must calculate the compliance with the MCL based on the average of the available data from the most recent four quarters. If the system collects more than one sample per quarter at a monitoring location, all samples taken in the quarter at that location must be averaged to determine a quarterly average to be used for the LRAA calculation. If a system fails to monitor, it is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA.

2. Systems required to monitor yearly or triennially must determine that each sample collected is less than the MCL. If any sample exceeds the MCL, the system must comply with the requirements of 41.6(3)*"e."* If no sample exceeds the MCL, the sample result for each monitoring location is considered to be the LRAA for that monitoring location. If a system fails to monitor, it is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA.

3. The department may grant up to an additional 24 months for compliance with MCLs and operational evaluation levels if the system is required to make capital improvements in order to comply with an MCL.

(5) Any CWS or NTNC system that begins using water to which a disinfectant has been added, other than ultraviolet light, after the initial compliance dates for IDSE or Stage 2 compliance monitoring must comply with this subrule.

b. Monitoring plan. All systems must develop and implement a disinfection byproduct monitoring plan, which shall be kept on file at the system for review by the department and the public. The monitoring plan must contain the monitoring locations, monitoring dates, and compliance calculation procedures.

(1) If the system has an approved IDSE-standard monitoring plan (IDSE-SMP) report, that report contains all of the plan elements and meets this requirement.

(2) If the system does not have an approved IDSE-SMP report and does not have sufficient monitoring locations from its initial disinfection byproduct sampling plan, the system must identify additional locations by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. The system must provide the rationale for identifying locations as having high levels of TTHM or HAA5.

(3) If the system does not have an approved IDSE-SMP report and has more monitoring locations from its initial Stage 1 disinfection byproduct sampling plan than the number of locations required under the Stage 2 compliance monitoring, the system must identify which locations it will use for compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified.

(4) All plans must be reviewed by the system every three years and updated as system conditions change (such as changes in water quality or hydraulics, etc.).

1. A system may revise its monitoring plan to reflect changes in treatment, distribution system operations, and layout (including new service areas), to reflect other factors that may affect TTHM or HAA5 formation, or for department-approved reasons.

2. The system must consult with the department regarding the need for changes and the appropriateness of changes. The system must replace existing compliance monitoring locations that have the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels.

3. The department may require modifications in the system's monitoring plan.

(5) Systems are also required to maintain the disinfectant and MRDL elements of the Stage 1 monitoring plan pursuant to 41.6(1)*"c"*(1)"6" and 567—paragraph 43.6(1)*"c"*(1)"5."

(6) All systems are required to have a valid disinfection byproducts monitoring plan prior to the start of compliance monitoring in 41.6(3)*"a"*(1).

c. Routine monitoring. Systems are required to start monitoring at the locations specified in the approved disinfection byproducts monitoring plan and on the schedule specified in 41.6(3)*"a"*(1). Each system must monitor the disinfection byproducts at the minimum number of locations identified in the Routine Monitoring table.

Routine Monitoring

Source water type	Population size category	Monitoring frequency	Total number of distribution system monitoring location sites per monitoring period
SW/IGW	<500	per year	2
	500-3,300	per quarter	2
	3,301-9,999	per quarter	2
	10,000-49,999	per quarter	4
	50,000-249,999	per quarter	8
	250,000-999,999	per quarter	12
Groundwater	<500	per year	2
	500-9,999	per year	2
	10,000-99,999	per quarter	4
	100,000-499,999	per quarter	6

(1) All systems must monitor during the month of highest disinfection byproduct concentrations.

(2) Systems on a quarterly monitoring frequency must collect samples for TTHM and HAA5 every 90 days at each monitoring location, except that SW/IGW systems serving 500 to 3,300 people may collect at one location as provided in 41.6(3)*"c"*(3). Each sample collected at each location must be analyzed for both TTHM and HAA5 components.

(3) Systems on an annual monitoring frequency and SW/IGW systems serving 500 to 3,300 people are required to collect TTHM and HAA5 samples at the locations with the highest TTHM and HAA5 concentrations, respectively. Each sample must be analyzed for both TTHM and HAA5 components. Sample collection is required from only one location if the highest TTHM concentration and the highest HAA5 concentration occur at the same location.

(4) Analytical methods. Systems must use an approved method listed in 41.6(1)*"d"*(2) for TTHM and HAA5 analyses pursuant to this subrule. Analyses must be conducted by laboratories certified for disinfection byproducts analyses in accordance with 567—Chapter 83.

d. Reduced monitoring. A system may reduce monitoring to the level specified in the Reduced Monitoring table anytime the locational running annual average is less than or equal to half the MCL for TTHM and HAA5 at all monitoring locations (i.e., less than or equal to 0.040 mg/L for TTHM and 0.030 mg/L for HAA5). Only data collected under the provisions of this rule may be used to qualify for reduced monitoring.

Reduced Monitoring

Source water type	Population size category	Monitoring frequency[1]	Distribution system monitoring location sites per monitoring period[2]
SW/IGW	<500	per year	Monitoring may not be reduced
	500-3,300	per year	1 sample per year at the same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	3,301-9,999	per year	2 samples: one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement
	10,000-49,999	per quarter	2 samples: one at the highest TTHM LRAA location and one at the highest HAA5 LRAA location
	50,000-249,999	per quarter	4 samples: one sample each at the highest two TTHM LRAA locations and one sample each at the highest two HAA5 LRAA locations

Source water type	Population size category	Monitoring frequency[1]	Distribution system monitoring location sites per monitoring period[2]
	250,000-999,999	per quarter	6 samples: one sample each at the highest three TTHM LRAA locations and one sample each at the highest three HAA5 LRAA locations
Groundwater	<500	every third year	1 sample at the same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	500-9,999	per year	1 sample per year at the same location if the highest TTHM and HAA5 measurements occurred at the same location and in the same quarter, analyzed for both TTHM and HAA5
	10,000-99,999	per year	2 samples: one at the location and during the quarter with the highest TTHM single measurement; one at the location and during the quarter with the highest HAA5 single measurement
	100,000-499,999	per quarter	2 samples: one at the highest TTHM LRAA location and one at the highest HAA5 LRAA location

[1]Systems on a quarterly monitoring frequency must collect the sample(s) every 90 days.

[2]Each sample must be analyzed for all TTHM and HAA5 components.

(1) Additional source water TOC requirement for SW/IGW systems. For SW/IGW systems, the source water running annual average TOC level, before any treatment, must be less than or equal to 4.0 mg/L at each treatment plant treating surface water or influenced groundwater, based on the monitoring conducted under 567—paragraph 43.6(2)*"b,"* in order to qualify for reduced monitoring.

(2) Continued reduced monitoring frequency. Systems may remain on a reduced monitoring frequency as long as they meet the following criteria. For SW/IGW systems, the source water annual average TOC level requirement in 41.6(3)*"d"*(1) must continue to be met.

1. A system with a quarterly reduced monitoring frequency may remain on reduced monitoring as long as the TTHM LRAA is less than or equal to 0.040 mg/L and the HAA5 LRAA is less than or equal to 0.030 mg/L at each monitoring location.

2. A system with an annual or triennial monitoring frequency may remain on reduced monitoring as long as each TTHM sample is less than or equal to 0.060 mg/L and each HAA5 sample is less than or equal to 0.045 mg/L.

(3) Return to routine monitoring frequency. Systems that cannot meet the requirements for reduced monitoring must resume routine monitoring according to 41.6(3)*"c"* or begin increased monitoring according to 41.6(3)*"e."*

1. A system with a quarterly reduced monitoring frequency must resume routine monitoring if the LRAA from any location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5.

2. A system with an annual or triennial monitoring frequency must resume routine monitoring if the annual sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5.

3. Any SW/IGW system must resume routine monitoring if the running annual average source water TOC level, prior to any treatment, is more than 4.0 mg/L.

4. In addition, the department may require any system to resume routine monitoring at the department's discretion.

(4) Remaining on reduced monitoring from Stage 1 to Stage 2 transition. A system may remain on reduced monitoring after the dates listed in 41.6(3)*"a"*(1) if all of the following three criteria are met. If the three criteria are not met, the system must return to routine monitoring.

1. Under the IDSE, the system qualified for a 40/30 certification or received a very small system waiver;

2. The system meets the reduced monitoring criteria of this paragraph; and

3. The system has not changed or added locations for disinfection byproduct monitoring from those used under the Stage 1 requirements in 41.6(1).

e. Increased monitoring.

(1) Systems that are monitoring annually or triennially must increase their monitoring frequency to quarterly if the following conditions are met.

1. Single result exceeds the TTHM or HAA5 MCL. A system that is monitoring annually or triennially must increase monitoring to quarterly at all locations if a single TTHM sample is greater than 0.080 mg/L or a single HAA5 sample is greater than 0.060 mg/L. The quarterly samples must be analyzed for both TTHM and HAA5 components.

2. Systems with a TTHM or HAA5 MCL violation. A system that is monitoring annually or triennially that is in violation of the MCL for TTHM or HAA5, based upon the LRAA, must increase monitoring to quarterly at all locations. The quarterly samples must be analyzed for both TTHM and HAA5 components. The LRAA is calculated based on four consecutive quarters of monitoring or based on fewer quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters.

(2) Systems on a quarterly monitoring frequency during Stage 1 to Stage 2 transition. A system that was on increased monitoring under Stage 1 must remain on increased monitoring until the system qualifies for a return to routine monitoring under 41.6(3)*"e"*(3). The system must conduct the increased monitoring at the monitoring locations in the monitoring plan developed under 41.6(3)*"b,"* beginning on the date identified in 41.6(3)*"a"*(1).

(3) Return to routine monitoring frequency. A system may return to routine monitoring once the system has conducted increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is less than or equal to 0.060 mg/L for TTHM and less than or equal to 0.045 mg/L for HAA5. The system may not have any monitoring violations during the most recent four consecutive quarters.

f. Operational evaluation level (OEL).

(1) TTHM operational evaluation level. The TTHM operational evaluation level is determined by the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4 to determine an average. If that average exceeds 0.080 mg/L, the system has exceeded the TTHM operational evaluation level.

(2) HAA5 operational evaluation level. The HAA5 operational evaluation level is determined by the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4 to determine an average. If that average exceeds 0.060 mg/L, the system has exceeded the HAA5 operational evaluation level.

(3) A system must calculate the operational evaluation level at any monitoring location that has a single analytical result in excess of the TTHM or HAA5 MCL in the analytical data used to calculate the current 12-month LRAA. A system must determine compliance with the OEL every quarter.

(4) Requirements when the operational evaluation level is exceeded. The system must conduct an operational evaluation and submit a written report of the evaluation to the department within 90 days after the system is notified of the analytical result that caused the system to exceed the operational evaluation level. The written report must be made available to the public upon request. The report must include an examination of system treatment and distribution operational practices, including storage tank operations, excess storage capacity, distribution system flushing, changes in source water or source water quality, and treatment changes or problems that may contribute to disinfection byproduct formation, and what steps could be considered to minimize future exceedances.

1. The system may make a request to the department to limit the scope of the examination if the system is able to identify the cause of the operational evaluation level exceedance. The 90-day deadline for submitting the written report cannot be extended.

2. The system must have department approval to limit the scope of the examination. The approval must be in writing and kept with the completed report.

g. *Reporting.* All systems required to comply with this rule must meet the reporting requirements pursuant to 567—paragraph 42.4(3)*"d."*

h. *Record keeping.* All systems required to comply with this rule must retain the monitoring plans and analytical results as required by 567—paragraph 42.5(1)*"h."*

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—41.7(455B) Groundwater rule: sanitary survey, microbial source water monitoring, treatment technique.

41.7(1) *General requirements.*

a. *Scope.* The requirements of this rule constitute national primary drinking water regulations.

b. *Applicability.* This rule applies to all public water systems that use groundwater except that it does not apply to public water systems that combine all of their groundwater with surface water or with influenced groundwater prior to treatment under 567—43.5(455B). For the purposes of this rule, "groundwater system" is defined as any public water system meeting this applicability statement, including consecutive systems receiving finished groundwater. For the purposes of this rule, "4-log treatment of viruses" means treatment that includes inactivation, removal, or a department-approved combination of inactivation and removal before or at the first customer of 4-log (99.99%) of viruses.

c. *General requirements.* Systems subject to this rule must comply with the following requirements:

(1) Sanitary survey information requirements for all groundwater systems as described in 41.7(2).

(2) Microbial source water monitoring requirements for groundwater systems that do not treat all of their groundwater to at least 99.99 percent (4-log) treatment of viruses, using inactivation, removal, or a department-approved combination of inactivation and removal before or at the first customer, as described in 41.7(3).

(3) Treatment technique requirements, as described in 41.7(4), that apply to groundwater systems that have fecally contaminated source waters, as determined by source water monitoring conducted under 41.7(3), or that have significant deficiencies that are identified by the department. A groundwater system with fecally contaminated source water or with significant deficiencies subject to the treatment technique requirements of this rule must implement one or more of the following corrective action options:

1. Correct all significant deficiencies;
2. Provide an alternate source of water;
3. Eliminate the source of contamination; or
4. Provide treatment that reliably achieves at least 4-log treatment of viruses (using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal) before or at the first customer.

(4) Groundwater systems that provide at least 4-log treatment of viruses are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in 41.7(4).

(5) If requested by the department, groundwater systems must provide the department with any existing information that will enable the department to perform a hydrogeologic sensitivity assessment. For the purposes of this rule, "hydrogeologic sensitivity assessment" is a determination of whether groundwater systems obtain water from hydrogeologically sensitive settings.

(6) Certified laboratory requirements. Analyses under this rule shall only be conducted by laboratories that have been certified by the department and are in compliance with the requirements of 567—Chapter 83.

41.7(2) *Sanitary surveys for groundwater systems.* For the purposes of this rule, a "sanitary survey," as conducted by the department in accordance with 567—subrule 43.1(7), includes but is not limited to the following: an on-site review of the water sources (identifying sources of contamination using results of source water assessments or other relevant information where available), facilities, equipment, operation, maintenance, and monitoring compliance of a public water system to evaluate the adequacy of the system, its sources and operations and the distribution of safe drinking water.

41.7(3) *Groundwater source microbial monitoring and analytical methods.* A groundwater system that has a department-approved 4-log treatment process for viruses and is fulfilling the requirements of 41.7(4)*"b"* is not required to conduct the triggered source water monitoring under 41.7(3)*"a."*

a. Triggered source water monitoring.

(1) General requirements. A groundwater system must conduct triggered source water monitoring if the conditions identified as follows exist:

1. The system does not provide at least 4-log treatment of viruses for each groundwater source; and

2. The system is notified that a sample collected under 41.2(1)*"e"* through 41.2(1)*"i"* is total coliform-positive, and the sample is not invalidated under 41.2(1)*"d."*

(2) Sampling requirements. A groundwater system must collect at least one groundwater source sample from each groundwater source in use at the time the total coliform-positive sample was collected under 41.2(1)*"e"* through 41.2(1)*"i"* that could have reasonably contributed to the positive sample. The source sample must be collected within 24 hours of when the system is notified of the total coliform-positive sample.

1. The department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the groundwater source water sample within 24 hours due to circumstances beyond the system's control. In the case of an extension, the department must specify how much time the system has to collect the sample.

2. A groundwater system serving 1,000 or fewer people may use a repeat sample collected from a groundwater source to meet both the requirements of 41.2(1)*"j"* and to satisfy the monitoring requirements of 41.7(3)*"a"* if:

- The department approves the use of *E. coli* as the fecal indicator,
- The system only has one groundwater source required to be sampled,
- The system has no treatment, and
- Should the source water sample be *E. coli*-positive, the system would incur an acute coliform bacteria maximum contaminant level violation, must comply with Tier 1 public notification requirements, and must also comply with the additional sample monitoring in 41.7(3)*"a"*(3).

(3) Additional samples required. Unless the department requires corrective action for a valid triggered source water sample that tested positive for the fecal indicator, the system must collect five additional source water samples from that same source within 24 hours of being notified of the fecal indicator-positive sample result.

(4) Further requirements for consecutive and wholesale systems.

1. In addition to the other requirements in 41.7(3)*"a,"* a consecutive groundwater system that has a total coliform-positive sample collected under 41.2(1)*"f"* through 41.2(1)*"i"* must notify the wholesale system(s) within 24 hours of being notified of the total coliform-positive sample.

2. In addition to the other requirements in 41.7(3)*"a,"* a wholesale groundwater system that does not provide the 4-log treatment of viruses as described in 41.7(3) must comply with the following:

- A wholesale groundwater system that receives notice from a consecutive system it serves that a sample collected under 41.2(1)*"f"* through 41.2(1)*"i"* is total coliform-positive must, within 24 hours of being notified, collect triggered sample(s) from its groundwater source(s) under 41.7(3)*"a"*(2) and analyze the sample(s) for a fecal indicator.
- If the triggered source sample(s) is fecal indicator-positive, the wholesale groundwater system must notify all consecutive systems served by that groundwater source of the fecal indicator-positive result within 24 hours of being notified of the result and must collect the required additional five samples from the source within 24 hours under 41.7(3)*"a"*(3).

(5) Exceptions to the triggered source water monitoring requirements. A groundwater system is not required to comply with the source water monitoring requirements of 41.7(3)*"a"* if either of the following conditions exists:

1. The department determines and documents in writing that the total coliform-positive sample collected under 41.2(1)*"e"* through 41.2(1)*"i"* is caused by a distribution system deficiency; or

2. The total coliform-positive sample collected under 41.2(1)*"e"* through 41.2(1)*"i"* is collected at a location that meets department criteria for distribution system conditions that will cause total coliform-positive samples.

b. Assessment source water monitoring. If directed by the department, groundwater systems must conduct assessment source water monitoring that meets department-determined requirements for such monitoring. A groundwater system conducting assessment source water monitoring may use a triggered source water sample collected under 41.7(3)*"a"*(2) to meet the requirements of this paragraph. Department-determined assessment source water monitoring requirements may include:

(1) Collection of a total of 12 groundwater source samples that represent each month the system provides groundwater to the public;

(2) Collection of samples from each well unless the system obtains written department approval to conduct monitoring at one or more wells within the groundwater system that are representative of multiple wells used by that system and that draw water from the same hydrogeologic setting;

(3) Collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of technical indicator or analytical method used;

(4) Analysis of all groundwater source samples using one of the analytical methods listed in 41.7(3)*"c"* for the presence of *E. coli*, enterococci, or coliphage;

(5) Collection of groundwater source samples at a location before any treatment of the groundwater source unless the department approves a sampling location after treatment; and

(6) Collection of groundwater source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the department approves an alternate sampling location that is representative of the water quality of that well.

c. Analytical methods.

(1) A groundwater system subject to the source water monitoring requirements of this rule must collect a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used.

(2) A groundwater system must analyze all groundwater source samples collected under 567—41.7(455B) using one of the analytical methods in the following table for the presence of *E. coli*, enterococci, or coliphage.

Analytical Methods for Source Water Monitoring

Fecal Indicator[1]	Methodology	Method Citation
E. coli	Colilert[3]	9223B[2, 12, 13] 9223 B-97, B-04[18]
	Colisure[3]	9223B[2, 12, 13] 9223B-97, B-04[18]
	Membrane filter method with MI agar	EPA Method 1604[4]
	Colilert-18	9223B[2, 12, 13] 9223B-97, B-04[18]
	m-ColiBlue24 Test[5]	
	E*Colite Test[6]	
	EC-MUG[7]	9221F[2, 13] 9221 F-06[18]
	NA-MUG[7]	9222G[2]
	Readycult	Readycult[14]

Fecal Indicator[1]	Methodology	Method Citation
	Colitag	Modified Colitag[15]
	Chromocult	Chromocult[16]
	Tecta EC/TC	Tecta EC/TC[19]
Enterococci	Multiple-tube technique	9230B[2] 9230 B-04[18]
	Membrane filter technique	9230C[2]
	Membrane filter technique	EPA Method 1600[8]
	Enterolert[9]	
Coliphage	Two-step enrichment presence-absence procedure	EPA Method 1601[10], FastPhage[17]
	Single agar layer procedure	EPA Method 1602[11]

Analyses must be conducted in accordance with the documents listed below. The Director of the Federal Register approves the incorporation by reference of the documents listed in footnotes 2 through 11 in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Copies may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW, EPA West Room B102, Washington, DC 20460; (telephone: (202)566-2426); or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202)741-6030, or go to: www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. The address for EPA's Water Resource Center, referenced in several of the footnotes, is EPA Water Resource Center (RC-4100T), 1200 Pennsylvania Avenue, NW, Washington, DC 20460.

[1]The time from sample collection to initiation of analysis may not exceed 30 hours. The groundwater system is encouraged but is not required to hold samples below 10°C during transit.

[2]Methods are described in Standard Methods for the Examination of Water and Wastewater, 20th edition (1998), and copies may be obtained from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[3]Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092.

[4]EPA Method 1604: Total Coliforms and *Escherichia coli* in Water by Membrane Filtration Using a Simultaneous Detection Technique (MI Medium); September 2002, EPA 821-R-02-024. Method is available at www.nemi.gov.

[5]A description of the m-ColiBlue24 Test, "Total Coliforms and *E. coli* Membrane Filtration Method with m-ColiBlue24 Broth," Method No. 10029, Revision 2, August 17, 1999, is available from Hach Company, 100 Dayton Avenue, Ames, IA 50010.

[6]A description of the E*Colite Test, "Charm E*Colite Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Drinking Water," January 9, 1998, is available from Charm Sciences, Inc., 659 Andover Street, Lawrence, MA 01843-1032.

[7]EC-MUG (Method 9221F) or NA-MUG (Method 9222G) can be used for *E. coli* testing step as described in 41.2(1)*"f"*(6) or (7) after use of Standard Method 9221B, 9221D, 9222B, or 9222C.

[8]EPA Method 1600: Enterococci in Water by Membrane Filtration Using Membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (MEI), EPA 821-R-02-022 (September 2002), is an approved variation of Standard Method 9230C. The method is available at www.nemi.gov. The holding time and temperature for groundwater samples is specified in footnote 1 above, rather than as specified in Section 8 of EPA Method 1600.

[9]Medium is available through IDEXX Laboratories, Inc., One IDEXX Drive, Westbrook, ME 04092. Preparation and use of the medium is set forth in the article "Evaluation of Enterolert for Enumeration of Enterococci in Recreational Waters" by Budnick, G.E., Howard, R.T., and Mayo, D.R., 1996, Applied and Environmental Microbiology, 62:3881-3884.

[10]EPA Method 1601: Male-Specific (F+) and Somatic Coliphage in Water by Two-Step Enrichment Procedure; April 2001, EPA 821-R-01-030. Method is available at www.nemi.gov.

[11]EPA Method 1602: Male-Specific (F+) and Somatic Coliphage in Water by Single Agar Layer (SAL) Procedure; April 2001, EPA 821-R-01-029. Method is available at www.nemi.gov.

[12]Standard Methods for the Examination of Water and Wastewater, 21st edition (2005). Available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[13]Standard Methods for the Examination of Water and Wastewater, 22nd edition (2012). Available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[14]Readycult Method, "Readycult Coliforms 100 Presence/Absence Test for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," January 2007, Version 1.1. Available from EMD Millipore, 290 Concord Road, Billerica, MA 01821.

[15]Modified Colitag Method, "Modified Colitag Test Method for the Simultaneous Detection of *E. coli* and Other Total Coliforms in Water (ATP D05-0035)," August 28, 2009. Available from www.nemi.gov or CPI International, 5580 Skylane Blvd., Santa Rosa, CA 95403.

[16]Chromocult Method, "Chromocult Coliform Agar Presence/Absence Membrane Filter Test Method for Detection and Identification of Coliform Bacteria and *Escherichia coli* in Finished Waters," November 2000, Version 1.0. Available from EMD Millipore, 290 Concord Road, Billerica, MA 01821.

[17]Charm Sciences, Inc., "FastPhage Test Procedure. Presence/Absence for Coliphage in Ground Water with Same Day Positive Prediction," Version 009, November 2012. Available at www.charmsciences.com.

[18]Standard Methods Online is available at www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[19]Tecta EC/TC. "Presence/Absence Method for Simultaneous Detection of Total Coliforms and *Escherichia coli* in Drinking Water," April 2014. Available from Veolia Water Solutions and Technologies, Suite 4697, Biosciences Complex, 116 Barrie Street, Kingston, Ontario, Canada K7L 3N6.

d. Invalidation of a fecal indicator-positive groundwater source sample.

(1) A groundwater system may obtain invalidation from the department of a fecal indicator-positive groundwater source sample collected under 41.7(3)*"a"* only under these conditions:

1. The system provides the department with written notice from the laboratory that improper sample analysis occurred; or

2. The department determines and documents in writing that there is substantial evidence that a fecal indicator-positive groundwater source sample is not related to source water quality.

(2) If the department invalidates a fecal indicator-positive groundwater source sample, the system must collect another source water sample under 41.7(3)*"a"* within 24 hours of being notified by the department of its invalidation decision. The sample must be analyzed for the same fecal indicator using the analytical methods in 41.7(3)*"c."* The department may extend the 24-hour time limit on a case-by-case basis if the system cannot collect the source water sample within 24 hours due to circumstances beyond the system's control. In the case of an extension, the department must specify how much time the system has to collect the sample.

e. Sampling location.

(1) Any groundwater source sample required under 41.7(3)*"a"* must be collected at a location prior to any treatment of the groundwater source unless the department approves a sampling location after treatment.

(2) If the system's configuration does not allow for sampling at the well itself, the system may collect a sample at a department-approved location to meet the requirements of 41.7(3)*"a"* if the sample is representative of the water quality of that well.

f. New sources. A groundwater system that places a new groundwater source into service must conduct assessment source water monitoring as directed by the department to include those items listed in 41.7(3)*"b"*(3) to (6). If directed by the department, the system must begin monitoring before the groundwater source is used to provide water to the public.

g. Public notification. A system with a groundwater source sample collected under 41.7(3)*"a"* or 41.7(3)*"b"* that is fecal indicator-positive and that is not invalidated under 41.7(3)*"d,"* including consecutive systems served by the groundwater source, must conduct Tier 1 public notification under 567—subrule 42.1(2).

h. Monitoring violations. Failure to meet the requirements of 41.7(3)*"a"* through 41.7(3)*"f"* is a monitoring violation and requires the system to provide Tier 3 public notification under 567—subrule 42.1(4).

41.7(4) *Treatment technique requirements for groundwater systems.*

a. Groundwater systems with significant deficiencies or source water fecal contamination.

(1) The treatment technique requirements of this subrule, 41.7(4), must be met by groundwater systems when a significant deficiency is identified or when a groundwater source sample collected under 41.7(3)*"a"*(3) is fecal indicator-positive.

(2) If directed by the department, a groundwater system with a groundwater source sample collected under 41.7(3)*"a"*(2), 41.7(3)*"a"*(4), or 41.7(3)*"b"* that is fecal indicator-positive must comply with the treatment technique requirements of 41.7(4).

(3) When a significant deficiency is identified at a surface water or influenced groundwater system that also uses a groundwater source not under the influence of surface water, the system must comply with provisions of 41.7(4)*"a"* except in cases where the department determines that the significant deficiency is in a portion of the distribution system that is served solely by the surface water or influenced groundwater source.

(4) Unless the department directs the groundwater system to implement a specific corrective action, the groundwater system must consult with the department regarding the appropriate corrective action within 30 days of receiving written notice from the department of a significant deficiency, written notice from a laboratory that a groundwater source sample collected under 41.7(3)*"a"*(3) was found to be fecal indicator-positive, or direction from the department that a fecal indicator-positive sample collected under 41.7(3)*"a"*(2), 41.7(3)*"a"*(4), or 41.7(3)*"b"* requires corrective action. For the purposes of 41.7(4), significant deficiencies include, but are not limited to, defects in design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that the department determines to be causing, or have potential for causing, the introduction of contamination into the water delivered to consumers.

(5) Within 120 days, or earlier if directed by the department, of receiving written notification from the department of a significant deficiency, written notice from a laboratory that a groundwater source sample collected under 41.7(3)*"a"*(3) was found to be fecal indicator-positive, or direction from the department that a fecal indicator-positive sample collected under 41.7(3)*"a"*(2), 41.7(3)*"a"*(4), or 41.7(3)*"b"* requires corrective action, the groundwater system must either:

1. Have completed corrective action in accordance with applicable department plan review processes or other department guidance or direction, if any, including department-specified interim measures; or

2. Be in compliance with a department-approved corrective action plan and schedule subject to the specified conditions as follows:

- Any subsequent modifications to a department-approved corrective action plan and schedule must also be approved by the department; and
- If the department specifies interim measures for protection of the public health pending department approval of the corrective action plan and schedule, or pending completion of the corrective action plan, the system must comply with these interim measures as well as with any schedule specified by the department.

(6) Corrective action alternatives. Groundwater systems that meet the conditions of 41.7(4)*"a"*(1) or (2) must implement one or more of the following corrective action alternatives:

1. Correct all significant deficiencies;

2. Provide an alternate source of water;

3. Eliminate the source of contamination; or

4. Provide treatment that reliably achieves at least 4-log treatment of viruses for the groundwater source.

(7) Special notice to the public of significant deficiencies or source water fecal contamination.

1. In addition to the applicable Tier 1 public notification requirements of 567—subrule 42.1(2), a community groundwater system that receives notice from the department of a significant

deficiency or notification of a fecal indicator-positive groundwater source sample that is not invalidated by the department under 41.7(3)*"d"* must inform the public served by the water system under 567—subparagraph 42.3(3)*"h"*(5) of the fecal indicator-positive source sample or of any significant deficiency that has not been corrected. The system must continue to inform the public annually until the significant deficiency is corrected or the fecal contamination in the groundwater source is determined by the department to be corrected under 41.7(3)*"a"*(5).

2. In addition to the applicable Tier 1 public notification requirements of 567—subrule 42.1(2), a noncommunity groundwater system that receives notice from the department of a significant deficiency must inform the public served by the water systems in a manner approved by the department of any significant deficiency that has not been corrected within 12 months of being notified by the department or earlier if directed by the department. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

- The nature of the significant deficiency and the date the significant deficiency was identified by the department;
- The department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and
- For systems with a large proportion of non-English speaking consumers, as determined by the department, information in the applicable language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

3. If directed by the department, a noncommunity water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction under 41.7(4)*"a"*(7)"2."

b. Compliance monitoring.

(1) Existing groundwater sources. A groundwater system that provides at least 4-log treatment of viruses must make a written application to the department in order to avoid the source water monitoring requirements of 41.7(3). Notification to the department must include engineering, operational, or other information that the department requests to evaluate the submission. The department must approve the 4-log request in writing before the system can avoid the groundwater source monitoring requirements. The system's operation permit will include the mandatory operational requirements for the approved 4-log virus treatment. If the system subsequently discontinues 4-log treatment of viruses of a groundwater source or no longer wishes to be exempt from the groundwater source monitoring requirements, the system must conduct groundwater source monitoring as required under 41.7(3).

(2) New groundwater sources. A groundwater system that places a groundwater source in service that is not required to meet the source water monitoring requirements of 41.7(4) because the system provides at least 4-log treatment of viruses for the groundwater source must comply with the following requirements:

1. The system must notify the department in writing that it provides at least 4-log treatment of viruses for the groundwater source. Notification to the department must include engineering, operational, or other information that the department requests to evaluate the submission. The contact time values for inactivation of viruses using free chlorine, chlorine dioxide, and ozone are listed in 567—Chapter 43, Appendix C. No CT table is provided for chloramines and total chlorine because the CT values would be prohibitively high for groundwater systems.

2. The system must conduct compliance monitoring as required under 41.7(4)*"b"*(3) within 30 days of placing the source in service.

3. The system must conduct groundwater source monitoring under 41.7(3) if the system subsequently discontinues 4-log treatment of viruses for the groundwater source.

(3) Monitoring requirements. A groundwater system subject to the requirements of 41.7(4)*"a"* and 41.7(4)*"b"*(1) and (2) must monitor the effectiveness and reliability of treatment for that groundwater source before or at the first customer as follows:

1. Chemical disinfection.

- A groundwater system serving more than 3,300 people must continuously monitor the residual disinfectant concentration, using analytical methods specified in 567—subparagraph 43.5(4)*"a"*(5), at a location approved by the department and must record the lowest residual disinfectant concentration each day that water from the groundwater source is served to the public. The groundwater system must maintain the department-determined minimum residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. If there is a failure in the continuous monitoring equipment, the groundwater system must conduct grab sampling every four hours until the continuous monitoring equipment is returned to service. The system must resume continuous residual disinfectant monitoring within 14 days.
- A groundwater system serving 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in 567—subparagraph 43.5(4)*"a"*(5) at a location approved by the department and must record the residual disinfectant concentration each day that water from the groundwater source is served to the public. The groundwater system must maintain the department-determined minimum residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. The groundwater system must take a daily grab sample during the hour of peak flow or at another time specified by the department. If any daily grab sample measurement falls below the department-determined minimum residual disinfectant concentration, the groundwater system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the department-determined minimum level. Alternatively, a groundwater system that serves 3,300 or fewer people may monitor continuously and meet the requirements of 41.7(4)*"b"*(3)"1," first bulleted paragraph.

2. Membrane filtration. A groundwater system that uses membrane filtration to meet the requirements of 41.7(4)*"b"* to provide at least 4-log treatment of viruses must monitor the membrane filtration process in accordance with all department-specified monitoring requirements and must operate the membrane filtration in accordance with all department-specified compliance requirements. A groundwater system that uses membrane filtration is in compliance with the requirement to achieve at least 4-log removal of viruses when:

- The membrane has an absolute molecular weight cut-off (MWCO), or an alternate parameter that describes the exclusion characteristics of the membrane, that can reliably achieve at least 4-log removal of viruses;
- The membrane process is operated in accordance with department-specified compliance requirements; and
- The integrity of the membrane is intact.

3. Alternative treatment. A groundwater system that uses a department-approved alternative treatment to meet the requirements of 41.7(4)*"b"* by providing at least 4-log treatment of viruses must:

- Monitor the alternative treatment in accordance with all department-specified monitoring requirements; and
- Operate the alternative treatment in accordance with all compliance requirements that the department determines to be necessary to achieve at least 4-log treatment of viruses.

c. Discontinuing treatment. A groundwater system may discontinue 4-log treatment of viruses for a groundwater source if the department determines and documents in writing that 4-log treatment of viruses is no longer necessary for that groundwater source. A system that discontinues 4-log treatment of viruses is subject to the source water monitoring and analytical methods requirements of 41.7(3).

d. Monitoring violation. Failure to meet the monitoring requirements of 41.7(4)*"b"* is a monitoring violation and requires the groundwater system to provide Tier 3 public notification under 567—subrule 42.1(4).

41.7(5) *Treatment technique violations for groundwater systems.* A groundwater system must give Tier 2 public notification under 567—subrule 42.1(3) for the treatment technique violations specified in 41.7(5)*"a,"* 41.7(5)*"b,"* and 41.7(5)*"c."*

a. Significant deficiency. A groundwater system with a significant deficiency is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the department) of receiving written notice from the department of the significant deficiency, the system:

(1) Does not complete corrective action in accordance with any applicable department plan review processes or other department guidance and direction, including department-specified interim actions and measures; or

(2) Is not in compliance with a department-approved corrective action plan and schedule.

b. Fecal indicator-positive source sample. Unless the department invalidates a fecal indicator-positive groundwater source sample under 41.7(3)*"d"*(1), a groundwater system is in violation of the treatment technique requirement if, within 120 days (or earlier if directed by the department) of meeting the conditions of 41.7(4)*"a"*(1) or (2), the system:

(1) Does not complete corrective action in accordance with any applicable department plan review processes or other department guidance and direction, including department-specified interim measures; or

(2) Is not in compliance with a department-approved corrective action plan and schedule.

c. Failure to maintain 4-log treatment. A groundwater system subject to the requirements of 41.7(4)*"b"*(3) that fails to maintain at least 4-log treatment of viruses for a groundwater source is in violation of the treatment technique requirement if the failure is not corrected within four hours of the determination that the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

41.7(6) *Reporting and record keeping for groundwater systems.*

a. Reporting. In addition to meeting the requirements of 567—subrule 42.4(1), a groundwater system regulated under this rule must provide the following information to the department:

(1) A groundwater system conducting compliance monitoring under 41.7(4)*"b"* must notify the department any time the system fails to meet any of the department-specified requirements for 4-log virus treatment including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The groundwater system must notify the department as soon as possible, but in no case later than the end of the next business day.

(2) After completing any corrective action under 41.7(4)*"a,"* a groundwater system must notify the department within 30 days of completion of the corrective action.

(3) If a groundwater system subject to the requirements of 41.7(3)*"a"* does not conduct source water monitoring under 41.7(3)*"a"*(5)"2," the system must provide documentation to the department within 30 days of the total coliform-positive sample that it met the department's criteria.

b. Record keeping. In addition to the requirements in 567—subrule 42.5(1), a groundwater system regulated under this rule must maintain the following information in its records:

(1) Documentation of corrective actions, which must be kept for a period of not less than ten years.

(2) Documentation of notice to the public as required under 41.7(4)*"a"*(7), which must be kept for a period of not less than three years.

(3) Records of decisions under 41.7(3)*"a"*(5)"2" and records of invalidation of fecal indicator-positive groundwater source samples under 41.7(3)*"d"*(1), both of which must be kept for a period of not less than five years.

(4) For consecutive systems, documentation of notification to the wholesale system(s) of total coliform-positive samples that are not invalidated under 41.2(1)*"d,"* which must be kept for a period of not less than five years.

(5) For systems, including wholesale systems, that are required to perform compliance monitoring under 41.7(4)*"b"*(1), the following documentation must be maintained:

1. Records of the department-specified minimum disinfectant residual, which must be kept for a period of not less than ten years.

2. Records of the lowest daily residual disinfectant concentration and records of the date and duration of any failure to maintain the department-prescribed minimum residual disinfectant concentration for a period of more than four hours, both of which must be kept for a period of not less than five years.

3. Records of department-specified compliance requirements for membrane filtration and of parameters specified by the department for department-approved alternative treatment and records of

the date and duration of any failure to meet the membrane operating, membrane integrity, or alternative treatment operating requirements for more than four hours. Documentation shall be kept for a period of not less than five years.
[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—41.8(455B) Radionuclides.

41.8(1) *Radionuclides.*

a. Applicability.

(1) This rule applies to all community public water supplies, and specifies the radionuclide maximum contaminant levels, analytical methodology requirements, and monitoring requirements. The radionuclide reporting requirements are listed in 567—subrule 42.4(1), the public notice requirements are listed in rule 567—42.1(455B), and the best available technology is listed in 567—subparagraph 43.3(10)*"b"*(3). All CWSs must comply with the requirements and maximum contaminant levels for gross alpha particle activity, radium-226, radium-228, uranium, beta particle activity, and photon emitter radioactivity. Only those CWSs designated by the department to be vulnerable to man-made radioactivity contamination are required to monitor for beta particle activity and photon emitter radioactivity. To determine whether a system is vulnerable to man-made nuclear radioactivity, the department will evaluate proximity to a nuclear facility, source water, historical analytical data, ongoing surveillance data from the nuclear facility, and any other factor considered by the department to be relevant to the vulnerability determination.

(2) Compliance dates. Community water systems must comply with the MCLs listed in 41.8(1)*"b"*(1) beginning December 8, 2003. Compliance shall be determined in accordance with 41.8(1)*"c"* through 41.8(1)*"f."* Compliance with the radionuclides reporting requirements is required by December 8, 2003. All CWSs must conduct initial monitoring to determine compliance with 41.8(1)*"b"*(1) by December 31, 2007.

b. Maximum contaminant levels for radionuclides.

(1) Gross alpha particle activity, radium-226, radium-228, and uranium MCLs. The following table specifies the MCLs for gross alpha particles, radium, and uranium radionuclides:

Contaminant	Maximum Contaminant Level
Gross alpha particle activity, including Radium-226 but excluding radon and uranium	15 pCi/L
Combined Radium-226 and Radium-228	5 pCi/L[1]
Uranium	30 µg/L

[1]The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

(2) Beta particle activity and photon radioactivity MCLs.

1. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water must not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

2. Except for the radionuclides listed below, the concentration of man-made radionuclides causing 4 millirems total body or organ dose equivalents must be calculated on the basis of 2 liter per day drinking water intake, using the 168-hour data lists in "Maximum Permissible Body Burdens and Maximum Permissible Concentrations of Radionuclides in Air and in Water for Occupational Exposure," National Bureau of Standards Handbook 69 as amended August 1963, United States Department of Commerce. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed 4 millirems/year.

Average Annual Concentrations Assumed to Produce a
Total Body or Organ Dose of 4 mrem/year

Radionuclide	Critical Organ	Concentration
Strontium-90	Bone marrow	8 pCi/L
Tritium	Total body	20,000 pCi/L

c. Compliance determinations. Compliance with 41.8(1)*"b"* will be determined based on the analytical results obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL. If the system is in violation of an MCL, the supplier of the water is required to give notice to the department in accordance with 567—subrule 42.4(1) and to notify the public as required by 567—42.1(455B).

(1) Detection limits. For the purposes of monitoring gross alpha particle activity, radium-226, radium-228, uranium, and beta particle and photon radioactivity in drinking water, "detection limit" is defined in this subparagraph.

1. For the purpose of monitoring radioactivity concentration in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus 100 percent at the confidence level (1.960 sigma where sigma is the standard deviation of the net counting rate of the sample).

2. To determine compliance with 41.8(1)*"b"*(1), the detection limit shall not exceed the following concentrations:

Detection Limits for Gross Alpha Particle Activity,
Radium-226, Radium-228, and Uranium

Contaminant	Detection Limit
Gross alpha particle activity	3 pCi/L
Radium-226	1 pCi/L
Radium-228	1 pCi/L
Uranium	1 µg/L

3. To determine compliance with 41.8(1)*"b"*(2), the detection limits shall not exceed the following concentrations:

Detection Limits for Man-Made
Beta Particle and Photon Emitters

Contaminant	Detection Limit
Gross beta	4 pCi/L
Cesium-134	10 pCi/L
Iodine-131	1 pCi/L
Strontium-89	10 pCi/L
Strontium-90	2 pCi/L
Tritium	1,000 pCi/L
Other radionuclides	1/10 of the applicable limit

(2) Compliance determination.

1. For systems monitoring more than once per year (i.e., quarterly), compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, the system is immediately in violation of the MCL. If any sample result causes the

running annual average to exceed the MCL at any sample point, the system is immediately in violation of the MCL.

2. Systems monitoring annually or less frequently (i.e., one-, three-, six-, or nine-year frequency), and whose sample result exceeds the MCL, must revert to quarterly sampling for that contaminant during the next quarter. Systems are required to conduct quarterly monitoring only at the source/entry point at which the sample was collected and for the specific contaminant that triggered the system into the increased monitoring frequency. Systems triggered into increased monitoring will not be considered in violation of the MCL until they have completed one year of quarterly sampling. If any sample result causes the running annual average to exceed the MCL at any sample point, the system is immediately in violation of the MCL.

3. Systems must include all samples taken and analyzed under the provisions of this rule in determining compliance, even if that number is greater than the minimum required by the department.

4. If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

5. If a sample result is less than the detection limit, a value of zero will be used to calculate the annual average.

6. The department may invalidate results of obvious sampling or analytical errors.

7. Averaging and significant figures. To judge compliance with the maximum contaminant levels listed in 41.8(1)*"b,"* averages of data shall be used and shall be rounded to the same number of significant figures as the maximum contaminant level for the substance in question.

(3) The department will determine compliance or initiate enforcement action based upon analytical results or other information compiled by department staff or the department's designee.

(4) The department may assign additional requirements as it deems necessary to protect the public health, including public notification requirements.

d. Analytical methodology for radionuclides. Analysis for the following contaminants shall be conducted to determine compliance with 41.8(1)*"b"* in accordance with the methods in the following table, or equivalent methods determined in accordance with 567—41.12(455B).

(1) Radionuclide Analytical Methodology Table.

RADIONUCLIDE ANALYTICAL METHODOLOGY

Contaminant	Methodology	Reference (method or page number)								
		EPA[1]	EPA[2]	EPA[3]	EPA[4]	SM[5]	ASTM[6]	USGS[7]	DOE[8]	Other
Naturally occurring:										
Gross alpha[11] & beta	Evaporation	900.0	p. 1	00-01	p. 1	302, 7110B, 7110 B-00		R-1120-76		
Gross alpha[11]	Co-precipitation			00-02		7110C, 7110 C-00				
Radium-226	Radon emanation	903.1	p. 16	Ra-04	p. 19	305, 7500-Ra C, 7500Ra C-01	D 3454-97, 05	R-1141-76	Ra-04	NY[9]
	Radiochemical	903.0	p. 13	Ra-03		304, 7500-Ra B, 7500-Ra B-01	D 2460-97, 07	R-1140-76		GA[14]
Radium-228	Radiochemical	904.0	p. 24	Ra-05	p. 19	7500-Ra D, 7500-Ra D-01		R-1142-76		NY[9] NJ[10] GA[14]
Uranium[12]	Radiochemical	908.0				7500-U B, 7500-U B-00				
	Fluorometric	908.1				7500-U C (17th edition)	D 2907-97	R-1180-76 R-1181-76	U-04	
	ICP-MS	200.8[13]				3125	D 5673-03, 05, 10			
	Alpha spectrometry			00-07	p. 33	7500-U C, 7500-U C-00	D 3972-97, 02, 09	R-1182-76	U-02	
	Laser phosphorimetry						D 5174-97, 02, 07			
	Alpha liquid scintillation spectrometry						D 6239-09			
Man-made:										
Radioactive Cesium	Radiochemical	901.0	p. 4			7500-Cs B, 7500-Cs B-00	D 2459-72	R-1111-76		

Contaminant	Methodology	Reference (method or page number)								
		EPA[1]	EPA[2]	EPA[3]	EPA[4]	SM[5]	ASTM[6]	USGS[7]	DOE[8]	Other
	Gamma ray spectrometry	901.1			p. 92	7120, 7120-97	D 3649-91, 98a, 06	R-1110-76	4.5.2.3	
Radioactive Iodine	Radiochemical	902.0	p. 6 p. 9			7500-I B, 7500-I B-00 7500-I C, 7500-I C-00 7500-I D, 7500-I D-00	D 3649-91, 98a, 06			
	Gamma ray spectrometry	901.1			p. 92	7120, 7120-97	D 4785-93, 00a, 08		4.5.2.3	
Radioactive Strontium 89, 90	Radiochemical	905.0	p. 29	Sr-04	p. 65	303, 7500-Sr B, 7500-Sr B-01		R-1160-76	Sr-01 Sr-02	
Tritium	Liquid scintillation	906.0	p. 34	H-02	p. 87	306, 7500-^{3}H B, 7500-^{3}H B-00	D 4107-91, 98 (Reapproved 2002), 08	R-1171-76		
Gamma emitters	Gamma ray spectrometry	901.1 902.0 901.0			p. 92	7120 7500-Cs B, 7500-Cs B-00 7500-I B, 7500-I B-00	D 3649-91, 98a, 06 D 4785-93, 00a, 08	R-1110-76	Ga-01-R	

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of documents 1 through 10 was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, EPA West, 1301 Constitution Avenue, NW, Room B135, Washington, DC 20460 (telephone (202)566-2426); or at the Office of Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC.

[1]"Prescribed Procedures for Measurement of Radioactivity in Drinking Water," EPA 600/4-80-032, August 1980. Available at the US Department of Commerce, NTIS, 5285 Port Royal Road, Springfield, VA 22161 (telephone (800)553-6847) PB 80-224744.

[2]"Interim Radiochemical Methodology for Drinking Water," EPA 600/4-75-008(revised), March 1976. Available at NTIS, ibid. PB 253258.

[3]"Radiochemistry Procedures Manual," EPA 520/5-84-006, December 1987. Available at NTIS, ibid. PB 84-215581.

[4]"Radiochemical Analytical Procedures for Analysis of Environmental Samples," March 1979. Available at NTIS, ibid. EMSL LV 053917.

[5]Standard Methods for the Examination of Water and Wastewater, 13th, 17th, 18th, 19th, 20th, 21st, and 22nd editions, 1971, 1989, 1992, 1995, 1998, 2005, and 2012. Available at American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710. Methods 302, 303, 304, 305, and 306 are only in the 13th edition. Methods 7110B, 7500-Ra B, 7500-Ra C, 7500-Ra D, 7500-U B, 7500-Cs B, 7500-I B, 7500-I C, 7500-I D, 7500-Sr B, 7500-3H B are in the 17th, 18th, 19th, 20th, 21st, and 22nd editions. Method 7110C and Method 7500-U C Alpha spectrometry are in the 18th, 19th, 20th, 21st, and 22nd editions. Method 7500-U C Fluorimetric Uranium is only in the 17th and 21st editions. Method 7120 is only in the 19th, 20th, 21st, and 22nd editions. Method 3125 is only in the 20th edition. Methods 7110 B-00, 7110 C-00, 7500-Ra B-01, 7500-Ra C-01, 7500-Ra D-01, 7500-U B-00, 7500-U C-00, 7500-I B-00, 7500-I C-00, 7500-I D-00, 7120-97, 7500-Sr B-01, and 7500-^{3}H B-00 are available online at www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[6]Annual Book of ASTM Standards, Volumes 11.01 and 11.02, 2002. Any year containing the cited version of the method may be used. Available at ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

[7]"Methods for Determination of Radioactive Substances in Water and Fluvial Sediments," Chapter A5 in Book 5 of Techniques of Water-Resources Investigations of the United States Geological Survey, 1977. Available at U.S. Geological Survey (USGS) Information Services, Box 25286, Federal Center, Denver, CO 80225-0425.

[8]"EML Procedures Manual," 28th (1997) or 27th (1990) edition, Volumes 1 and 2; either edition may be used. In the 27th edition, Method Ra-04 is listed as Ra-05, and Method Ga-01-R is listed as Sect. 4.5.2.3. Available at the Environmental Measurements Laboratory, U.S. Department of Energy (DOE), 376 Hudson Street, New York, NY 10014-3621.

[9]"Determination of Ra-226 and Ra-228 (Ra-02)," January 1980, revised June 1982. Available at Radiological Sciences Institute Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, NY 12201.

[10]"Determination of Radium-228 in Drinking Water," August 1980. Available at State of New Jersey, Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analytical Services, 9 Ewing Street, Trenton, NJ 08625.

[11]Natural uranium and thorium-230 are approved as gross alpha calibration standards for gross alpha with co-precipitation and evaporation methods; americium-241 is approved with co-precipitation methods.

[12]If uranium (U) is determined by mass, a 0.67 pCi/μg of uranium conversion factor must be used. This conversion factor is based on the 1:1 activity ratio of U-234 to U-238 that is characteristic of naturally occurring uranium.

[13]"Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry," Revision 5.4, which is published in "Methods for the Determination of Metals in Environmental Samples – Supplement 1," EPA 600-R-94-111, May 1994. Available at NTIS, PB 95-125472.

[14]"The Determination of Radium-226 and Radium-228 in Drinking Water by Gamma-Ray Spectrometry Using HPGW or Ge(Li) Detectors," Revision 1.2, December 2004. Available from Environmental Resources Center, Georgia Institute of Technology, 620 Cherry Street, Atlanta, GA 30332-0335; telephone: (404)894-3776.

(2) Method references for other radionuclides. When the identification and measurement of radionuclides other than those listed in 41.8(1)*"b"* are required, the following references are to be used, except in cases where alternative methods have been approved in accordance with 567—41.12(455B).

1. "Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions," H. L. Krieger and S. Gold, EPA-R4-73-014, Environmental Protection Agency, Cincinnati, Ohio 45268 (May 1973).

2. "HASL Procedure Manual," edited by John H. Harley. HASL 300, ERDA Health and Safety Laboratory, New York, NY (1973).

e. Monitoring requirements for gross alpha, radium-226, radium-228, and uranium.

(1) General requirements.

1. Monitoring frequency and confirmation samples. The department may require more frequent monitoring than specified in this paragraph. The department may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Monitoring period. Each PWS shall monitor during the time period designated by the department in the operation permit.

(2) Applicability and sampling locations.

1. Existing systems and sources. All existing CWSs must sample at every entry point to the distribution system that is representative of all sources being used under normal operating conditions. The system must take each sample at the same source/entry sampling point, unless conditions make another alternate sampling point more representative of each source, or the department has designated a distribution system location, in accordance with 41.8(1)*"e"*(3)"4." The department must approve any alternate sampling point for radionuclides.

2. New systems and sources. All new CWSs or CWSs that use a new source of water must begin to conduct initial monitoring for the new system or source within the first calendar quarter after initiating use of the system or source. More frequent monitoring must be conducted by the CWS when required by the department, in the event of possible contamination or when changes in the distribution system or treatment processes occur which may increase the concentration of radioactivity in finished water.

(3) Initial monitoring. Systems must conduct initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium as follows. If the average of the initial monitoring results for a source/entry point is above the MCL, the system must collect and analyze quarterly samples at that source/entry point until the system has results from four consecutive quarters that are at or below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the department.

1. Systems without historical monitoring data. Systems without historical monitoring data must collect four consecutive quarterly samples at all source/entry sampling points before December 31, 2007. The department may waive the final two quarters of initial monitoring from a source/entry point if the results of the samples from the previous two quarters are below the detection limit.

2. Systems with historical monitoring data and one source/entry point. Systems with only one source/entry point may use historical monitoring data collected between January 1, 2000, and December 31, 2003, from either the representative point in the distribution system or the source/entry point to satisfy the initial monitoring requirement.

3. Systems with historical source/entry point monitoring data and multiple source/entry points. Systems with multiple source/entry points that also have appropriate historical monitoring data for each source/entry point may use the monitoring data collected between January 1, 2000, and December 31, 2003, to satisfy the initial monitoring requirement.

4. Systems with historical distribution system monitoring data and multiple source/entry points. Systems with appropriate historical data for a representative point in the distribution system and multiple source/entry points may use the monitoring data collected between January 1, 2000, and December 31, 2003, provided that the department determines that the historical data satisfactorily demonstrates that each source/entry point is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between source/entry points. The department must make a written finding indicating how the data conforms to these requirements, in order for the data to satisfy the initial monitoring requirements.

(4) Reduced monitoring. The department may allow a CWS to reduce the future frequency of monitoring from once every three years to once every six or nine years at each source/entry point, based on the following criteria. The samples collected during the reduced monitoring period must be used to determine the monitoring frequency for subsequent monitoring periods (e.g., if a system's source/entry

point is on a nine-year frequency, and the sample result is above half of the MCL, then the next monitoring frequency for that source/entry point is three years). If a system has a monitoring result that exceeds the MCL while on reduced monitoring, the system must collect and analyze quarterly samples at that source/entry point until the system has results from four consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the department.

1. Nine-year frequency. If the average of the initial monitoring results for each contaminant is below the detection limit specified in 41.8(1)*"c"*(1)"2," the system must collect and analyze for that contaminant using at least one sample at that source/entry point every nine years.

2. Six-year frequency. If the average of the initial monitoring results for gross alpha particle activity, uranium, and combined radium-226 and radium-228 is at or above the detection limit and at or below half the MCL for that contaminant, the system must collect and analyze for that contaminant using at least one sample at that source/entry point every six years. The analytical results for radium-226 and radium-228 must be added together to yield the combined result.

3. Three-year frequency. If the average of the initial monitoring results for gross alpha particle activity, uranium, and combined radium-226 and radium-228 is above half of the MCL and at or below the MCL for that contaminant, the system must collect and analyze for that contaminant using at least one sample at that source/entry point every three years. The analytical results for radium-226 and radium-228 must be added together to yield the combined result.

(5) Composite samples. To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a system may composite up to four consecutive quarterly samples from a single entry point if analysis is done within one year of the first sample. The analytical results from the composited samples will be considered by the department as the average analytical result to determine compliance with the MCLs and to determine the future monitoring frequency. If the analytical result from the composited sample is greater than half of the MCL, the department may require additional quarterly samples from the system before the system will be allowed to sample under a reduced monitoring schedule.

(6) Data substitution using gross alpha particle activity results.

1. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/L.

2. The gross alpha particle activity measurement shall have a confidence interval of 95 percent (1.65 sigma, where sigma is the standard deviation of the net counting rate of the sample) for uranium. When a system uses a gross alpha particle activity measurement in lieu of a uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for uranium. If the gross alpha particle activity result is less than the detection limit, half the detection limit will be used to determine compliance and the future monitoring frequency.

f. Monitoring requirements for beta particle and photon emitters. To determine compliance with the maximum contaminant levels in 41.8(1)*"b"*(2) for beta particle and photon radioactivity, a system must monitor at a frequency specified in 41.8(1)*"f."*

(1) General requirements.

1. Monitoring frequency and confirmation samples. The department may require more frequent monitoring than specified in 41.8(1)*"f."* The department may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Monitoring period. Each PWS shall monitor during the time period designated by the department in the operation permit.

(2) Systems designated by the department as vulnerable to man-made radioactivity.

1. Initial monitoring. Systems that have been determined by the department to be vulnerable to man-made radioactivity must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point to the distribution system, beginning within one quarter after being notified by the department of this requirement. Systems already required to conduct beta particle and

photon radioactivity monitoring must continue to sample until the department removes the monitoring requirement.

2. Reduced monitoring. The department may reduce the frequency of monitoring at that sampling point to once every three years, if the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a source/entry point has a running annual average (computed quarterly) of less than or equal to 50 pCi/L (screening level). Systems must collect all of the samples required in 41.8(1)*"f"*(2)"1" during the reduced monitoring period.

3. Data substitution. For a system in the vicinity of a nuclear facility, the department may allow the system to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's source/entry point(s), where the department determines such data is applicable to a particular water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the system's source/entry point(s) in accordance with 41.8(1)*"f"*(2).

(3) Systems determined to utilize waters contaminated by effluents from nuclear facilities.

1. Initial monitoring. Systems designated by the department as utilizing water contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system, beginning within one quarter after being notified by the department. Systems already designated by the department as systems using waters contaminated by effluents from nuclear facilities must continue to sample until the department removes the sampling requirement.

- Gross beta particle activity. Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. The former is recommended.
- Iodine-131. A composite of five consecutive daily samples shall be analyzed once each quarter for iodine-131. The department may require more frequent monitoring when iodine-131 is identified in the finished water.
- Strontium-90 and tritium. Annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. The latter procedure is recommended.

2. Reduced monitoring. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/L (screening level), the department may reduce the frequency of monitoring at that sampling point to every three years. Systems must collect all samples required in 41.8(1)*"f"*(3) during the reduced monitoring period.

3. Data substitution. For systems in the vicinity of a nuclear facility, the department may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the department determines such data is applicable to a particular water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the CWS source/entry point in accordance with 41.8(1)*"f"*(2)"1."

(4) Monitoring frequency waiver. A CWS designated by the department to monitor for beta particle and photon radioactivity cannot apply to the department for a waiver from the monitoring frequencies specified in 41.8(1)*"f"*(2) or (3).

(5) Community water systems may analyze for naturally occurring potassium-40 beta particle activity from the same or an equivalent sample used for the gross beta particle activity analysis. Systems are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

(6) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the appropriate screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample, and the appropriate doses must be calculated and summed to determine compliance with 41.8(1)*"b"*(2)"1," using the formula in 41.8(1)*"b"*(2)"2."

Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.

(7) Monitoring after an MCL violation. Systems must monitor monthly at the sampling point(s) which exceed the maximum contaminant level in 41.8(1)*"b"*(2) beginning the month after the exceedance occurs. Systems must continue monthly monitoring until the system has established, by a rolling average of three monthly samples, that the MCL is being met. Systems that establish that the MCL is being met must return to quarterly monitoring until they meet the requirements set forth in 41.8(1)*"f"*(2) or 41.8(1)*"f"*(3)"2."

41.8(2) Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—41.9(455B) Sampling and analytical requirements for radionuclides. Rescinded IAB 1/7/04, effective 2/11/04.

567—41.10(455B) Reporting, public notification and record keeping. Rescinded IAB 8/11/99, effective 9/15/99.

567—41.11(455B) Special monitoring.

41.11(1) *Special monitoring for sodium.* Suppliers of water for community public water systems shall collect and have analyzed one sample per source or plant, for the purpose of determining the sodium concentration in the distribution system. Systems utilizing multiple wells that draw raw water from a single aquifer may, with departmental approval, be considered as one source for determining the minimum number of samples to be collected. Sampling frequency and approved analytical methods are as follows:

a. Surface water systems. Systems utilizing a surface water source, in whole or in part, shall monitor for sodium at least once annually at the entry point to the distribution system.

b. Groundwater systems. Systems utilizing groundwater sources shall monitor at least once every three years at the entry point to the distribution system.

c. Increased monitoring. Suppliers may be required to monitor more frequently where sodium levels are variable or if certain types of treatment are used, such as cation exchange softening.

d. Analytical methodology. Analyses for sodium shall be performed in accordance with 41.3(1)*"e"*(1).

e. Reporting. The sodium level shall be reported to the public by at least one of the following methods:

(1) The community public water supply shall notify the appropriate local public health officials of the sodium levels by written notice by direct mail within three months of receipt of the analytical results. A copy of each notice required by this subrule shall be sent to the department within ten days of its issuance.

(2) In lieu of the reporting requirement of 41.11(1)*"e"*(1), the community public water supply shall include the sodium level in its annual consumer confidence report, pursuant to 567—paragraph 42.3(3)*"c"*(1)"12."

f. CWSs using cation exchange treatment. Community water systems which utilize cation exchange treatment are required to collect one sodium sample of the finished water per year after all treatment. Analysis and reporting must be done in accordance with 41.11(1)*"d"* and *"e."*

41.11(2) *Special monitoring for ammonia.* Ammonia in the groundwater is a precursor to the development of nitrite and nitrate in a drinking water system. Both nitrite and nitrate are contaminants with acute health effects. This subrule lists the ammonia analytical methodology, sample preservation requirements, and holding times to be used for drinking water samples.

a. Analytical methodology. Analyses for ammonia shall be performed in accordance with the following methodology, with a detection limit of 0.1 mg/L ammonia as N:

Methodology	EPA[1]	Standard Methods (20th edition)	ASTM	USGS[2]	Other
Manual distillation at pH 9.5[4], followed by:	350.2	4500-NH3 B			973.49[3]
Titration	350.2	4500-NH3 C			
Manual electrode	350.3	4500-NH3 D or E	D1426-93(B)		
Automated phenate	350.1	4500-NH3 G		I-4523-85	
Automated electrode					See note[5]

[1]"Methods for Chemical Analysis of Water and Wastes," Environmental Protection Agency, EPA-600/4-79-020, Revised March 1983 and 1979 where applicable.

[2]Fishman, M.J., et al., "Methods for Analysis of Inorganic Substances in Water and Fluvial Sediments," U.S. Department of the Interior, Techniques of Water—Resource Investigations of the U.S. Geological Survey, Denver, CO, Revised 1989, unless otherwise stated.

[3]"Official Methods of Analysis of the Association of Official Analytical Chemists," 15th edition, 1990.

[4]Manual distillation is not required if the samples are very low in turbidity; however, manual distillation should be used whenever matrix interferences could be present in the sample, and will be required to resolve any controversies.

[5]Ammonia, Automated Electrode Method, Industrial Method Number 379-75 WE, dated February 19, 1976, Bran & Luebbe (Technicon) Auto Analyzer II, Bran & Luebbe Analyzing Technologies, Inc., Elmsford, NY 10523.

b. Sample preservation and holding time. The system must collect a 500 mL grab sample into a plastic or glass bottle. The sample must be acidified at the time of collection to a pH of less than 2 by the addition of sulfuric acid (H_2SO_4) and refrigerated at 4 degrees Celsius. The sample must be analyzed within 28 days. If the sample is analyzed within 24 hours of collection, the sample acidification is not required.

567—41.12(455B) Alternative analytical techniques. With the written permission of this department, concurred in by the EPA, an alternative analytical technique may be employed. An alternative technique shall be acceptable only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with any maximum contaminant level. The use of the alternative analytical technique shall not decrease the frequency of monitoring required by 567—41.2(455B) through 567—41.8(455B).

567—41.13(455B) Monitoring of interconnected public water supply systems. When a public water supply system supplies water to one or more other public water supply systems, the department may modify the monitoring requirements imposed by this part to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the department and concurred in by the administrator of the U.S. Environmental Protection Agency.

567—41.14(455B) Department analytical results used to determine compliance. Analytical results or other information compiled by departmental staff may be used to determine compliance with the maximum contaminant levels, action levels, or treatment techniques listed in 567—Chapters 41 and 43 or for initiating remedial action with respect to these violations.

567—41.15(455B) Monitoring of other contaminants. If the department determines that other contaminants are present in a public water supply, and the contaminants are known to pose, or scientific evidence strongly suggests that they pose, a threat to human health, the supplier of water may be required to monitor for such contaminants. The supplier of water will monitor at a frequency and in a manner which will adequately identify the magnitude and extent of the contamination. The monitoring frequency and sampling location will be determined by the department. All analytical results will be obtained using approved EPA methods and all analytical results will be submitted to the department

for review and evaluation. Any monitoring required under this paragraph will be incorporated into an operation permit or an order.

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

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◊ Two or more ARCs

1 Effective date of [ARC4359A] 41.3(1)*"b"*(2)"3"; 41.3(1)*"c"*(2)"4," new sentence at end; 41.3(1)*"c"*(3)"6," "10"; 41.3(1)*"c"*(8), first sentence; 41.4(1)*"d"*(5)"4"; 41.5(1)*"a"*; 41.10(7)*"a"*(3); 41.11(2)*"a"*; 41.11(2)*"c"*(4); 41.11(2)*"c"*(5), first sentence, delayed 70 days by the Administrative Rules Review Committee at its meeting held November 9, 1993; delay lifted by the Committee December 14, 1993.

CHAPTER 42
PUBLIC NOTIFICATION, PUBLIC EDUCATION, CONSUMER CONFIDENCE REPORTS, REPORTING, AND RECORD MAINTENANCE

567—42.1(455B) Public notification.

42.1(1) *Applicability.* Each owner or operator of a public water system must give notice for all violations of public drinking water rules and for other situations, as listed in this subrule. The term "violations" includes violations of, or failure to comply with, the maximum contaminant level, maximum residual disinfection level, treatment technique, monitoring requirements, and testing procedures in 567—Chapters 40 through 43. The term "other situations" includes all situations determined by the department to require a public notice, such as a waterborne disease outbreak or other waterborne emergency; exceedance of the nitrate MCL by noncommunity systems where granted permission by the department under 567—paragraph 41.3(1)*"a"*; exceedance of fluoride level over 2.0 mg/L; availability of unregulated contaminant monitoring data in accordance with CFR Title 40, Part 141.40, failure to meet the terms of a compliance schedule; exceedance of a health advisory as determined by the department; failure to comply with the public notification requirements, public education requirements, or consumer confidence report requirements; failure to meet the terms of an administrative or court order; failure to meet the data and other reporting requirements; failure to retain a certified operator in accordance with 567—subrule 43.1(5); and any other situation where the department determines public notification is needed. Public notification is not required for ammonia monitoring conducted pursuant to 567—subrule 41.11(2).

a. *Types of public notice.* Public notice requirements are divided into three tiers, to take into account the seriousness of the violation or situation and of any potential adverse health effects that may be involved. The public notice requirements for each violation or situation are determined by the tier to which it is assigned.

(1) Tier 1 public notice is required for all drinking water violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure.

(2) Tier 2 public notice is required for all other drinking water violations and situations with potential to have serious adverse effects on human health.

(3) Tier 3 public notice is required for all other drinking water violations and situations not included in Tier 1 or Tier 2.

b. *Notification.* Each public water system must provide public notice to persons served by the water system, in accordance with this rule. A copy of the notice must also be sent to the department, in accordance with the requirements under paragraph 42.4(1)*"c."*

(1) Consecutive systems. Public water systems that sell or otherwise provide drinking water to other public water systems (i.e., to consecutive systems) are required to give public notice to the owner or operator of the consecutive system. The consecutive system is responsible for providing public notice to the persons it serves, and must meet the appropriate Tier requirements for the violation.

(2) Systems with multiple physically or hydraulically isolated distribution systems. If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the department may allow the system to limit distribution of the public notice only to persons served by that portion of the system which is out of compliance. Permission by the department to limit distribution of the notice must be granted in writing.

42.1(2) *Tier 1 public notice requirements.*

a. *Violations and situations which require Tier 1 notice.* The following types of violations or situations require Tier 1 public notice:

(1) Violation of the MCL for *E. coli*, as specified in 567—paragraph 41.2(1)*"a."*

(2) Rescinded IAB 4/11/18, effective 5/16/18.

(3) Violation of the MCL for nitrate or nitrite, as defined in 567—subparagraph 41.3(1)*"b"*(1).

(4) Failure by the water system to collect a confirmation sample within 24 hours of the system's receipt of the first sample result showing an exceedance of the nitrate or nitrite MCL, when directed by the department, as specified in 567—paragraph 41.3(1)*"c"*(7)"2."

(5) Exceedance of the nitrate MCL by noncommunity water systems, where permitted to exceed the MCL by the department under 567—paragraph 41.3(1)*"a,"* as required under 42.1(7)*"c."*

(6) Violation of the MRDL for chlorine dioxide when one or more samples, taken in the distribution system on the day following an exceedance of the MRDL in the sample collected at the entrance to the distribution system, exceeds the MRDL, as defined in 567—paragraph 43.6(1)*"b."*

(7) Failure by the water system to collect the required chlorine dioxide samples in the distribution system on the day following an exceedance of the MRDL in the sample collected at the entrance to the distribution system.

(8) Violation of the treatment technique requirement by a surface water or influenced groundwater public water system resulting from a single exceedance of the maximum allowable turbidity limit, as specified in rule 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B), where the department determines after consultation with the system that a Tier 1 notice is required, or where the consultation with the department does not take place within 24 hours after the system learns of the violation.

(9) Occurrence of a waterborne disease outbreak, as defined in rule 567—40.2(455B), or other waterborne emergency, such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination.

(10) Other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the department either in its rules or on a case-by-case basis.

(11) Detection of *E. coli*, enterococci, or coliphage in source water samples, as specified in 567—paragraphs 41.7(3)*"a"* and 41.7(3)*"b."*

b. Timing of Tier 1 public notice. Public water systems must:

(1) Provide a public notice as soon as practical but no later than 24 hours after the system learns of the violation;

(2) Initiate consultation with the department as soon as practical, but no later than 24 hours after the system learns of the violation or situation, to determine additional public notice requirements. For consultation with department staff after normal business hours, the system should contact the department via the department's Environmental Emergency Reporting Hotline telephone number (515)725-8694; and

(3) Comply with any additional public notification requirements, including any repeat notices or direction on the duration of the posted notices, that are established as a result of the consultation with the department. Such requirements may include the timing, form, manner, frequency, and content of repeat notices (if any) and other actions designed to reach all persons served. All NTNCs must notify the parent or legal guardian of each child under 18 years of age and of any nursing home resident of the Tier 1 violation as soon as possible and within 72 hours, including the information required in the public notice under subrule 42.1(5).

c. Form and manner of Tier 1 public notice. Public water systems must provide the notice within 24 hours in a form and manner reasonably calculated to reach all persons served. The form and manner used by the public water system must fit the specific situation, and must be designed to reach residential, transient, and nontransient users of the water system. In order to reach all persons served, water systems are to use, at a minimum, one or more of the following forms of delivery. The department may require that multiple forms of notification be used in a specific situation.

(1) Appropriate broadcast media, such as radio or television;

(2) Posting of the notice in conspicuous locations throughout the area served by the water system;

(3) Hand delivery of the notice to persons served by the water system; or

(4) Another delivery method approved in writing by the department.

42.1(3) *Tier 2 public notice requirements.*

a. Violations and situations which require Tier 2 notice. The following types of violations or situations require Tier 2 public notice:

(1) All violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required under subrule 42.1(2);

(2) Violations of the monitoring and testing procedure requirements, where the department determines that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation;

(3) Failure to comply with the requirements of any compliance schedule prescribed in an operation permit, administrative order, or court order pursuant to 567—subrule 43.2(5);

(4) Failure to comply with a health advisory as determined by the department; and

(5) Failure to take corrective action or failure to maintain at least 4-log treatment of viruses (using inactivation, removal, or a department-approved combination of 4-log virus inactivation and removal) before or at the first customer under 567—paragraph 41.7(4)*"a."*

b. Timing of Tier 2 public notice. Public water systems must:

(1) Provide the initial public notice as soon as practical, but no later than 30 days after the system learns of the violation. If the public notice is posted, the notice must remain in place for as long as the violation or situation persists, but in no case for less than 7 days, even if the violation or situation is resolved. The department may allow additional time for the initial notice of up to three months from the date the system learns of the violation; however, such an extension must be on a case-by-case basis and be made in writing by the department.

(2) The public water system must repeat the notice every three months as long as the violation or situation persists, unless the department determines that appropriate circumstances warrant a different repeat frequency. If the department determines that a repeat notice frequency of longer than every three months is allowed, that decision must be made in writing by the department and must be on a case-by-case basis. In no circumstance may the repeat notice be given less frequently than once per year. Repeat notices for a coliform bacteria MCL, a treatment technique violation under 567—paragraph 41.2(1)*"a"* or 41.2(1)*"l,"* or a turbidity treatment technique violation under rule 567—43.9(455B) or 567—43.10(455B) must be made every three months or more frequently.

(3) A public water system using surface water or influenced groundwater with a treatment technique violation resulting from a single exceedance of the maximum allowable turbidity limit pursuant to 567—43.9(455B) or 567—43.10(455B) must consult with the department as soon as practical, but no later than 24 hours after the public water system learns of the violation, to determine whether a Tier 1 or Tier 2 public notice is required to protect public health. For consultation with department staff after normal business hours, the system should contact the department via the department's Environmental Emergency Reporting Hotline telephone number (515)725-8694. If the consultation does not occur within the 24-hour period, the public water system must distribute a Tier 1 notice of the violation within the next 24 hours, or no later than 48 hours after the system learns of the violation, following the requirements of paragraphs 42.1(2)*"b"* and 42.1(2)*"c."*

c. Form and manner of Tier 2 public notice. Public water systems must provide the initial public notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of public water system, but it must at a minimum meet the following requirements:

(1) Community water systems must provide notice by the following methods, unless directed otherwise in writing by the department:

1. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

2. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or direct delivery. Such persons may include those who do not pay water bills or do not have service connection addresses, such as house renters, apartment dwellers, university students, nursing home patients, or prison inmates. Other methods may include:

- Publication in a local newspaper;

- Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers;
- Posting in public places served by the system or on the Internet; or
- Delivery of the notice to community organizations.

(2) Noncommunity water systems (TNC and NTNC) must provide notice by the following methods, unless directed otherwise in writing by the department:

1. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

2. Any other method reasonably calculated to reach other persons served by the system who would not normally be reached by posting, mail, or direct delivery. Such persons may include those served who may not see a posted notice because the posted notice is not in a location they routinely visit. Other methods may include:

- Publication in a local newspaper or newsletter distribution to customers;
- Use of electronic mail (email) to notify employees or students; or
- Delivery of multiple copies in central locations, such as community centers.

3. In addition to the requirements in 42.1(3)*"c"*(2)"1" and "2," nontransient noncommunity public water systems that serve children under 18 years of age, such as child care facilities, schools, and hospitals, or nursing home residents, including elder care facilities, shall provide the public notice in writing to the parent or legal guardian of each person within the time period specified by the department. The content of the public notice must meet the requirements of subrule 42.1(5).

42.1(4) *Tier 3 public notice requirements.*

a. Violations and situations which require Tier 3 notice. The following types of violations or situations require Tier 3 public notice:

(1) Monitoring violations under 567—Chapters 41, 42, and 43, except where a Tier 1 notice is required under subrule 42.1(2) or where the department determines that a Tier 2 notice is required;

(2) Failure to comply with a testing procedure established in 567—Chapters 41, 42, and 43, except where a Tier 1 notice is required under subrule 42.1(2) or where the department determines that a Tier 2 notice is required;

(3) Availability of unregulated contaminant monitoring results, as required of certain public water supply systems by CFR Title 40, Part 141.40, as required under paragraph 42.1(7)*"a"*;

(4) Exceedance of the fluoride level of 2.0 mg/L and not exceeding the MCL of 4.0 mg/L, as required under paragraph 42.1(7)*"b"*;

(5) Failure to report data or analytical results required under 567—Chapters 41, 42, and 43 to the department;

(6) Failure to meet the requirements of this chapter for public notification, public education, or the development and distribution of the Consumer Confidence Report;

(7) Failure to retain a certified operator in accordance with 567—subrule 43.1(5) and the department determines that public notification is required;

(8) Failure to maintain records required under 567—Chapters 41, 42, and 43; and

(9) Any other situation where the department determines public notification is needed.

b. Timing of Tier 3 public notice.

(1) Initial notice.

1. For violations or situations listed in subparagraphs 42.1(4)*"a"*(1), (2), (5), and (6), public water systems must provide the initial public notice within 12 months after the public water system learns of the violation or situation. If the violation pertains to a contaminant that could have acute health effects as determined by the department, such as coliform bacteria, nitrate, nitrite, or turbidity, the initial public notice must be provided within 3 months. If the public notice is posted, the notice must remain in place for as long as the violation or other situation persists, but in no case less than seven days, even if the violation or situation is resolved.

2. For availability of unregulated contaminant monitoring results pursuant to subparagraph 42.1(4)*"a"*(3), the system must provide the initial public notice within 12 months of receiving the unregulated contaminant monitoring results.

3. For subparagraphs 42.1(4)*"a"*(4), (7), and (8), the timing of the initial notice is at the discretion of the department, but the notice must be made within 12 months of the violation or situation.

(2) Repeat notice.

1. For violations or situations listed in subparagraphs 42.1(4)*"a"*(1), (2), (4), (5), and (6), public water systems must repeat the public notice every 12 months in which the violation or situation persists. If the violation pertains to a contaminant that could have acute health effects, such as coliform bacteria, nitrate, nitrite, or turbidity, the system must repeat the public notice every 3 months in which the violation or situation persists. If the public notice is posted, the notice must remain in place for as long as the violation or other situation persists, but in no case less than seven days, even if the violation or situation is resolved.

2. For availability of unregulated contaminant monitoring results pursuant to subparagraph 42.1(4)*"a"*(3), the system is not required to repeat the public notice, once the initial public notice requirement has been met.

3. For subparagraphs 42.1(4)*"a"*(4), (7), and (8), the requirement for and timing of the repeat notice is at the discretion of the department and, if required, the notice must be made within 12 months of the initial notice.

c. Form and manner of Tier 3 public notice. Public water systems must provide the initial notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period. The form and manner of the public notice may vary based on the specific situation and type of water system, but it must at a minimum meet the following requirements:

(1) Community water systems. Unless directed otherwise in writing by the department, community water systems must provide notice by:

1. Mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system; and

2. Any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by mail or direct delivery notice. Such persons may include those who do not pay water bills or do not have service connection addresses, such as house renters, apartment dwellers, university students, nursing home patients, or prison inmates. Other methods may include:

- Publication in a local newspaper;
- Delivery of multiple copies for distribution by customers that provide their drinking water to others, such as apartment building owners or large private employers;
- Posting in public places or on the Internet; or
- Delivery of the notice to community organizations.

3. Use of the Consumer Confidence Report for initial and repeat notices. For community water systems, the Consumer Confidence Report (CCR) required under 567—42.3(455B) may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices, as long as:

- The CCR is provided to persons served within the time frames specified in 42.1(4)*"b"*;
- The Tier 3 notice contained in the CCR follows the content requirements under 42.1(5); and
- The CCR is distributed following the delivery requirements under 42.1(4)*"c"*(1) and (2).

(2) Noncommunity systems (TNC and NTNC). Unless directed otherwise in writing by the department, noncommunity water systems must provide notice by:

1. Posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known); and

2. Any other method reasonably calculated to reach other persons served by the system, if they would not normally be reached by the posted, mailed, or delivered notice. Such persons may include those who may not see a posted notice because the notice is not in a location they routinely visit. Other methods may include:

- Publication in a local newspaper or newsletter distributed to employees;

- Use of electronic mail (email) to notify employees or students; or
- Delivery of multiple copies in central locations, such as community centers.

42.1(5) *Content of the public notice.*

a. Required public notice elements. Each public notice must include the following elements:

(1) A description of the violation or situation, including the contaminant(s) of concern and, as applicable, the contaminant level(s);

(2) When the violation or situation occurred;

(3) Any potential adverse health effects from the violation or situation, including the standard language under subparagraph 42.1(5)*"c"*(1) or (2), whichever is applicable;

(4) The population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water;

(5) Whether alternative water supplies or bottled water should be used, or require a boil-water order;

(6) What actions consumers should take, including when they should seek medical help, if known;

(7) What the system is doing to correct the violation or situation;

(8) When the water system expects to return to compliance or resolve the situation;

(9) The name, business address, and telephone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice; and

(10) A statement to encourage the notice recipient to distribute the public notice to other persons served, using the standard language under subparagraph 42.1(5)*"c"*(3), where applicable.

b. Appearance and presentation of the public notice.

(1) Each public notice must:

1. Be displayed in a conspicuous way when printed or posted;
2. Not contain overly technical language or very small print;
3. Not be formatted in a way that defeats the purpose of the notice; and
4. Not contain language that nullifies the purpose of the notice.

(2) Each public notice must comply with multilingual requirements, as follows:

1. For public water systems serving a large proportion of non-English speaking consumers, as determined by the department, the public notice must contain information in the appropriate language(s) about the importance of the notice. Alternately, the public notice must contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the notice or to request assistance in the appropriate language.

2. In cases where the department has not determined what constitutes a large proportion of non-English speaking consumers, the public water system must include in the public notice the same information as in 42.1(5)*"b"*(2)"1," where appropriate, to reach a large proportion of non-English speaking persons served by the water system.

c. Standard language requirements. Public water systems are required to include the following standard language in their public notice:

(1) Standard language about health effects for MCL violations, MRDL violations, or treatment technique violations. Public water systems must include in each public notice the language about health effects specified in Appendix A for the specific contaminant, disinfectant residual, or treatment technique that incurred the violation.

(2) Standard language for monitoring and testing procedure violations. Public water systems must include the following language in their notice, including the bracketed language necessary to complete the notice, for all monitoring and testing procedure violations:

> We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we [use either the phrase "did not monitor or test" or "did not complete all monitoring or testing," whichever is more applicable] for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time.

(3) Standard language to encourage the distribution of the public notice to all persons served. Public water systems must include in their notice the following language, where applicable:

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly, such as people in apartments, nursing homes, schools, and businesses. You can do this by posting this notice in a public place or distributing copies by hand or mail.

42.1(6) *Notice to new billing units or new customers.*

a. Community water systems. Community water systems must give a copy of the most recent public notice for any continuing violation or other ongoing situations requiring a public notice to all new billing units or new customers prior to or at the time service begins.

b. Noncommunity water systems. Noncommunity water systems must continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation or other situation requiring a public notice for as long as the violation or other situation persists.

42.1(7) *Special notices.*

a. Availability of unregulated contaminant monitoring results.

(1) Applicability. The owner or operator of a community water system or nontransient noncommunity water system required to monitor under the federal unregulated contaminant monitoring rule must notify persons served by the system of the availability of the results of such sampling no later than 12 months after the monitoring results are known.

(2) Form and manner of notice. The form and manner of the public notice must follow the requirements for a Tier 3 public notice prescribed in paragraph 42.1(4)*"c."* The notice must also identify a person and provide the telephone number to contact for information on the monitoring results.

b. Fluoride level between 2.0 and 4.0 mg/L at community or nontransient noncommunity water systems.

(1) Applicability. Community and nontransient noncommunity water systems that exceed the fluoride level of 2.0 mg/L as determined by the last single sample taken in accordance with 567—paragraph 41.3(1)*"c"* but do not exceed the MCL of 4.0 mg/L, must provide the public notice in subparagraph 42.1(7)*"b"*(5) to persons served. If the nontransient noncommunity public water system is a school or child care facility that serves children under nine years of age, the public water system shall provide the public notice in writing to the legal guardians of each child within the time period specified by the department.

(2) Initial notice. Public notice must be provided as soon as practical but no later than three months from the day the water system learns of the exceedance. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the Public Health Dental Director, Iowa Department of Public Health, Lucas State Office Building, Des Moines, Iowa 50319-0075.

(3) Repeat notice. The public water system must repeat the notice at least every three months for as long as the fluoride level exceeds 2.0 mg/L. If the public notice is posted, the notice must remain in place for as long as the fluoride level exceeds 2.0 mg/L, but in no case less than seven days (even if the exceedance is eliminated). The department may require the repeat notice to be conducted more frequently.

(4) Form and manner of notice. The form and manner of the public notice, including repeat notices, must follow the requirements for a Tier 3 public notice in paragraph 42.1(4)*"c."*

(5) Mandatory language. The notice must contain the following language, including the bracketed language necessary to complete the notice:

This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/L) of fluoride may develop cosmetic discoloration of their permanent teeth, called dental fluorosis. The drinking water provided by your public water system [PWS name] has a fluoride concentration of [analytical result] mg/L.

Dental fluorosis, in its moderate or severe forms, may result in a brown staining and pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their

permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.

Drinking water containing more than 4.0 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4.0 mg/L of fluoride, but we are required to notify you when we discover that the fluoride levels in your drinking water exceed 2.0 mg/L because of this cosmetic dental problem.

For more information, please call [name of the person designated as the water system contact] of [name of public water system] at [telephone number]. Some home water treatment units are also available to remove fluoride from drinking water. In Iowa, home water treatment units are regulated under 641—Chapter 14, with the water treatment unit registration program administered by the Iowa department of public health's environmental health division. In addition, you may call the National Sanitation Foundation (NSF) International, at 1-877-867-3435.

c. Nitrate level between 10 and 20 mg/L for noncommunity water systems, where allowed by the department.

(1) Applicability. The owner or operator of a noncommunity water system granted permission by the department under 567—paragraph 41.3(1)*"a"* to exceed the nitrate MCL must provide notice to persons served according to the requirements for a Tier 1 notice under paragraphs 42.1(2)*"a"* and *"b."*

(2) Form and manner of notice. Noncommunity water systems granted permission by the department to exceed the nitrate MCL under 567—paragraph 41.3(1)*"a"* must provide continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure, according to the requirements for Tier 1 notice delivery under paragraph 42.1(2)*"c"* and the content requirements under subrule 42.1(5).

d. Repeated failure to conduct monitoring of the source water for Cryptosporidium.

(1) Applicability. The owner or operator of any public water system that is required to monitor source water under 567—43.11(455B) must notify persons served by the water system that monitoring has not been completed as specified no later than 30 days after the system has failed to collect samples in any three months of monitoring as specified in 567—paragraph 43.11(3)*"a."* The notice must be repeated as specified in 42.1(3).

(2) Form and manner of notice. The form and manner of the special notice must follow the Tier 2 public notice requirements in 42.1(3) and be presented as required in 42.1(5)*"b."*

(3) Mandatory language. The special notice must contain the following language, including the language necessary to fill in the brackets.

"We are required to monitor the source of your drinking water for *Cryptosporidium*. Results of the monitoring are to be used to determine whether water treatment at the [treatment plant name] is sufficient to adequately remove *Cryptosporidium* from your drinking water. We are required to complete this monitoring and make this determination by [required bin determination date]. We ["did not monitor or test" or "did not complete all monitoring or testing"] on schedule and, therefore, we may not be able to determine by the required date what treatment modifications, if any, must be made to ensure adequate *Cryptosporidium* removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of [date]. For more information, please call [name of water system contact] of [name of water system] at [telephone number]."

(4) Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

e. Failure to determine bin classification or mean Cryptosporidium level.

(1) Applicability. The owner or operator of a public water system that is required to determine a bin classification under 567—subrule 43.11(5) must notify persons served by the water system that the determination has not been made as required no later than 30 days after the system has failed to report the determination as specified in 567—paragraph 43.11(5)*"c."* The notice must be repeated as specified in 42.1(3). The notice is not required if the system is in compliance with a department-approved schedule to address the violation.

(2) Form and manner of notice. The form and manner of the special notice must follow the Tier 2 public notice requirements in 42.1(3) and be presented as required in 42.1(5)*"b."*

(3) Mandatory language. The special notice must contain the following language, including the language necessary to fill in the brackets.

"We are required to monitor the source of your drinking water for *Cryptosporidium* in order to determine by [date] whether water treatment at the [treatment plant name] is sufficient to adequately remove *Cryptosporidium* from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of [date]. For more information, please call [name of water system contact] of [name of water system] at [telephone number]."

(4) Each special notice must also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

42.1(8) *Notice by department on behalf of the public water system.* The department may give the public notice on behalf of the owner or operator of the public water system if the department complies with the public notification requirements of this rule. However, the owner or operator of the public water system remains responsible for ensuring the public notification requirements of this rule are met.

42.1(9) *Public notice requirements in the operation permit compliance schedule.* When the department determines that a public water supply system cannot promptly comply with one or more maximum contaminant levels pursuant to 567—Chapter 41, and that there is no immediate, unreasonable risk to the health of persons served by the system, an operation permit will be drafted that may include interim contaminant levels or a compliance schedule. The permit applicant may be required by the department to present the reasons the system cannot come into immediate compliance. Prior to issuance of a final permit, notice and opportunity for public participation must be given in accordance with this subrule. The notice shall be circulated in a manner designed to inform interested and potentially interested persons of any proposed interim contaminant level or compliance schedule.

a. Preparation of notice. The public notice shall be prepared by the department and circulated by the applicant within its geographical area through publication in a local newspaper with general circulation or through mail or direct delivery to the system's customers. The public notice shall be mailed by the department to any person upon request.

b. Public comment period. The department shall provide a period of at least 30 days following the date of the public notice during which time interested persons may submit their written views on the tentative determinations with respect to the operation permit. All written comments submitted during the 30-day comment period shall be retained by the department and considered in the formulation of the department's final determination with respect to the operation permit. The department may extend the comment period.

c. Content of notice. The content of the public notice of a proposed operation permit shall include at least the following:

(1) The name, address, and telephone number of the department.

(2) The name and address of the applicant.

(3) A statement of the department's tentative determination to issue the operation permit.

(4) A brief description of each applicant's water supply operations which necessitate the proposed permit conditions.

(5) A brief description of the procedures for the formulation of final determinations, including the 30-day comment period required by 42.1(9)*"b."*

(6) The right to request a public hearing pursuant to 42.1(9)*"d"* and any other means by which interested persons may influence or comment upon those determinations.

(7) The address and telephone number of places at which interested persons may obtain further information, request a copy of the proposed operation permit prepared pursuant to 42.1(9), and inspect and copy the application forms and related documents.

d. Public hearings on proposed operation permits. The applicant or any interested agency, person or group of persons may request or petition for a public hearing with respect to the proposed action. Any such request shall clearly state issues and topics to be addressed at the hearing. Any such request

or petition for public hearing must be filed with the department within the 30-day period prescribed in 42.1(9)*"b"* and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted. The department shall hold an informal and noncontested case hearing if there is a significant public interest (including the filing of requests or petitions for such hearing) in holding such a hearing. Frivolous or insubstantial hearing requests may be denied by the department. Instances of doubt should be resolved in favor of holding the hearing. Any hearing held pursuant to this subrule shall be held in the geographical area of the system, or other appropriate area at the discretion of the department. The department may, as appropriate, consider related groups of permit applications at the hearing.

e. Public notice of public hearings.

(1) Public notice of any hearing held pursuant to 42.1(9) shall be circulated at least as widely as the notice under 42.1(9)*"a"* at least 30 days in advance of the hearing.

(2) The contents of the public notice of any hearing held pursuant to 42.1(9) shall include at least the following:

1. The name, address, and telephone number of the department;
2. The name and address of each applicant whose application will be considered at the hearing;
3. A brief reference to the public notice previously issued, including identification number and date of issuance;
4. Information regarding the time and location for the hearing;
5. The purpose of the hearing;
6. A concise statement of the issues raised by the person requesting the hearing;
7. The address and telephone number of the premises where interested persons may obtain further information, request a copy of the draft operation permit or modification prepared pursuant to 42.1(9), and inspect and copy the application forms and related documents; and
8. A brief description of the nature of the hearing, including the rules and procedures to be followed.

f. Decision by the department. The department shall issue or deny the operation permit within 30 days after the termination of the public hearing held pursuant to 42.1(9), or, if no public hearing is held, within 30 days after the termination of the period for requesting a hearing.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—42.2(455B) Lead consumer notice and public education for lead action level exceedance. All CWS and NTNC systems must comply with the lead consumer notice in accordance with 42.2(1). A CWS or NTNC system that exceeds the lead action level based on tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* must comply with the public education requirements in accordance with 42.2(2).

42.2(1) *Lead consumer notice.* All CWS and NTNC systems must provide a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested as listed in 567—42.2(455B). Any system exceeding the lead action level shall also implement the public education requirements of 42.2(2).

a. Reporting requirement. All CWS and NTNC systems must provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of 567—paragraph 41.4(1)*"c"* to the persons served by the water system at the specific sampling site from which the sample was taken (e.g., the occupants of the residence where the tap was tested).

b. Timing of notification. A water system must provide the consumer notice as soon as practical, but no later than 30 days after the system learns of the tap monitoring results.

c. Content of notice. The consumer notice must include the following:

(1) Results of the lead tap water monitoring for the tap that was tested,

(2) An explanation of the health effects of lead,

(3) A list of steps consumers can take to reduce exposure to lead in drinking water,

(4) Contact information for the water utility, and

(5) The lead maximum contaminant level goal of 0 mg/L and the 90th percentile lead action level of 0.015 mg/L and the definitions for these two terms from rule 567—40.2(455B).

d. Delivery of notice. The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the department. For example, upon approval by the department, an NTNC system could post the results on a bulletin board in the facility to allow users to review the information. The system must provide the notice to customers at sample taps tested, including consumers who do not receive water bills.

e. Inclusion of copper results. The system may also include results of copper testing in the notice along with the 90th percentile copper action level of 1.3 mg/L, copper MCLG of 1.3 mg/L, and health effects language.

42.2(2) *Lead public education for lead action level exceedance.* A water system that exceeds the lead action level based on tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* shall deliver the public education materials contained in 42.2(2)*"a"* in accordance with 42.2(2)*"b."* Water systems that exceed the lead action level must sample the tap water of any customer who requests it in accordance with 42.2(2)*"c."*

a. Content of written public education materials. CWS and NTNC systems must include the following elements in printed materials (e.g., brochures and pamphlets) in the same order as listed in this paragraph. In addition, language in 42.2(2)*"a"*(1), (2), and (6) must be included in the materials exactly as written, except for the text in brackets in these paragraphs for which the water system must substitute system-specific information. Any additional information presented by a water system must be consistent with the information in 42.2(2)*"a"* and be in plain language that can be understood by the general public. Water systems must submit all written public education materials to the department prior to delivery. The department may require the system to obtain approval of the content of written public education materials prior to delivery.

(1) The following information must be included exactly as written. "IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [*Insert name of water system*] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water."

(2) The following information must be included exactly as written. "Health effects of lead. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development."

(3) Sources of lead. The printed materials must:

1. Explain what lead is.
2. Explain possible sources of lead in drinking water and how lead enters drinking water and include information on home/building plumbing materials and service lines that may contain lead.
3. Discuss other important sources of lead exposure in addition to drinking water (e.g., paint).

(4) Discuss the steps the consumers can take to reduce their exposure to lead in drinking water as follows:

1. Encourage running the water to flush out the lead.
2. Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.
3. Explain that boiling the water does not reduce lead levels.
4. Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.
5. Suggest that parents have their child's blood tested for lead.

(5) The printed materials must explain why there are elevated levels of lead in the system's drinking water (if known) and what the water system is doing to reduce the lead levels in homes/buildings in this area.

(6) The following information must be included exactly as written. "For more information, call us at [*insert your telephone number*] or visit our website at [*insert your website link here*]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA's website at www.epa.gov/lead or contact your health care provider."

(7) Community water systems must also include the following elements:

1. Tell consumers how to get their water tested.
2. Discuss lead in plumbing components and the difference between low lead and lead free.

b. Delivery of public education materials.

(1) Outreach to non-English speaking consumers. For public water systems serving a large proportion of non-English speaking consumers, as determined by the department, the public education materials must contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(2) Delivery of public education at CWS. A CWS that exceeds the lead action level on the basis of tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* and that is not already conducting public education tasks under 42.2(2) must conduct the public education tasks within 60 days of the date of notification of the action level exceedance:

1. Deliver printed materials meeting the content requirements of 42.2(2)*"a"* to all bill-paying customers.

2. Contact customers who are most at risk by delivering education materials that meet the content requirements of 42.2(2)*"a"* to local public health agencies even if they are not located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or CWS's users. The water system must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community-based organizations serving target populations, which may include organizations outside the service area of the water system. If such lists are provided, systems must deliver education materials that meet the content requirement of 42.2(2)*"a"* to all organizations on the provided lists.

3. Contact customers who are most at risk by delivering materials that meet the content requirements of 42.2(2)*"a"* to the following organizations that are located within the water system's service area, along with an informational notice that encourages distribution to all the organization's potentially affected customers or community public water supply system's users:

- Public and private schools or school boards;
- Women, Infants, and Children (WIC) and Head Start programs;
- Public and private hospitals and medical clinics;
- Pediatricians;
- Family planning clinics; and
- Local welfare agencies.

4. Make a good-faith effort to locate the following organizations within the service area and to deliver to them materials that meet the content requirements of 42.2(2)*"a,"* along with an informational notice that encourages distribution to all potentially affected customers or users. The good-faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system's service area:

- Licensed child care centers;
- Public and private preschools;
- Obstetricians, gynecologists, and midwives.

5. No less often than quarterly, provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill must include the following statement exactly as written except for the text in brackets for which the water system must substitute system-specific information: "[*insert name of water system*] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information, please call [*insert telephone number of water system*] or visit [*insert your website link here*]."

The message or delivery mechanisms can be modified in consultation with the department; specifically, the department may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

6. Post material meeting the content requirements of 42.2(2)*"a"* on the water system's website if the system serves a population greater than 100,000.

7. Submit a press release to newspaper, television, and radio stations.

8. In addition to including those items previously listed, systems must implement at least three activities from one or more of the following categories. The educational content and selection of these activities must be determined in consultation with the department.

- Public service announcement;
- Paid advertisement;
- Public area information displays;
- Emails to customers;
- Public meetings;
- Household deliveries;
- Targeted individual customer contact;
- Direct material distribution to all multifamily homes and institutions; and
- Other methods approved by the department.

For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the department has established an alternate monitoring period, the last day of that period.

(3) Continuing public education at a CWS. As long as a CWS exceeds the action level, it must repeat the activities pursuant to 42.2(2)*"b"*(2) as follows:

1. A CWS shall repeat the tasks contained in 42.2(2)*"b"*(2)"1," "2," and "8" every 12 months.

2. A CWS shall repeat the tasks contained in 42.2(2)*"b"*(2)"5" with each billing cycle.

3. A CWS serving a population greater than 100,000 shall post and retain material on a publicly accessible website pursuant to 42.2(2)*"b"*(2)"6."

4. A CWS shall repeat the task in 42.2(2)*"b"*(2)"7" twice every 12 months on a schedule agreed upon with the department. The department can allow activities in 42.2(2)*"b"*(2) to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the department in advance of the 60-day deadline, and the system must already have initiated public education activities prior to the end of the 60-day deadline.

(4) Delivery of public education at an NTNC system. Within 60 days of the date of notification of the action level exceedance, an NTNC system shall deliver the public education materials specified as follows:

1. Post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

2. Distribute informational pamphlets or brochures on lead in drinking water to each person served by the nontransient noncommunity water system. The department may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as at least the same coverage is achieved. If the system serves children 18 years of age and under, such as a school or child care facility, the public education notice must be provided to the parents or legal guardians of the children.

For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs or, if the department has established an alternate monitoring period, the last day of that period.

(5) Continuing public education at an NTNC system. An NTNC system shall repeat the tasks contained in 42.2(2)*"b"*(4) at least once during each calendar year in which the system exceeds the lead action level. The department can allow activities in 42.2(2)*"b"*(4) to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the department in advance of the 60-day deadline, and the system must already have initiated public education activities prior to the end of the 60-day deadline.

(6) Discontinuation of public education activities. A CWS or NTNC system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring period conducted pursuant to 567—paragraph 41.4(1)*"c."* Such system shall recommence public education in accordance with 42.2(2) if the system subsequently exceeds the lead action level during any monitoring period.

(7) Special population CWS allowance. A CWS that meets the following criteria may apply to the department in writing for reduced public education and notification requirements:

1. The CWS is a facility, such as a prison or hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point-of-use treatment devices; and

2. The CWS provides water as part of the cost of services provided and does not separately charge for water consumption.

If the department approves the request in writing, the CWS is not required to include the language in 42.2(2)*"a"*(7) and must deliver the public education in accordance with 42.2(2)*"b"*(4) and (5), in lieu of 42.2(2)*"b"*(2) and (3).

(8) CWS serving 3,300 or fewer people. A CWS serving 3,300 or fewer people may limit certain aspects of its public education programs as follows:

1. The system must implement at least one of the activities listed in 42.2(2)*"b"*(2)"8."

2. The system may limit the distribution of the public education materials in 42.2(2)*"b"*(2)"2" and "3" to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

3. The department may waive the requirements of 42.2(2)*"b"*(2)"7" for the system provided the system distributes notices to every household served by the system.

c. Supplemental monitoring and notification of results. A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with 567—paragraph 41.4(1)*"c"* shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system itself required to collect and analyze the sample.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—42.3(455B) Consumer confidence reports.

42.3(1) *Applicability and purpose.* This rule applies to all community public water supply systems. The purpose of this rule is to establish the minimum requirements for the content of annual reports that community water systems must deliver to their customers. These reports must contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants in the drinking water in an accurate and understandable manner. The department may assign public notification requirements and assess administrative penalties to any community public water supply system which fails to fulfill the requirements of this rule.

42.3(2) *Reporting frequency.*

a. Existing community water systems. Existing community water systems must deliver the first report by October 19, 1999; the second report by July 1, 2000; and subsequent reports annually by July 1 thereafter.

b. New community water systems. New community water systems must deliver their first report by July 1 of the year after their first full calendar year in operation, and annually thereafter.

c. A CWS which sells water to another CWS. A community water system that sells water to another community water system must deliver the applicable information required in subrule 42.3(3) to the buyer (or consecutive) system:

(1) No later than April 19, 1999, for the 1998 report; by April 1, 2000, for the 1999 report; and annually by April 1 thereafter, or

(2) On a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.

When a consecutive system sells water to another community water system, the seller must provide all applicable information in 42.3(3) to the CWS buying the water from them.

42.3(3) *Content of the reports.* Each annual consumer confidence report must contain the following information, at a minimum:

a. Source water identification. The report must identify the source(s) of water delivered by the community public water supply system, including the following:

(1) Type of water (e.g., surface water, groundwater, groundwater purchased from another public water supply).

(2) Commonly used name of the aquifer, reservoir, or river (if any) and location of the body (or bodies) of water.

(3) If a source water assessment has been completed, notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the department, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the department or its designee, or written by the owner or operator.

b. Definitions. Each report using any of the following terms must include the applicable definitions:

(1) "Maximum Contaminant Level Goal (MCLG)" means the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

(2) "Maximum Contaminant Level (MCL)" means the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

(3) "Maximum Residual Disinfectant Level Goal (MRDLG)" means the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

(4) "Maximum Residual Disinfectant Level (MRDL)" means the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

(5) A report which contains data on a contaminant for which EPA has set a treatment technique or an action level must include one or both of the following definitions, as applicable:

1. "Treatment technique (TT)" means a required process intended to reduce the level of a contaminant in drinking water.

2. "Action level (AL)" means the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

(6) A report that contains information regarding a Level 1 or Level 2 assessment required under 567—subrule 41.2(1) must include the applicable definitions:

1. "Level 1 Assessment" is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

2. "Level 2 Assessment" is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred or why total coliform bacteria have been found in our water system on multiple occasions.

c. Information on detected contaminants. This paragraph specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*, which is listed in 42.3(3)*"c"*(2)) as follows: contaminants subject to an MCL, action level, MRDL, or treatment technique (regulated contaminants); contaminants for which monitoring is required by CFR Title 40, Part 141.40 (unregulated contaminants), 567—subrule 41.11(1) (sodium monitoring), and 567—41.15(455B) (other contaminants); and disinfection byproducts or microbial contaminants for which monitoring is required by 567—Chapters 40 to 43, except as provided under 42.3(3)*"e"*(1), and which are detected in the finished water. The ammonia monitoring conducted pursuant to 567—subrule 41.11(2) is not subject to this paragraph. For the purposes of this subrule, "detected" means at or above the levels prescribed by the following: inorganic

contaminants in 567—subparagraph 41.3(1)*"e"*(1); volatile organic contaminants in 567—paragraph 41.5(1)*"b"*; synthetic organic contaminants in 567—paragraph 41.5(1)*"b"*; radionuclide contaminants in 567—paragraph 41.8(1)*"c"*; disinfection byproducts in 567—paragraph 83.6(7)*"a"*(6)"3"; and other contaminants with health advisory levels, as assigned by the department.

(1) The data relating to these contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results which a community water system chooses to include in its report must be displayed separately.

1. The data must be derived from data collected to comply with departmental monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter. Where a system is allowed to monitor for contaminants less often than once a year, the table(s) must include the results and date of the most recent sampling and a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than five years need be included.

2. For detected regulated contaminants, which are listed in Appendix C, the table(s) must contain:

- The MCL for that contaminant, expressed as a number equal to or greater than 1.0 (as provided in Appendix C);
- The MCLG for that contaminant, expressed in the same units as the MCL;
- If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definition for treatment technique or action level, as appropriate, specified in 42.3(3)*"b"*(4).

3. For contaminants subject to an MCL, except turbidity and total coliforms, the table must contain the highest contaminant level used to determine compliance with a primary drinking water standard and the range of detected levels, as follows:

- When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL (such as inorganic compounds).
- When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point: the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL (such as organic compounds and radionuclides). For TTHM and HAA5 MCLs, systems must include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the system must include the locational running annual averages for all locations that exceed the MCL.
- When compliance with an MCL is determined on a systemwide basis by calculating a running annual average of all samples at all sampling points: the average and range of detection expressed in the same units as the MCL.

NOTE: When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix C.

4. For turbidity: When it is reported pursuant to 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B): the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 567—43.5(455B), 567—43.9(455B), or 567—43.10(455B) for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.

5. For lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level.

6. Rescinded IAB 4/11/18, effective 5/16/18.

7. For *E. coli* analytical results under 567—subrule 41.2(1), the total number of positive samples.

8. The likely source(s) of detected contaminants to the best of the owner's or operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the owner or operator. If the owner or operator lacks specific information on the likely contaminant source, the report must include one or

more of the typical sources for that contaminant listed in Appendix C, which are most applicable to the system.

9. If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area and the report should identify each separate distribution system. Alternatively, systems may produce separate reports tailored to include data for each service area.

10. The table(s) must clearly identify any data indicating MCL, MRDL, or TT violations, and the report must contain a clear and readily understandable explanation of the violation including:

- The length of the violation,
- The potential adverse health effects,
- Actions taken by the system to address the violation, and
- The relevant language from Appendix C to describe the potential health effects.

11. For detected unregulated contaminants for which monitoring is required, except *Cryptosporidium*, the table(s) must contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

12. Community public water supply systems may list the most recent results of the special sodium monitoring requirement according to 567—subrule 41.11(1) in the annual report, instead of providing a separate public notification.

13. If a contaminant which does not have an MCL, MRDL, TT, or AL is detected in the water, the PWS must contact the department for the specific health effects language, health advisory level, and contamination sources.

(2) If monitoring indicates that *Cryptosporidium* may be present in the source water or the finished water, or that radon may be present in the finished water, the report must include:

1. A summary of the *Cryptosporidium* monitoring results;
2. The radon monitoring results; and
3. An explanation of the significance of the results.

(3) If the system has performed additional monitoring which indicates the presence of other contaminants in the finished water, the system must report any results which may indicate a health concern. To determine if results may indicate a health concern, the community public water supply can determine if there is a current or proposed maximum contaminant level, maximum residual disinfectant level, treatment technique, action level, or health advisory by contacting the department or by calling the national Safe Drinking Water Hotline ((800)426-4791). The department considers the detection of a contaminant above a proposed MCL or health advisory to indicate possible health concerns. For such contaminants, the report should include:

1. The results of the monitoring; and
2. An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(4) If the system was required to comply with the federal Information Collection Rule pursuant to the Code of Federal Regulations Title 40 Part 141, it must include the results of monitoring in compliance with Sections 141.142 and 141.143. These results need only be included for five years from the date of the sample or until any of the detected contaminants become regulated and subject to routine monitoring requirements, whichever comes first.

d. Compliance with 567—Chapters 40, 41, 42, and 43. In addition to the requirements of paragraph 42.3(3)*"c"*(1)"9," the report must note any violation that occurred during the year covered by the report of a requirement listed below and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation. Note any violation of the following requirements:

(1) Monitoring and reporting of compliance data pursuant to 567—Chapters 41 and 43, which includes any contaminant with a maximum contaminant level, treatment technique, action level, or health advisory;

(2) Treatment techniques:

1. Filtration and disinfection prescribed by 567—43.5(455B). For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes which constitutes a violation, the report must include the following language as part of the explanation of potential adverse health effects: Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

2. Lead and copper control requirements. For systems which fail to take one or more actions prescribed by 567—Chapters 41 to 43 pertaining to lead and copper, the report must include the applicable language of Appendix C to this chapter for lead or copper, or both.

3. Acrylamide and epichlorohydrin control technologies prescribed by 567—subparagraph 41.5(1)*"b"*(3). For systems which violate the requirements of 567—subparagraph 41.5(1)*"b"*(3), the report must include the relevant language from Appendix C to this chapter.

(3) Record keeping of compliance data pursuant to 567—Chapters 40 to 43;

(4) Special monitoring requirements; and

(5) Violation of the terms of operation permit compliance schedule, or an administrative order or judicial order.

e. Operation permit or administrative order with a schedule which extends the time period in which compliance must be achieved. If a system has been issued a compliance schedule with an extension for compliance, the report must contain:

(1) An explanation of the reasons for the extension;

(2) The date on which the extension was issued;

(3) A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms of the compliance schedule; and

(4) A notice of any opportunity for public input in the review or renewal of the compliance schedule.

f. Mandatory report language for explanation of contaminant occurrence. The reports must contain a brief explanation regarding contaminants which may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language of the following subparagraphs (1) to (3). Subparagraph (4) is provided as a minimal alternative to subparagraphs (1) to (3). Systems may also develop their own comparable language. The report also must include the language of 42.3(3)*"g."*

(1) The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

(2) Contaminants that may be present in source water include:

1. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

2. Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

3. Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm water runoff, and residential uses.

4. Organic chemical contaminants, including synthetic and volatile organics, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

5. Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

(3) In order to ensure that tap water is safe to drink, the department prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The United States Food and Drug Administration regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

(4) Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the national Safe Drinking Water Hotline ((800)426-4791).

g. Required additional health information.

(1) All systems. All reports must prominently display the following language: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the national Safe Drinking Water Hotline ((800)426-4791).

(2) Arsenic levels greater than 0.005 mg/L.

1. A system which detects arsenic at levels above 0.005 mg/L and less than or equal to 0.010 mg/L:

- Must include in its report a short information statement about arsenic, using language such as: While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.
- May write its own educational statement, but only in consultation with the department.

2. A community water system that detects arsenic above 0.010 mg/L and less than or equal to 0.05 mg/L must include the arsenic health effects language prescribed by Appendix C to this chapter.

(3) Nitrate levels greater than half the MCL (5.0 mg/L). A system which detects nitrate at levels above 5.0 mg/L, but below the MCL:

1. Must include a short informational statement about the impacts of nitrate on children using language such as: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

2. May write its own education statement, but only in consultation with the department.

(4) Nitrite levels greater than half the MCL (0.50 mg/L). A system which detects nitrite at levels above 0.50 mg/L, but below the MCL:

1. Must include a short informational statement about the impacts of nitrite on children using language such as: Nitrite in drinking water at levels above 1 ppm is a health risk for infants of less than six months of age. High nitrite levels in drinking water can cause blue baby syndrome. If you are caring for an infant you should ask advice from your health care provider.

2. May write its own education statement, but only in consultation with the department.

(5) Lead information statement for all CWS. Every report must include the following lead-specific information:

1. A short informational statement about lead in drinking water and the effects it has on children. The statement must include the following information:

"If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from material and components associated with service lines and home plumbing. [*insert name of system*] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water,

testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800)426-4791 or at www.epa.gov/safewater/lead."

2. A system may write its own educational statement, but only in consultation with the department.

(6) Total trihalomethane (TTHM) levels above 0.080 mg/L but less than the MCL. Community water systems that detect TTHM above 0.080 mg/L, but below the MCL in 567—subrule 41.5(1), as an annual average, monitored and calculated under the provisions of 567—paragraph 41.5(1)*"e,"* must include the health effects language for total trihalomethanes listed in Appendix C.

h. Additional mandatory report requirements.

(1) The report must include the telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

(2) In communities with a large proportion of non-English speaking residents, as determined by the department, the report must contain information in the appropriate language(s) regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

(3) The report must include information (e.g., time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water.

(4) The systems may include such additional information as they deem necessary for the public education consistent with, and not detracting from, the purpose of the report.

(5) Systems required to comply with 567—41.7(455B), the groundwater rule, must include the following when applicable:

1. Any groundwater system that receives notice from the department of a significant deficiency must inform its customers of any significant deficiency that is uncorrected at the time of the next report. The system must continue to inform the public annually until the department determines that particular significant deficiency is corrected. Each report must include the following elements:

- The nature of the particular significant deficiency and the date the significant deficiency was identified by the department; and
- For each significant deficiency, the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed.

Only if directed by the department, a system with significant deficiencies that have been corrected before the next report is issued must inform its customers of the significant deficiency, how the deficiency was corrected, and the date of correction.

2. Any groundwater system that receives notice from the department or laboratory of a fecal indicator-positive groundwater source sample that is not invalidated by the department under 567—paragraph 41.7(3)*"d"* must inform its customers of any fecal indicator-positive groundwater source sample in the next report. The system must continue to inform the public annually until the department determines that the fecal contamination in the groundwater source is addressed under 567—paragraph 41.7(4)*"a."* Each report must include the following elements:

- The source of the fecal contamination (if the source is known) and the dates of the fecal indicator-positive groundwater source samples;
- Whether the fecal contamination in the groundwater source has been addressed under 567—paragraph 41.7(4)*"a"* and the date of such action;
- For each fecal contamination in the groundwater source that has not been addressed under 567—paragraph 41.7(4)*"a,"* the department-approved plan and schedule for correction, including interim measures, progress to date, and any interim measures completed; and
- If the system receives notice of a fecal indicator-positive groundwater source sample that is not invalidated by the department under 567—paragraph 41.7(3)*"d,"* the potential health effects, using the "Fecal coliform or *E. coli*" or "Fecal Indicators (enterococci or coliphage)" health effects language of Appendix C in Chapter 42.

(6) Pursuant to 567—subrule 41.2(1), any system required to comply with the Level 1 assessment requirement or a Level 2 assessment requirement that is not due to an *E. coli* MCL violation must include

in the report the text in 42.3(3)*"h"*(6)"1" to "3" as appropriate, filling in the blanks accordingly and including the text found in the bulleted paragraphs of 42.3(3)*"h"*(6)"4" if appropriate.

1. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that the potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

2. During the past year, we were required to conduct [*insert number of required Level 1 assessments*] Level 1 assessment(s). [*insert number of completed Level 1 assessments*] Level 1 assessment(s) were completed. In addition, we were required to take [*insert number of required corrective actions*] corrective actions, and we completed [*insert number of completed corrective actions*] of these actions.

3. During the past year, [*insert number of required Level 2 assessments*] Level 2 assessments were required to be completed for our water system. [*insert number of completed Level 2 assessments*] Level 2 assessment(s) were completed. In addition, we were required to take [*insert number of required corrective actions*] corrective actions, and we completed [*insert number of completed corrective actions*] of these actions.

4. Any system that has failed to complete all the required assessments or correct all identified sanitary defects is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate:

- During the past year, we failed to conduct all of the required assessment(s).
- During the past year, we failed to correct all identified defects that were found during the assessment.

(7) Pursuant to 567—subrule 41.2(1), any system required to conduct a Level 2 assessment due to an *E. coli* MCL violation must include in the report the text in 42.3(3)*"h"*(7)"1" and "2" as appropriate, filling in the blanks accordingly and including the text found in the bulleted paragraphs of 42.3(3)*"h"*(7)"3" if appropriate.

1. *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We found *E. coli* bacteria, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessment(s) to identify problems and to correct any problems that were found during these assessments.

2. We were required to complete a Level 2 assessment because we found *E. coli* bacteria in our water system. In addition, we were required to take [*insert number of required corrective actions*] corrective actions, and we completed [*insert number of completed corrective actions*] of these actions.

3. Any system that has failed to complete the required assessment or correct all identified sanitary defects is in violation of the treatment technique requirement and must also include one or both of the following statements, as appropriate:

- We failed to conduct the required assessment.
- We failed to correct all sanitary defects that were identified during the assessment that we conducted.

(8) Pursuant to 567—subrule 41.2(1), if a system detects *E. coli* and violated the *E. coli* MCL, in addition to completing the table as required in 42.3(3)*"c,"* the system must include one or more of the following statements to describe any noncompliance, as applicable:

1. We had an *E. coli*-positive repeat sample following a total coliform-positive routine sample.
2. We had a total coliform-positive repeat sample following an *E. coli*-positive routine sample.
3. We failed to take all required repeat samples following an *E. coli*-positive routine sample.
4. We failed to test for *E. coli* when any repeat sample tested positive for total coliform.

(9) Pursuant to 567—subrule 41.2(1), if a system detects *E. coli* and has not violated the *E. coli* MCL, in addition to completing the table as required in 42.3(3)*"c,"* the system may include a statement that explains that although the system has detected *E. coli*, the system is not in violation of the *E. coli* MCL.

42.3(4) *Report delivery.*

a. Required report recipients. Each community water system must mail or otherwise directly deliver one copy of the report to each customer.

(1) The system must make a good-faith effort to reach consumers who do not get water bills, using means recommended by the department. An adequate good-faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good-faith effort to reach consumers would include a mix of methods appropriate to the particular system such as:

1. Posting the reports on the Internet;
2. Mailing to postal patrons in metropolitan areas;
3. Advertising the availability of the report in the news media;
4. Publication in a local newspaper;
5. Posting in public places such as cafeterias or lunchrooms of public buildings;
6. Delivery of multiple copies for distribution by single-billed customers such as apartment buildings or large private employers;
7. Delivery to community organizations.

(2) No later than the date the system is required to distribute the report to its customers, each community water system must mail a copy of the report to the department, followed within three months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the department.

(3) No later than the date the system is required to distribute the report to its customers, each community water system must deliver the report to any other agency or clearinghouse identified by the department, such as the Iowa department of public health or county board of health.

b. Availability of report. Each community water system must make its report available to the public upon request. Each community water system serving 100,000 or more persons must post its current year's report to a publicly accessible site on the Internet.

c. Waiver from mailing requirements for systems serving fewer than 10,000 persons. All community public water supply systems with fewer than 10,000 persons served will be granted the waiver, except for those systems which have the following: one or more exceedances of a maximum contaminant level, treatment technique, action level, or health advisory; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule contained in the operation permit. Even though a public water supply system has been granted a mailing waiver, subparagraphs 42.3(4)*"a"*(2) and (3) and paragraph 42.3(4)*"b"* still apply to all community public water supply systems. A mailing waiver is not allowed for the report covering the year during which one of the previously listed exceptions occurred. Systems which use the mailing waiver must:

(1) Publish the reports in one or more local newspapers serving the area in which the system is located;

(2) Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the department; and

(3) Make the reports available to the public upon request.

d. Waiver from mailing requirements for systems serving 500 or fewer in population. All community public water supply systems serving 500 or fewer persons will be granted the waiver, except for those systems which have the following: one or more exceedances of a maximum contaminant level, treatment technique, action level, or health advisory; an administrative order; a court order; significant noncompliance with monitoring or reporting requirements; or an extended compliance schedule contained in the operation permit. Systems serving 500 or fewer persons which use the waiver may forego the requirements of subparagraphs 42.3(4)*"c"*(1) and (2) if they provide notice at least once per year to their customers by mail, door-to-door delivery, or by posting that the report is available upon

request, in conspicuous places within the area served by the system acceptable to the department. A mailing waiver is not allowed for the report covering the year during which one of the previously listed exceptions occurred. Even though a public water supply system has been granted a mailing waiver, subparagraphs 42.3(4)*"a"*(2) and (3) and paragraph 42.3(4)*"b"* still apply to all community public water supply systems.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—42.4(455B) Reporting.

42.4(1) *Reporting requirements other than for lead and copper.*

a. When required by the department, the supplier of water shall report to the department within ten days following a test, measurement or analysis required to be made by 567—Chapter 40, 41, 42, or 43 the results of that test, measurement or analysis in the form and manner prescribed by the department. This shall include reporting of all positive detects within the same specific analytical method.

b. Except where a different reporting period is specified in this rule or 567—Chapters 41 and 43, the supplier of water shall report to the department within 48 hours after any failure to comply with the monitoring requirements set forth in 567—Chapters 41 and 43. The supplier of water shall also notify the department within 48 hours of failure to comply with any primary drinking water regulations.

c. The public water supply system, within ten days of completion of each public notification required pursuant to 567—42.1(455B) for the initial public notice and any repeat notices, shall submit to the department a certification that it has fully complied with the public notification rules. The public water system must include with this certification a representative copy of each type of notice distributed, published, posted, or made available to the persons served by the system or to the media.

d. Groundwater rule. Additional reporting requirements for the groundwater rule are listed in 567—paragraph 41.7(6)*"a."*

e. Coliform rule. Additional reporting requirements for the coliform rule are listed in 567—paragraph 41.2(1)*"n."*

42.4(2) *Lead and copper reporting requirements.* All water systems shall report all of the following information to the department in accordance with this subrule.

a. Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring.

(1) Except as provided in 42.4(2)*"a"*(1)"8," a water system shall report the information specified below for all tap water samples specified in 567—paragraph 41.4(1)*"c"* and for all water quality parameter samples specified in 567—paragraph 41.4(1)*"d"* within the first ten days following the end of each applicable monitoring period specified in 567—41.4(455B) (i.e., every six months, annually, or every three years). For monitoring periods with a duration of less than six months, the end of the monitoring period is the last date samples can be collected during that period as specified in 567—paragraphs 41.4(1)*"c"* and 41.4(1)*"d."*

1. The results of all tap samples for lead and copper including the location of each site and the criteria under which the site was selected for the system's sampling pool;

2. Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to 567—paragraph 41.4(1)*"c"*(6)"2";

3. Rescinded IAB 1/7/04, effective 2/11/04;

4. The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with 567—subparagraph 41.4(1)*"b"*(3));

5. With the exception of initial tap sampling conducted pursuant to 567—paragraph 41.4(1)*"c"*(4)"1," the system shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed;

6. The results of all tap samples for pH and, where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under 567—subparagraphs 41.4(1)*"d"*(2) through (5);

7. The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under 567—subparagraphs 41.4(1)*"d"*(2) and (5); and

8. A water system shall report the results of all water quality parameter samples collected under 567—subparagraphs 41.4(1)*"d"*(3) through (6) during each six-month monitoring period specified in 567—subparagraph 41.4(1)*"d"*(4) within the first ten days following the end of the monitoring period, unless the department has specified a more frequent reporting requirement.

(2) Certain systems that do not have enough taps that can provide first-draw samples that have met the six-hour stand time criteria, such as an NTNC that has 24-hour operation or a CWS that meets the criteria of 42.2(2)*"b"*(7), must either:

1. In the case where the department has not approved the non-first-draw sample sites, provide written documentation to the department identifying stand times and locations for enough non-first-draw samples to make up its sampling pool under 567—paragraph 41.4(1)*"c"*(2)"5" by July 1, 2003; or

2. If the department has already approved the non-first-draw sample sites selected by the system, identify each site that did not meet the six-hour minimum stand time and the length of stand time for that particular substitute sample collected pursuant to 567—paragraph 41.4(1)*"c"*(2)"5." Certain systems include this information in writing with the lead and copper tap sample results required to be submitted pursuant to 567—paragraph 41.4(1)*"d"*(1)"1."

(3) At a time specified by the department or, if no specific time is designated by the department, then as early as possible prior to the addition of a new source or any long-term change in water treatment, a water system that has optimized corrosion control under 567—subparagraph 43.7(1)*"b"*(3), a water system subject to reduced monitoring pursuant to 567—paragraph 41.4(1)*"c"*(4)"4," or a water system subject to a monitoring waiver pursuant to 567—subparagraph 41.4(1)*"c"*(7) shall send written documentation to the department describing the change or addition. The department must review and approve the addition of a new source or long-term change in treatment before it is implemented by the water system. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include the switching of secondary disinfectants, switching of coagulants (e.g., alum to ferric chloride), and switching of corrosion inhibitor products (e.g., orthophosphate to blended phosphate). Long-term changes can include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily water quality changes. In those instances where prior department approval of the treatment change or new source is not required, water systems are encouraged to provide the notification to the department beforehand to minimize the risk that the treatment change or new source will adversely affect optimal corrosion control.

(4) Any small system applying for a monitoring waiver under 567—subparagraph 41.4(1)*"c"*(7), or subject to a waiver granted pursuant to 567—paragraph 41.4(1)*"c"*(7)"3," shall provide the following information to the department in writing by the specified deadline:

1. By the start of the first applicable monitoring period in 567—subparagraph 41.4(1)*"c"*(4), any small water system applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of 567—paragraphs 41.4(1)*"c"*(7)"1" and "2."

2. No later than nine years after the monitoring previously conducted pursuant to 567—paragraph 41.4(1)*"c"*(7)"2" or 567—paragraph 41.4(1)*"c"*(7)"4," first bulleted paragraph, each small system desiring to maintain its monitoring waiver shall provide the information required by 567—paragraph 41.4(1)*"c"*(7)"4," first and second bulleted paragraphs.

3. No later than 60 days after the system becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, each small system with a monitoring waiver shall provide written notification to the department, setting forth the circumstances resulting in the lead-containing or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(5) Each groundwater system that limits water quality parameter monitoring to a subset of entry points under 567—paragraph 41.4(1)*"d"*(3)"3" shall provide, by the commencement of such monitoring, written correspondence to the department that identifies the selected entry points and

includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

b. Source water monitoring reporting requirements.

(1) A water system shall report the sampling results for all source water samples collected in accordance with 567—paragraph 41.4(1)*"e"* within the first ten days following the end of each source water monitoring period (i.e., annually, per compliance period or per compliance cycle) specified in 567—paragraph 41.4(1)*"e."*

(2) With the exception of the first round of source water sampling conducted pursuant to 567—subparagraph 41.4(1)*"e"*(2), the system shall specify any site which was not sampled during previous monitoring periods, and include an explanation of why the sampling point has changed.

c. Corrosion control treatment reporting requirements. By the applicable dates under 567—subrule 43.7(1), systems shall report the following information:

(1) For systems demonstrating that they have already optimized corrosion control, information required in 567—subparagraph 43.7(1)*"b"*(2) or (3).

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under 567—paragraph 43.7(2)*"a."*

(3) For systems required to evaluate the effectiveness of corrosion control treatments under 567—paragraph 43.7(2)*"c,"* the information required by that paragraph.

(4) For systems required to install optimal corrosion control designated by the department under 567—paragraph 43.7(2)*"d,"* a letter certifying that the system has completed installing that treatment.

d. Source water treatment reporting requirements. By the applicable dates in 567—subparagraph 43.7(3)*"b"*(1), systems shall provide the following information to the department:

(1) If required under 567—subparagraph 43.7(3)*"b"*(1), their recommendation regarding source water treatment;

(2) For systems required to install source water treatment under 567—subparagraph 43.7(3)*"b"*(1), a letter certifying that the system has completed installing the treatment designated by this department within 24 months after the department designated the treatment.

e. Lead service line replacement reporting requirements. Systems shall report the following information to demonstrate compliance with the requirements of 567—subrule 43.7(4):

(1) No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in 567—paragraph 43.7(4)*"a,"* the system must submit to the department written documentation of the material evaluation pursuant to 567—subparagraph 41.4(1)*"c"*(1), identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level, and provide the department with the system's schedule for replacing annually at least 7 percent of the initial number of lead service lines in its distribution system.

(2) No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in 567—paragraph 43.7(4)*"a"* and every 12 months thereafter, the system shall demonstrate in writing that the system has either:

1. Replaced in the previous 12 months at least 7 percent of the initial lead service lines (or a greater number of lines specified by the department under 567—paragraph 43.7(4)*"e"* in its distribution system), or

2. Conducted sampling which demonstrates that the lead concentration in all service line samples from individual line(s), taken pursuant to 567—paragraph 41.4(1)*"c"*(2)"3," is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced and those lines which meet the criteria in 567—paragraph 43.7(4)*"c"* shall equal at least 7 percent of the initial number of lead lines identified under 42.4(2)*"e"*(1) or the percentage specified by the department under 567—paragraph 43.7(4)*"e."* A lead service line meeting the criteria of 567—paragraph 43.7(4)*"c"* may only be used to comply with the 7 percent criteria for a specific year, and may not be used again to calculate compliance with the 7 percent criteria in future years.

(3) The annual letter submitted to the department under 42.4(2)*"e"*(2) shall contain the following information:

1. The number of lead service lines scheduled to be replaced during the previous year of the system's replacement schedule;

2. The number and location of each lead service line replaced during the previous year of the system's replacement schedule;

3. If measured, the water lead concentration and location of each lead service line sampled, the sampling method, and the date of sampling.

(4) Any system which collects lead service line samples following partial lead service line replacement required by 567—subrule 43.7(4) shall report the results to the department within the first ten days of the month following the month in which the system receives the laboratory results, or as specified by the department. Systems shall also report any additional information as specified by the department, and in a time and manner prescribed by the department, to verify that all partial lead service line replacement activities have taken place.

f. Public education program reporting requirements.

(1) Any water system that is subject to the public education requirements in 42.2(2) shall, within ten days after the end of each period in which the system is required to perform public education in accordance with 42.2(2)*"b,"* send written documentation to the department that contains:

1. A demonstration that the system has delivered the public education materials that meet the content requirements in 42.2(2)*"a"* and the delivery requirements in 42.2(2)*"b"*; and

2. A list of all the newspapers, radio stations, television stations, facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(2) Unless required by the department, a system that previously has submitted the information required by 42.4(2)*"f"*(1)"2" need not resubmit the same information, provided there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list previously submitted. The certification is due within ten days after the end of each period in which the system is required to perform public education.

(3) No later than three months following the end of the monitoring period, each system must mail a sample copy of the consumer notification of tap results to the department along with a certification that the notification has been distributed in a manner consistent with the requirements of 42.2(1).

g. Reporting of additional monitoring data. A system which collects sampling data in addition to that required by 567—Chapters 41 and 43 shall report the results to the department within the first ten days following the end of the applicable monitoring period under 567—paragraphs 41.4(1)*"c," "d,"* and *"e"* during which the samples are collected.

42.4(3) *Operation and maintenance for PWS.*

a. Required records of operation.

(1) Applicability. Monthly records of operation shall be completed by all public water supplies, on forms provided by the department or on similar forms, unless a public water supply meets all of the following conditions:

1. Supplies an annual average of not more than 25,000 gpd or serves no more than an average of 250 individuals daily;

2. Is a community public water supply and does not provide any type of treatment, or is a noncommunity system (NTNC and TNC) which has only a cation-exchange softening or iron/manganese removal treatment unit, and meets the requirements of 42.4(3)*"a"*(2)"7";

3. Does not utilize either a surface water or a groundwater under the direct influence of surface water either in whole or in part as a water source;

4. Does not use a treatment technique such as blending to achieve compliance with a maximum contaminant level, treatment technique, action level, or health advisory.

The reports shall be completed as described in 42.4(3)*"a"*(2) and maintained at the facility for inspection by the department for a period of five years. For CWS and NTNC PWSs, the monthly operation report must be signed by the certified operator in charge. For TNC PWSs, the monthly operation report, if required by the department, must be signed by the owner or the owner's designee.

All public water supplies using a surface water or influenced groundwater source must also comply with the applicable record-keeping requirements in 567—43.5(455B), 567—43.9(455B), 567—43.10(455B), and 567—43.11(455B).

(2) Contents. Monthly operation reports shall be completed as follows:

1. Pumpage or flow. Noncommunity supplies shall measure and record the total water used each week. It is recommended that a daily measurement and recording be made. Community supplies shall measure and record daily water used. Reporting of pumpage or flow may be required in an operation permit where needed to verify MCL compliance.

2. Treatment effectiveness. Where treatment is practiced, the intended effect of the treatment shall be measured at locations and by methods which best indicate effectiveness of the treatment process. These measurements shall be made pursuant to Appendix B of this chapter. Daily monitoring is seven days a week unless otherwise specified by the department.

3. Treatment effectiveness for a primary standard. Where the raw water quality does not meet the requirements of 567—Chapters 41 and 43 and treatment is practiced for the purpose of complying with a maximum contaminant level, action level, health advisory, or treatment technique criteria, daily measurement of the primary standard constituent or an appropriate indicator constituent designated by the department shall be recorded. The department will require reporting of these results in the operation permit to verify MCL compliance.

4. Treatment effectiveness for a secondary standard. Where treatment is practiced for the purpose of achieving the recommended level of any constituent designated in the federal secondary standards, measurements shall be measured and recorded at a frequency specified in Appendix B. Daily monitoring is seven days a week unless otherwise specified by the department.

5. Chemical application. Chemicals such as fluoride, iodine, bromine and chlorine, which are potentially toxic in excessive concentration, shall be measured and recorded daily. Recording shall include the amount of chemical applied each day. Where the supplier of water is attempting to maintain a residual of the chemical throughout the system, such as chlorine, the residual in the system shall be recorded daily. The quantity of all other chemicals applied shall be measured and recorded at least once each week.

6. Static water levels and pumping water levels must be measured and recorded once per month for all groundwater sources. More or less frequent measurements may be approved by the department where historical data justifies it.

7. Noncommunity systems (NTNC and TNC) are exempt from the self-monitoring requirements for cation-exchange softening and iron/manganese removal if the treatment unit:

- Is a commercially available "off-the-shelf" unit designed for home use;
- Is self-contained, requiring only a piping connection for installation;
- Operates throughout a range of 35 to 80 psi; and
- Has not been installed for the purpose of removing a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory.

b. Chemical quality and application. Any drinking water system chemical which is added to raw, partially treated, or finished water must be suitable for the intended use in a potable water system. Effective on October 1, 2000, the chemical must be certified by an American National Standards Institute (ANSI) accredited third party for conformance with American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 60, if such certification exists for the particular product, unless certified chemicals are not reasonably available for use, in accordance with guidelines provided by the department. If the chemical is not certified to meet the ANSI/NSF Standard 60 or no certification is available, the person seeking to supply or use the chemical must prove to the satisfaction of the department that the chemical is not toxic or otherwise a potential hazard in a potable public water supply system.

The supplier of water shall keep a record of all chemicals used. This record should include a clear identification of the chemical by brand or generic name and the dosage rate. When chemical treatment is applied with the intent of obtaining an in-system residual, the residuals will be monitored regularly.

When chemical treatment is applied and in-system residuals are not expected, the effectiveness of the treatment will be monitored through an appropriate indicative parameter.

(1) Continuous disinfection.

1. When required. Continuous disinfection must be provided at all public water supply systems, except for the following: groundwater supplies that have no treatment facilities or have only fluoride, sodium hydroxide or soda ash addition and that meet the bacterial standards as provided in 567—subrule 41.2(1) and do not show other actual or potential hazardous contamination by microorganisms. For a noncommunity system that only uses a cation-exchange softening unit that meets the requirements of 42.3(4)*"a"*(7), the requirement for continuous disinfection is based upon the system's history of both coliform bacteria detection and compliance with the coliform bacteria monitoring requirements as provided in 567—subrule 41.2(1).

2. Method. Chlorine is the preferred disinfecting agent. Chlorination may be accomplished with liquid chlorine, calcium or sodium hypochlorites or chlorine dioxide. Other disinfecting agents will be considered, provided a residual can be maintained in the distribution system, reliable application equipment is available and testing procedures for a residual are recognized in Standard Methods for the Analysis of Water and Wastewater.

3. Chlorine residual. A minimum free available chlorine residual of 0.3 mg/L or a minimum total available chlorine residual of 1.5 mg/L must be continuously maintained throughout the water distribution system, except for those points in the distribution system that terminate as dead ends or areas that represent very low use when compared to usage throughout the rest of the distribution system as determined by the department. All systems using water to which chlorine has been added must monitor daily in the distribution system to ensure the minimum disinfectant residual concentration is met, including both wholesale systems and consecutive systems.

4. Test kit. A test kit capable of measuring free and combined chlorine residuals in increments no greater than 0.1 mg/L in the range below 0.5 mg/L, and in increments no greater than 0.2 mg/L in the range from 0.5 mg/L to 1.0 mg/L, and in increments no greater than 0.3 mg/L in the range from 1.0 mg/L to 2.0 mg/L must be provided at all chlorination facilities. The test kit must use a method of analysis that is recognized in Standard Methods for the Examination of Water and Wastewater.

5. Leak detection, control and operator protection. A bottle of at least 56 percent ammonium hydroxide must be provided at all gas chlorination installations for leak detection. Leak repair kits must be available where ton chlorine cylinders are used.

6. Other disinfectant residuals. If an alternative disinfecting agent is approved by this department, the residual levels and type of test kit used will be assigned by the department in accordance with and based upon analytical methods contained in Standard Methods for the Examination of Water and Wastewater.

(2) Phosphate compounds.

1. When phosphate compounds are to be added to any public water supply system which includes iron or manganese removal or ion-exchange softening, such compounds must be applied after the iron or manganese removal or ion-exchange softening treatment units, unless the director has received and approved an engineering report demonstrating the suitability for addition prior to these units in accordance with the provisions of 567—subrule 43.3(2). The department may require the discontinuance of phosphate addition where it interferes with other treatment processes, the operation of the water system or if there is a significant increase in microorganism populations associated with phosphate application.

2. The total phosphate concentration in the finished water must not exceed 10 mg/L as PO_4.

3. Chlorine shall be applied to the phosphate solution in sufficient quantity to give an initial concentration of 10 mg/L in the phosphate solution. A chlorine residual must be maintained in the phosphate solution at all times.

4. Test kits capable of measuring polyphosphate and orthophosphate in a range from 0.0 to 10.0 mg/L in increments no greater than 0.1 mg/L must be provided.

5. Continuous application or injection of phosphate compounds directly into a well is prohibited.

(3) Fluorosilicic acid. Where fluorosilicic acid (H_2SiF_6, also called hydrofluosilicic acid) is added to a public water supply, the operator shall be equipped with a fluoride test kit with a minimum range of from 0.0 to 2.0 mg/L in increments no greater than 0.1 mg/L. Distilled water and standard fluoride solutions of 0.2 mg/L and 1.0 mg/L must be provided.

c. Reporting and record-keeping requirements for systems using surface water and groundwater under the direct influence of surface water. In addition to the monitoring requirements required by 42.4(3)*"a"* and *"b,"* a public water system that uses a surface water source or a groundwater source under the direct influence of surface water must report monthly to the department the information specified in this subrule beginning June 29, 1993, or when filtration is installed, whichever is later.

(1) Turbidity measurements as required by 567—subrule 43.5(3) must be reported within ten days after the end of each month the system serves water to the public. Information that must be reported includes:

1. The total number of filtered water turbidity measurements taken during the month.

2. The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 567—paragraphs 43.5(3)*"b"* through *"e"* for the filtration technology being used.

3. The date and value of any turbidity measurements taken during the month which exceed 5 NTU. If at any time the turbidity exceeds 5 NTU, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements in 42.1(2). This requirement is in addition to the monthly reporting requirement, pursuant to 567—43.5(455B).

(2) Disinfection information specified in 567—subrule 43.5(2) and paragraph 42.4(3)*"b"* must be reported to the department within ten days after the end of each month the system serves water to the public. Information that must be reported includes:

1. For each day, the lowest measurement of residual disinfectant concentration in mg/L in water entering the distribution system.

2. The date and duration of each period when the residual disinfectant concentration in water entering the distribution system fell below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine and when the department was notified of the occurrence.

If at any time the residual falls below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine in the water entering the distribution system, the system must notify the department as soon as possible, but no later than by the end of the next business day. The system also must notify the department by the end of the next business day whether or not the residual was restored to at least 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine within four hours. This requirement is in addition to the monthly reporting requirement, pursuant to 567—43.5(455B).

3. The information on the samples taken in the distribution system in conjunction with total coliform monitoring listed in 567—paragraph 43.5(2)*"d"* and pursuant to 567—subparagraph 41.2(1)*"c"*(7).

(3) Total inactivation ratio. The total inactivation ratio must be calculated each day the treatment plant is in operation, pursuant to 567—paragraph 43.5(2)*"a,"* and reported on the monthly operation report. If the total inactivation ratio is below 1.0, the system must notify the department within 24 hours.

d. Reporting and record-keeping requirements for disinfection byproducts, disinfectants, and disinfection byproduct precursors.

(1) General requirements.

1. In addition to the monitoring requirements required by 42.4(3)*"a"* and *"b,"* a CWS or NTNC public water system that adds a chemical disinfectant to the water in any part of the drinking water treatment process or which provides water that contains a chemical disinfectant must report monthly to the department the information specified in this paragraph by the dates listed in 567—subparagraphs 41.6(1)*"a"*(3) and 43.6(1)*"a"*(3). A TNC public water system which adds chlorine dioxide as a disinfectant or oxidant must report monthly to the department the information specified in this paragraph by the dates listed in 567—paragraph 43.6(1)*"a"*(3)"3."

2. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public

notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected.

(2) Disinfection byproducts. Systems must report the information specified in the following table:

Disinfection Byproducts Reporting Table

If you are a ...	You must report ...
System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)*"c"*(4) on a quarterly or more frequent basis	1. The number of samples taken during the last quarter. 2. The location, date, and result of each sample taken during the last quarter. 3. The arithmetic average of all samples taken in the last quarter. 4. The annual arithmetic average of the quarterly arithmetic averages for the last four quarters.* 5. Whether the MCL was exceeded. 6. Under Stage 2, any operational evaluation levels that were exceeded during the quarter, including the location and date and the calculated TTHM and HAA5 levels.
System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)*"c"*(4) less frequently than quarterly, but at least annually	1. The number of samples taken during the last year. 2. The location, date, and result of each sample taken during the last monitoring period. 3. The arithmetic average of all samples taken over the last year.* 4. Whether the MCL was exceeded.
System monitoring for TTHMs and HAA5 under the requirements of 567—subparagraph 41.6(1)*"c"*(4) less frequently than annually	1. The location, date, and result of the last sample taken. 2. Whether the MCL was exceeded.
System monitoring for chlorite under the requirements of 567—subparagraph 41.6(1)*"c"*(3)	1. The number of samples taken each month for the last 3 months. 2. The location, date, and result of each sample taken during the last quarter. 3. For each month in the reporting period, the arithmetic average of all samples taken in each three sample set taken in the month. 4. Whether the MCL was exceeded, and in which month it was exceeded.
System monitoring for bromate under the requirements of 567—subparagraph 41.6(1)*"c"*(2)	1. The number of samples taken during the last quarter. 2. The location, date, and result of each sample taken during the last quarter. 3. The arithmetic average of the monthly arithmetic averages of all samples taken in the last year. 4. Whether the MCL was exceeded.

The calculation of the running annual average will transition from a system-wide RAA calculation under Stage 1 to a locational running annual average (LRAA) under Stage 2. The transition will commence according to the system schedule listed in 567—paragraph 41.6(1)"b."* Beginning at the end of the fourth calendar quarter that follows the compliance date, and at the end of each subsequent quarter, the system must report the arithmetic average of quarterly results for the last four quarters of each monitoring location. If the calculated LRAA based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the system must report this information to the department no later than the due date of the next compliance report.

(3) Disinfectants. In addition to the requirements in 567—subparagraph 41.2(1)*"c"*(7), systems must report the information specified in the following table:

Disinfectants Reporting Table

If you are a ...	You must report ...
System monitoring for chlorine or chloramines under the requirements of 567—paragraph 43.6(1)*"c"*(1)"2"	1. The number of samples taken during each month of the last quarter. 2. The monthly arithmetic average of all samples taken in each month for the last 12 months. 3. The arithmetic average of all monthly averages for the last 12 months. 4. Whether the MRDL was exceeded.
System monitoring for chlorine dioxide under the requirements of 567—paragraph 43.6(1)*"c"*(1)"3"	1. The dates, results, and locations of samples taken during the last quarter. 2. Whether the MRDL was exceeded. 3. Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.

(4) Disinfection byproduct precursors and enhanced coagulation or enhanced softening. Systems must report the information specified in the following table:

Disinfection Byproduct Precursors and Enhanced Coagulation or Enhanced Softening Reporting Table

If you are a ...	You must report ...
System monitoring monthly or quarterly for TOC under the requirements of 567—subparagraph 43.6(1)*"c"*(2) and required to meet the enhanced coagulation or enhanced softening requirements in 567—subparagraph 43.6(3)*"b"*(2) or (3)	1. The number of paired (source water and treated water, prior to continuous disinfection) samples taken during the last quarter. 2. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter. 3. For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal. 4. Calculations for determining compliance with the TOC percent removal requirements, as provided in 567—subparagraph 43.6(3)*"c"*(1). 5. Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in 567—paragraph 43.6(3)*"b"* for the last four quarters.
System monitoring monthly or quarterly for TOC under the requirements of 567—subparagraph 43.6(1)*"c"*(2) and meeting one or more of the alternative compliance criteria in 567—subparagraph 43.6(3)*"a"*(2) or (3)	1. The alternative compliance criterion that the system is using. 2. The number of paired samples taken during the last quarter. 3. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter. 4. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in 567—paragraph 43.6(3)*"a"*(2)"1" or "3" or of treated water TOC for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"2." 5. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"5" or of treated water SUVA for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"6." 6. The running annual average of source water alkalinity for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"3" and of treated water alkalinity for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(3)"1." 7. The running annual average for both TTHM and HAA5 for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(2)"3" or "4." 8. The running annual average for the amount of magnesium hardness removal (as $CaCO_3$, in mg/L) for systems meeting the criterion in 567—paragraph 43.6(3)*"a"*(3)"2." Whether the system is in compliance with the particular alternative compliance criterion in 567—subparagraph 43.6(3)*"a"*(2) or (3).
SW/IGW system on reduced monitoring for TTHM/HAA5 under the requirements of 567—paragraph 41.6(3)*"d"*	For each treatment plant that treats surface or IGW source water, report the following: 1. The number of source water TOC samples taken each month during the last quarter. 2. The date and result of each sample taken during the last quarter. 3. The quarterly average of monthly samples taken during the last quarter or the result of the quarterly sample. 4. The running annual average (RAA) of quarterly averages from the past four quarters. 5. Whether the TOC RAA exceeded 4.0 mg/L.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—42.5(455B) Record maintenance.

42.5(1) *Record maintenance requirements.* Any owner or operator of a public water system subject to the provisions of this rule shall retain on its premises or at a convenient location near its premises the following records:

a. Analytical records.

(1) Actual laboratory reports shall be kept, or data may be transferred to tabular summaries, provided that the following information is included:

1. The date, place, and time of sampling, and the name of the person who collected the sample;

2. Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or process water sample or other special purpose sample;

3. Date of analysis;

4. Laboratory and person responsible for performing analysis;

5. The analytical technique or method used; and

6. The results of the analysis.

(2) Record retention for specific analytes.

1. Microbiological and turbidity: Records of microbiological analyses and turbidity analyses made pursuant to 567—Chapters 41 and 43 shall be kept for not less than five years.

2. Chemical: radionuclide, inorganic compounds, organic compounds. Records of chemical analyses made pursuant to 567—Chapter 41 shall be kept for not less than ten years. Additional lead and copper requirements are listed in 42.5(1)*"b."*

b. Lead and copper record-keeping requirements. A system subject to the requirements of 42.4(2) shall retain on its premises original records of all data and analyses, reports, surveys, public education, letters, evaluations, schedules, and any other information required by 567—41.4(455B) and 567—Chapter 43. Each water system shall retain the records required by this subrule for 12 years.

c. Records of action (violation correction). Records of action taken by the system to correct violations of primary drinking water regulations (including administrative orders) shall be kept for not less than five years after the last action taken with respect to the particular violation involved.

d. Reports and correspondence relating to sanitary surveys. Copies of any written reports, summaries, or communications relating to sanitary surveys of the system conducted by the system itself, by a private consultant, or by any local, state or federal agency, shall be kept for a period of not less than ten years after completion of the sanitary survey involved.

e. Operation or construction permits. Records concerning an operation or a construction permit issued pursuant to 567—Chapter 43 to the system shall be kept for a period ending not less than ten years after the system achieves compliance with the maximum contaminant level, treatment technique, action level, or health advisory, or after the system in question completes the associated construction project.

f. Public notification. Records of public notification, including the Consumer Confidence Report, public notification examples, and public notice certifications, must be kept for at least five years.

g. Self-monitoring requirement records. The monthly records of operation must be completed as described in 42.4(3)*"a"*(2) and maintained at the facility for inspection by the department for a period of at least five years. All data generated at the facility to comply with the self-monitoring requirements must be retained for a period of at least five years, and must be maintained at the facility for inspection by the department. The data shall be in a form that allows easy retrieval and interpretation. Examples of data that must be retained include, but are not limited to, recorder charts, logbooks, bench sheets, SCADA records, and electronic files.

h. Monitoring plans. Copies of monitoring plans developed pursuant to 567—Chapters 41, 42, and 43 shall be kept for the same period of time as the records of analyses taken under the plans are required to be kept, unless otherwise specified.

i. Groundwater rule. Additional record-keeping requirements for the groundwater rule are listed in 567—paragraph 41.7(6)*"b."*

j. Level 1 and 2 assessment forms and corrective action. These record-keeping requirements pertain to the coliform bacteria requirements in 567—subrule 41.2(1).

(1) The system must maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under 567—paragraph 41.2(1)*"m"* for department review. This record must be maintained by the system for a period not less than five years after completion of the assessment or corrective action.

(2) The system must maintain a record of any repeat sample taken that meets department criteria for an extension of the 24-hour period for collecting repeat samples as provided for under 567—paragraph 41.2(1)*"j."*

42.5(2) Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

APPENDIX A:
STANDARD HEALTH EFFECTS LANGUAGE FOR PUBLIC NOTIFICATION

Contaminant	Standard Health Effects Language
Microbiological Contaminants	
Coliform assessment and/or corrective action violations, under 567—subrule 41.2(1)	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system. We found coliforms indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct assessments to identify problems and to correct any problems that are found. [THE SYSTEM MUST INCLUDE THE FOLLOWING APPLICABLE SENTENCES] ● We failed to conduct the required assessment. ● We failed to correct all identified sanitary defects that were found during the assessment(s).
E. coli	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.
E. coli assessment and/or corrective action violations, under 567—subrule 41.2(1)	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems. We violated the standard for *E. coli*, indicating the need to look for potential problems in water treatment or distribution. When this occurs, we are required to conduct a detailed assessment to identify problems and to correct any problems that are found. [THE SYSTEM MUST INCLUDE THE FOLLOWING APPLICABLE SENTENCES] ● We failed to conduct the required assessment. ● We failed to correct all identified sanitary defects that were found during the assessment(s).
Seasonal system treatment technique violation	● When this violation includes the failure to monitor for total coliforms or *E. coli* prior to serving water to the public, the mandatory language for monitoring violation in 42.1(5)*"c"*(2) must be used. ● When this violation includes failure to complete other actions, the appropriate elements found in 42.1(5)*"c"* to describe the violation must be used.
Fecal indicators for the groundwater rule (*E. coli*, enterococci, and coliphage)	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
Groundwater Treatment Technique Requirements	
Groundwater rule treatment technique violations	Inadequately treated or inadequately protected water may contain disease-causing organisms. These organisms can cause symptoms such as diarrhea, nausea, cramps, and associated headaches.
Surface Water Treatment Technique Requirements	
Turbidity	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.

Contaminant	Standard Health Effects Language
Surface water/IGW system treatment technique requirements: CT ratio; residual disinfectant; log removal/inactivation of *Giardia*, viruses, and *Cryptosporidium*; or filter backwash recycling	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.
Inorganic Chemical Contaminants	
Antimony	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
Arsenic	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Asbestos	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Beryllium	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
Cadmium	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
Chromium, total	Some people who drink water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Copper	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Cyanide	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
Fluoride	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water above 2.0 mg/L may cause mottling of children's teeth, usually in children less than nine years of age. Mottling, also known as dental fluorosis, may include brown staining and pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
Lead	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Mercury, inorganic	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
Nitrate	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Nitrite	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Total Nitrate and Nitrite	Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Selenium	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience loss of hair or fingernails, numbness in fingers or toes, or problems with their circulation.

Contaminant	Standard Health Effects Language
Thallium	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
Synthetic Organic Chemical Contaminants	
2,4-D	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
2,4,5-TP (Silvex)	Some people who drink water containing Silvex in excess of the MCL over many years could experience liver problems.
Alachlor	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
Atrazine	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or have reproductive difficulties.
Benzo(a)pyrene (PAHs)	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
Chlordane	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
Dalapon	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
Di(2-ethylhexyl)adipate	Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties.
Di(2-ethylhexyl)-phthalate	Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
Dibromochloropropane (DBCP)	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Dinoseb	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
Dioxin (2,3,7,8-TCDD)	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Diquat	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
Endothall	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
Endrin	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
Ethylene dibromide	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
Glyphosate	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.

Contaminant	Standard Health Effects Language
Heptachlor	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachloro-cyclopentadiene	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
Lindane	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
Methoxychlor	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
Oxamyl (Vydate)	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
Pentachlorophenol	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
Picloram	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
Polychlorinated byphenyls (PCBs)	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
Simazine	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
Toxaphene	Some people who drink water containing toxaphene in excess of the MCL over many years could experience problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
Volatile Organic Chemical Contaminants (VOCs)	
Benzene	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
Carbon tetrachloride	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Chlorobenzene (monochlorobenzene)	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
o-Dichlorobenzene	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory system.
p-Dichlorobenzene	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
1,2-Dichloroethane	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-Dichloroethylene	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
cis-1,2-Dichloroethylene	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

Contaminant	Standard Health Effects Language
trans-1,2-Dichloroethylene	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
Dichloromethane	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
1,2-Dichloropropane	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
Ethylbenzene	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
Styrene	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
Tetrachloroethylene	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
Toluene	Some people who drink water containing toluene in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
1,2,4-Trichlorobenzene	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
1,1,1-Trichloroethane	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
1,1,2-Trichloroethane	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune system.
Trichloroethylene	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Vinyl chloride	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylene (total)	Some people who drink water containing total xylene in excess of the MCL over many years could experience damage to their nervous system.
Radionuclide Contaminants	
Alpha emitters	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Beta/photon emitters	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined radium (226 & 228)	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
Disinfection Byproducts	
Bromate	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
Chlorite	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Haloacetic Acids (HAA)	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant	Standard Health Effects Language
Total Trihalomethanes (TTHMs)	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
Residual Disinfectants	
Chloramines	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
Chlorine	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Chlorine dioxide—acute (one or more distribution samples exceed the MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. The chlorine dioxide violations reported today include exceedances of the standard within the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.
Chlorine dioxide—non-acute (two consecutive daily samples taken at the source entry point to the distribution system are above the MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.
Disinfection Byproduct Precursors	
Total Organic Carbon (TOC)	Total organic carbon has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes and haloacetic acids. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
Other Treatment Techniques	
Acrylamide	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
Epichlorohydrin	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

APPENDIX B:
MINIMUM SELF-MONITORING REQUIREMENTS (SMR)

I. Minimum Self-Monitoring Requirements for TNCs (excluding surface water or influenced groundwater PWSs)

Notes:

- The self-monitoring requirements (SMRs) only apply to those supplies meeting the required operation records applicability criteria in 42.4(3)*"a"*(1).
- TNCs are exempt from the self-monitoring requirements for point-of-use treatment devices, unless the device is used to remove a contaminant which has a maximum contaminant level or treatment technique, in which case additional SMRs will be assigned by the department.
- Daily monitoring for TNCs applies only when the facility is in operation.
- Additional or more frequent monitoring requirements may be assigned by the department in the operation permit.
- Additional SMRs are required if treatment is used to remove a regulated contaminant. See Section II for the requirements under the specific treatment type.

General Requirements

All TNCs which meet the required operation records applicability criteria in 42.4(3)*"a"*(1) must measure the following parameters, where applicable. Additional SMRs are required if treatment is used to remove a contaminant which has a maximum contaminant level or treatment technique. See Section II for the requirements under the specific treatment type.

	PWS Type:	TNC*
Parameter	Sample Site	Frequency
Pumpage (Flow)	raw: final:	1/week 1/week
Disinfectant Residual***	final: distribution system**:	1/day 1/day
Disinfectant, quantity used	day tank/scale:	1/day
Static Water and Pumping Water Levels (Drawdown)	each active well:	1/month

*TNCs must measure and record the total water used each week, but daily measurements are recommended, and may be required by the department in specific PWSs.

**Monitoring is to be conducted at representative points in the distribution system which adequately demonstrate compliance with 42.4(3)*"b"*(1).

***The department may reduce the required sample site locations for a system with a minimal distribution system and only hydropneumatic tank storage.

II. Minimum Self-Monitoring Requirements for CWS, NTNC, and IGW/SW TNC

Notes:

- The self-monitoring requirements (SMR) only apply to those supplies meeting the required operation records applicability criteria in 42.4(3)*"a"*(1).
- NTNCs are exempt from the self-monitoring requirements for point-of-use treatment devices, unless the device is used to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory, in which case additional SMRs will be assigned by the department.
- Daily monitoring for NTNCs applies only when the facility is in operation.
- These are the minimum self-monitoring requirements. Additional or more frequent monitoring requirements may be assigned by the department in the operation permit.

A. General Requirements

All PWSs which meet the required operation records applicability criteria in 42.4(3)*"a"*(1) must measure the following parameters, where applicable:

	PWS Type:	NTNC* & IGW/SW TNC	CWS
Parameter	Sample Site	Frequency	Frequency
Pumpage (Flow)	raw: bypass: final:	1/week 1/week 1/week	1/day 1/day 1/day
Static Water and Pumping Water Levels (Drawdown)	each active well:	1/month	1/month

*NTNCs must measure and record the total water used each week, but daily measurements are recommended, and may be required by the department in specific PWSs.

B. Chemical Addition

All PWSs which apply chemicals in the treatment process must monitor the following parameters, for the applicable processes:

	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
Parameter	Sample Site	Frequency	Frequency	Frequency
DISINFECTION				
Disinfectant Residual**	final: distribution system*:	1/day 1/day	1/day 1/day	1/day 1/day
Disinfectant, quantity used	day tank/scale:	1/day	1/day	1/day
FLUORIDATION				
Fluoride	raw: final:	1/quarter 1/day	1/month 1/day	1/month 1/day
Fluoride, quantity used	day tank/scale:	1/day	1/day	1/day
pH ADJUSTMENT				
pH	final:	1/week	2/week	1/day
Caustic Soda, quantity used	day tank/scale:	1/week	1/week	1/week
PHOSPHATE ADDITION				
Phosphate, as PO_4	final:	1/week	2/week	1/day
Phosphate, quantity used	day tank/scale:	1/week	1/week	1/week
OTHER CHEMICALS				
Chemical	final:	1/week	2/week	1/day
Chemical, quantity used	day tank/scale:	1/week	1/week	1/week

Monitoring is to be conducted at representative points in the distribution system which adequately demonstrate compliance with 42.4(3)"b"*(1).

**The department may reduce the required sample site locations for a system with a minimal distribution system, only hydropneumatic tank storage, and, if a CWS, it serves less than 100 persons.

C. Iron or Manganese Removal

Nonmunicipalities except rural water systems, benefited water districts, and publicly owned PWSs are exempt from monitoring of iron/manganese removal equipment unless the treatment is or was installed to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory. Any chemicals which are applied during the treatment process must be measured under section "B. Chemical Addition" of this table.

	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
Parameter	Sample Site	Frequency	Frequency	Frequency
Iron	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
Manganese	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day

D. pH Adjustment for Iron and Manganese Removal, by precipitation and coagulation processes utilizing lime, soda ash, or other chemical additions. Testing is only required if a specific chemical is added.

	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
Parameter	Sample Site	Frequency	Frequency	Frequency
Alkalinity	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
Iron	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
Manganese	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
pH	raw: final:	1/week 1/week	1/week 2/week	1/week 1/day

E. Cation Exchange (Zeolite) Softening

Nonmunicipalities except for rural water systems and benefited water districts are exempt from the monitoring of water quality parameters associated with ion-exchange softening unless the treatment is or was installed to remove a contaminant which has a maximum contaminant level, treatment technique, action level, or health advisory. An annual sodium sample of the final water is required of all community systems that use cation exchange softening, and will also meet the special sodium monitoring requirement of 567—paragraph 41.11(1)*"f."*

	Pumpage or Flow:	<0.1 MGD	0.1-0.5 MGD	>0.5 MGD
Parameter	Sample Site	Frequency	Frequency	Frequency
Hardness as $CaCO_3$	raw: final:	1/quarter 1/week	1/month 2/week	1/month 1/day
pH	final:	1/week	2/week	1/day
Sodium*	final:	1/year	1/year	1/year

The annual sodium sample required in 567—paragraph 41.11(1)"f"* will satisfy this requirement.

F. Direct Filtration of Surface Waters or Influenced Groundwaters

	Pumpage or Flow:	All
Parameter	Sample Site	Frequency
CT Ratio	final:	1/day
Disinfectant Residual*	source/entry point: distribution system*:	continuous daily
Disinfectant, quantity used	day tank/scale:	1/day
pH	final:	1/day
Temperature	raw:	1/day
Turbidity	raw: final:	see 567—subrules 43.5(3) and 43.5(4), and 567—43.9(455B) for the specific requirements

Monitoring is to be conducted to demonstrate compliance with paragraph 42.4(3)"b,"*567—subrules 43.5(2) and 43.5(4), and 567—43.6(455B).

G. Clarification or Lime Softening of Surface Waters or Influenced Groundwaters

	Pumpage or Flow:	All
Parameter	Sample Site	Frequency
Alkalinity	raw: final:	1/day 1/day
Caustic Soda, quantity used	day tank/scale:	1/week
CT Ratio	final:	1/day
Disinfectant Residual*	source/entry point: distribution system*:	continuous daily
Disinfectant, quantity used	day tank/scale:	1/day
Hardness as $CaCO_3$	raw: final:	1/day 1/day
Odor	raw: final:	1/week 1/day
pH	raw: final:	1/day 1/day
Temperature	raw:	1/day
Turbidity	raw: final:	see 567—subrules 43.5(3) and 43.5(4), and 567—43.9(455B) for the specific requirements

Monitoring is to be conducted to demonstrate compliance with paragraph 42.4(3)"b,"*567—subrules 43.5(2) and 43.5(4), and 567—43.6(455B).

H. Lime Softening of Groundwaters (excluding IGW)

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Alkalinity	raw: final:	1/quarter 1/day	1/month 1/day
Hardness as $CaCO_3$	raw: final:	1/quarter 1/day	1/month 1/day
pH	raw: final:	1/week 1/day	1/week 1/day
Temperature	raw:	1/week	1/week

I. Reverse Osmosis or Electrodialysis

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Alkalinity	raw: final:	1/quarter 1/day	1/month 1/day
Hardness as $CaCO_3$	raw: final:	1/quarter 1/day	1/month 1/day
Iron	raw:	1/day	1/day
Manganese	raw:	1/day	1/day
pH	raw: final:	1/week 1/day	1/week 1/day
Total Dissolved Solids	raw:	1/month	1/month

J. Anion Exchange (i.e., Nitrate Reduction)

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Nitrate	raw: final:	1/day 1/day	1/day 1/day
Sulfate	raw: final:	1/week 1/week	1/week 1/week

K. Activated Carbon for TTHM, VOC, or SOC Removal (GAC or PAC)

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Total Organic Carbon (TOC)	final:	1/quarter	1/month

L. Air-Stripping for TTHM, VOC, or SOC Removal

	Pumpage or Flow:	<0.1 MGD	>0.1 MGD
Parameter	Sample Site	Frequency	Frequency
Total Organic Carbon (TOC)	final:	1/quarter	1/month

M. Lead and Copper: Corrosion Control and Water Quality Parameters

The specific SMRs for corrosion control and water quality parameters are listed in 567—paragraph 41.4(1)*"d"* and 567—subrules 43.8(1) and 43.8(2).

N. Consecutive PWSs Supplied by a Surface Water or IGW PWS

	Pumpage or Flow:	All
Parameter	Sample Site	Frequency
Disinfectant Residual	source/entry point: distribution system*:	1/day 1/day
Disinfectant, quantity used (if applicable)	day tank/scale:	1/day
Pumpage or Flow	master meter:	1/day

*Monitoring is to be conducted at representative points in the distribution system.

APPENDIX C:
REGULATED CONTAMINANTS TABLE FOR CONSUMER CONFIDENCE REPORT

Key

AL	Action Level
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MFL	million fibers per liter
MRDL	Maximum Residual Disinfectant Level
MRDLG	Maximum Residual Disinfectant Level Goal
mrem/year	millirems per year (a measure of radiation absorbed by the body)
n/a	not applicable
NTU	nephelometric turbidity units (a measure of water clarity)
pCi/L	picocuries per liter (a measure of radioactivity)
ppb	parts per billion, or micrograms per liter (µg/L)
ppm	parts per million, or milligrams per liter (mg/L)
ppq	parts per quadrillion, or picograms per liter (pg/L)
ppt	parts per trillion, or nanograms per liter (ng/L)
TT	Treatment Technique

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Microbiological Contaminants						
Total coliform bacteria	TT		TT	n/a	Naturally present in the environment	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, waterborne pathogens may be present or that a potential pathway exists through which contamination may enter the drinking water distribution system.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
E. coli	Routine and repeat samples are total coliform-positive and either is *E. coli*-positive, or system fails to take repeat samples following *E. coli*-positive routine sample, or system fails to analyze total coliform-positive repeat sample for *E. coli*		Routine and repeat samples are total coliform-positive and either is *E. coli*-positive, or system fails to take repeat samples following *E. coli*-positive routine sample, or system fails to analyze total coliform-positive repeat sample for *E. coli*	0	Human and animal fecal waste	*E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Human pathogens in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a greater health risk for infants, young children, the elderly, and people with severely compromised immune systems.
Fecal indicators (enterococci or coliphage)	TT		TT	n/a	Human and animal fecal waste	Fecal indicators are microbes whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term health effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
Disinfection Byproduct Precursor Removal Requirements for Surface & Influenced Groundwater Systems						
Total organic carbon (ppm)	TT		TT	n/a	Naturally present in the environment	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
Surface Water & Influenced Groundwater System Treatment Requirements						

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Turbidity (NTU)	TT		TT	n/a	Soil runoff	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.
Surface water/IGW system treatment technique requirements: CT ratio; residual disinfectant; log removal/inactivation of *Giardia*, viruses, and *Cryptosporidium*; or filter backwash recycling	TT		TT	n/a	Soil runoff	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, protozoa, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches, and can lead to death.
Radionuclide Contaminants						
Gross alpha emitters (pCi/L)	15 pCi/L		15	0	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Beta/photon emitters (mrem/yr)	4 mrem/yr		4	0	Decay of natural and man-made deposits	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Radium, combined 226 and 228 (pCi/L)	5 pCi/L		5	0	Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium (µg/L)	30 µg/L (footnote 2)		30	0	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
Inorganic Contaminants						
Antimony (ppb)	0.006	1000	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Arsenic (ppb)[3]	0.010[3]	1000	10[3]	0[3]	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
Asbestos (MFL)	7 MFL		7	7	Decay of asbestos cement water mains; erosion of natural deposits	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
Barium (ppm)	2		2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Beryllium (ppb)	0.004	1000	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
Bromate (ppb)	0.010	1000	10	0	Byproduct of drinking water disinfection	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
Cadmium (ppb)	0.005	1000	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
Chloramines (ppm)	MRDL = 4.0		MRDL = 4.0	MRDLG = 4.0	Water additive used to control microbes	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Chlorine (ppm)	MRDL = 4.0		MRDL = 4.0	MRDLG = 4.0	Water additive used to control microbes	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
Chlorine dioxide (ppb)	MRDL = 0.8	1000	MRDL = 800	MRDLG = 800	Water additive used to control microbes	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia.
Chlorite (ppm)	1.0		1.0	0.8	Byproduct of drinking water disinfection	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
Chromium (ppb)	0.1	1000	100	100	Discharge from steel and pulp mills; erosion of natural deposits	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
Copper (ppm)	AL = 1.3		AL = 1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Cyanide (ppb)	0.2	1000	200	200	Discharge from steel, metal, plastic, and fertilizer factories	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
Fluoride (ppm)	4.0		4.0	4.0	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL (2.0 ppm) or more may cause mottling of children's teeth, usually in children less than nine years of age. Mottling, also known as dental fluorosis, may include brown staining or pitting of the teeth, and occurs only in the developing teeth before they erupt from the gums.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Lead (ppb)	AL = 0.015	1000	AL = 15	0	Corrosion of household plumbing systems; erosion of natural deposits	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
Mercury, inorganic (ppb)	0.002	1000	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
Nitrate, as N (ppm)	10		10	10	Runoff from fertilizer use; leaching from septic tanks or sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Nitrite, as N (ppm)	1.0		1.0	1.0	Conversion of ammonia; runoff from fertilizer use; leaching from septic tanks or sewage; erosion of natural deposits	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
Selenium (ppb)	0.05	1000	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
Thallium (ppb)	0.002	1000	2	0.5	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, change in their blood, or problems with their kidneys, intestines, or liver.
Synthetic Organic Contaminants						

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
2,4-D (ppb)	0.07	1000	70	70	Runoff from herbicide used on row crops	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
2,4,5-TP Silvex (ppb)	0.05	1000	50	50	Residue of banned herbicide	Some people who drink water containing Silvex in excess of the MCL over many years could experience liver problems.
Acrylamide	TT		TT	0	Added to water during sewage/ wastewater treatment	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
Alachlor (ppb)	0.002	1000	2	0	Runoff from herbicide used on row crops	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
Atrazine (ppb)	0.003	1000	3	3	Runoff from herbicide used on row crops	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
Benzo(a)pyrene, PAH (ppt)	0.0002	1,000,000	200	0	Leaching from linings of water storage tanks and distribution lines	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
Carbofuran (ppb)	0.04	1000	40	40	Leaching of soil fumigant used on rice and alfalfa	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
Chlordane (ppb)	0.002	1000	2	0	Residue of banned termiticide	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
Dalapon (ppb)	0.2	1000	200	200	Runoff from herbicide used on rights of way	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
Di(2-ethylhexyl)adipate (ppb)	0.4	1000	400	400	Discharge from chemical factories	Some people who drink water containing di(2-ethylhexyl)adipate well in excess of the MCL over many years could experience toxic effects such as weight loss, liver enlargement, or possible reproductive difficulties.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Di(2-ethylhexyl)phthalate (ppb)	0.006	1000	6	0	Discharge from rubber and chemical factories	Some people who drink water containing di(2-ethylhexyl)phthalate well in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
Dibromochloropropane [DBCP] (ppt)	0.0002	1,000,000	200	0	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive problems and may have an increased risk of getting cancer.
Dinoseb (ppb)	0.007	1000	7	7	Runoff from herbicide used on soybeans and vegetables	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
Diquat (ppb)	0.02	1000	20	20	Runoff from herbicide use	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
Dioxin [2,3,7,8-TCDD] (ppq)	0.00000003	1,000,000,000	30	0	Emissions from waste incineration and other combustion; discharge from chemical factories	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
Endothall (ppb)	0.1	1000	100	100	Runoff from herbicide use	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
Endrin (ppb)	0.002	1000	2	2	Residue of banned insecticide	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
Epichlorohydrin	TT		TT	0	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.
Ethylene dibromide (ppt)	0.0005	1,000,000	50	0	Discharge from petroleum refineries	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system or kidneys, and may have an increased risk of getting cancer.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
Glyphosate (ppb)	0.7	1000	700	700	Runoff from herbicide use	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
Haloacetic Acids (HAA) (ppb)	0.060	1000	60	(footnote 4)	Byproduct of drinking water disinfection	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
Heptachlor (ppt)	0.0004	1,000,000	400	0	Residue of banned pesticide	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
Heptachlor epoxide (ppt)	0.0002	1,000,000	200	0	Breakdown of heptachlor	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
Hexachlorobenzene (ppb)	0.001	1000	1	0	Discharge from metal refineries and agricultural chemical factories	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
Hexachlorocyclopentadiene (ppb)	0.05	1000	50	50	Discharge from chemical factories	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
Lindane (ppt)	0.0002	1,000,000	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
Methoxychlor (ppb)	0.04	1000	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
Oxamyl [Vydate] (ppb)	0.2	1000	200	200	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
PCBs [polychlorinated byphenyls] (ppt)	0.0005	1,000,000	500	0	Runoff from landfills; discharge of waste chemicals	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
Pentachlorophenol (ppb)	0.001	1000	1	0	Discharge from wood preserving factories	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
Picloram (ppb)	0.5	1000	500	500	Herbicide runoff	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
Simazine (ppb)	0.004	1000	4	4	Herbicide runoff	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
Toxaphene (ppb)	0.003	1000	3	0	Runoff/ leaching from insecticide used on cotton and cattle	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
Volatile Organic Contaminants						
Benzene (ppb)	0.005	1000	5	0	Discharge from factories; leaching from gasoline storage tanks and landfills	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
Carbon tetrachloride (ppb)	0.005	1000	5	0	Discharge from chemical plants and other industrial activities	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Chlorobenzene (ppb)	0.1	1000	100	100	Discharge from chemical and agricultural chemical factories	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
o-Dichlorobenzene (ppb)	0.6	1000	600	600	Discharge from industrial chemical factories	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory system.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
p-Dichlorobenzene (ppb)	0.075	1000	75	75	Discharge from industrial chemical factories	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
1,2-Dichloroethane (ppb)	0.005	1000	5	0	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
1,1-Dichloroethylene (ppb)	0.007	1000	7	7	Discharge from industrial chemical factories	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
cis-1,2-Dichloroethylene (ppb)	0.07	1000	70	70	Discharge from industrial chemical factories	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
trans-1,2-Dichloroethylene (ppb)	0.1	1000	100	100	Discharge from industrial chemical factories	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
Dichloromethane (ppb)	0.005	1000	5	0	Discharge from industrial chemical factories	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
1,2-Dichloropropane (ppb)	0.005	1000	5	0	Discharge from industrial chemical factories	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
Ethyl benzene (ppb)	0.7	1000	700	700	Discharge from petroleum refineries; leaching from gasoline storage tanks and landfills	Some people who drink water containing ethyl benzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
Styrene (ppb)	0.1	1000	100	100	Discharge from rubber and plastic factories; leaching from landfills	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
Tetrachloroethylene (ppb)	0.005	1000	5	0	Discharge from factories and dry cleaners	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.

Contaminant (CCR units)	MCL, in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG in CCR units	Major sources in drinking water	Health effects language
1,2,4-Trichlorobenzene (ppb)	0.07	1000	70	70	Discharge from textile-finishing factories	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
1,1,1-Trichloroethane (ppb)	0.2	1000	200	200	Discharge from metal degreasing sites and other factories	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
1,1,2-Trichloroethane (ppb)	0.005	1000	5	3	Discharge from industrial chemical factories	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune system.
Trichloroethylene (ppb)	0.005	1000	5	0	Discharge from metal degreasing sites and other factories	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
Total trihalomethanes (TTHM) (ppb)	0.080	1000	80	(footnote 4)	Byproduct of drinking water disinfection	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
Toluene (ppm)	1		1	1	Discharge from petroleum factories; leaching from gasoline storage tanks and landfills	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
Vinyl chloride (ppb)	0.002	1000	2	0	Leaching from PVC piping; discharge from plastics factories	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
Xylenes (ppm)	10		10	10	Discharge from petroleum factories; discharge from chemical factories; leaching from gasoline storage tanks and landfills	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

[1]MCL (for systems that collect >40 samples per month): 5% of monthly samples are positive. MCL (for systems that collect <40 samples per month): 1 positive monthly sample.

[2]Uranium MCL is effective on December 8, 2003. Until then, there is no MCL.

[3]Beginning on January 23, 2006, the arsenic MCL is 0.010 mg/L and the MCLG is 0. Until then, the MCL is 0.05 mg/L, and there is no MCLG.

[4]The MCLGs for total trihalomethanes and haloacetic acids:

Disinfection Byproduct	MCLG, mg/L	MCLG in CCR units
Bromodichloromethane	0	0
Bromoform	0	0
Chloroform	0.07	70
Dibromochloromethane	0.06	60
Dichloroacetic acid	0	0
Monochloroacetic acid	0.07	70
Trichloroacetic acid	0.02	20

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 12/14/11, effective 5/16/18]

APPENDIX D:
REGULATED CONTAMINANTS TABLES FOR CONSUMER CONFIDENCE REPORTS
Rescinded IAB 1/7/04, effective 2/11/04

APPENDIX E:
HEALTH EFFECTS LANGUAGE FOR CONSUMER CONFIDENCE REPORTS
Rescinded IAB 1/7/04, effective 2/11/04

APPENDIX F:
HEALTH EFFECTS LANGUAGE FOR FLUORIDE LEVELS BETWEEN 2 AND 4 MG/L
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CHAPTER 43
WATER SUPPLIES—DESIGN AND OPERATION

[Prior to 12/12/90, portions of this chapter appeared in 567—Ch 41]

567—43.1(455B) General information.

43.1(1) *Emergency actions regarding water supplies.* When, in the opinion of the director, an actual or imminent hazard exists, the supplier of water shall comply with the directives or orders of the director necessary to eliminate or minimize that hazard.

43.1(2) *Prohibition on the use of lead pipes, solder and flux.* Any pipe, solder or flux which is used in the installation or repair of any public water supply system or any plumbing in a residential or nonresidential facility providing water for human consumption which is connected to a public water supply system shall be lead-free as defined in 567—40.2(455B). This action shall not apply to leaded joints necessary for the repair of cast iron pipe.

43.1(3) *Use of noncentralized treatment devices.*

a. *Community PWS.* Community public water systems shall not use bottled water, point-of-use (POU) or point-of-entry (POE) devices to achieve permanent compliance with a maximum contaminant level, action level, or treatment technique requirement in 567—Chapters 41 and 43.

b. *Noncommunity PWS.* Noncommunity public water supply systems may be allowed by the department to use point-of-use devices to achieve MCL compliance provided the contaminant does not pose an imminent threat to health (such as bacteria) nor place a sensitive population at risk (such as infants for nitrate or nitrite).

c. *Reduced monitoring requirements.* Bottled water, point-of-use, or point-of-entry devices cannot be used to avoid the monitoring requirements of 567—Chapters 41 and 43, but the department may allow reduced monitoring requirements in specific instances.

d. *Bottled water requirements.* The department may require a public water system exceeding a maximum contaminant level, action level, or treatment technique requirement specified in 567—Chapters 41 and 43 to use bottled water as a condition of an interim compliance schedule or as a temporary measure to avoid an unreasonable risk to health. Any bottled water must, at a minimum, meet the federal Food and Drug Administration bottled water standards, listed in the Code of Federal Regulations, Title 21, Chapter 165.110. The system must meet the following requirements:

(1) Monitoring program. Submit for approval to the department a monitoring program for bottled water. The monitoring program must provide reasonable assurances that the bottled water complies with all maximum contaminant levels, action levels, or treatment technique requirements in 567—Chapters 41 and 43. The public water system must monitor a representative sample of bottled water for all contaminants regulated under 567—Chapters 41 and 43 the first quarter that it supplies the bottled water to the public, and annually thereafter. Results of the monitoring program shall be provided to the department annually. If the bottled water is from a community public water system that currently meets all of the federal Safe Drinking Water Act requirements, the monitoring requirements of this subparagraph shall be waived by the department. The specific supplier of the bottled water must be identified in order for the department to waive the monitoring requirements.

(2) Certification requirements. The public water system must receive a certification from the bottled water company that the bottled water supplied has been taken from an "approved source"; the bottled water company has conducted monitoring in accordance with 43.1(3)*"b"*(1); and the bottled water meets MCLs, action levels, or treatment technique requirements as set out in 567—Chapters 41 and 43. The public water system shall provide the certification to the department the first quarter after it supplies bottled water and annually thereafter.

(3) Provision of bottled water to consumers. The public water supply system is fully responsible for the provision of sufficient quantities of bottled water to every person supplied by the public water system via door-to-door bottled water delivery.

e. *Point-of-use devices.* Reserved.

f. *Point-of-entry devices.* Reserved.

43.1(4) *Cross-connection control.* To prevent backflow or backsiphonage of contaminants into a public water supply, connection shall not be permitted between a public water supply and any other system which does not meet the monitoring and drinking water standards required by this chapter except as provided below in *"a"* or *"b."*

a. *Piping and plumbing systems.* Piping systems or plumbing equipment carrying nonpotable water, contaminated water, stagnant water, liquids, mixtures or waste mixtures shall not be connected to a public water supply unless properly equipped with an antisiphon device or backflow preventer acceptable to the department.

b. *Bulk water loading stations.* Positive separation shall be provided through the use of an air gap separation or a backflow preventer, which is acceptable to the department, at all loading stations for bulk transport tanks.

(1) Minimum air gap. The minimum required air gap shall be twice the diameter of the discharge pipe.

(2) Backflow preventer criteria. An approved backflow preventer for this application shall be a reduced pressure backflow preventer or an antisiphon device which complies with the standards of the American Water Works Association and has been approved by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California.

When, in the opinion of the department, evidence clearly indicates the source of contamination within the system is the result of a cross-connection, the department may require a public water supply to conduct public notification, identify and eliminate the connection, and implement a systemwide cross-connection program.

43.1(5) *Requirement for certified operator.* The department maintains a list of operators who are certified in accordance with 567—Chapter 81. The list includes the operator's name, certification classification (Water Treatment, Water Distribution, or Grade A Water System), and grade (A, I, II, III, or IV), and is periodically updated during the year.

a. *CWS and NTNC systems.* All community and nontransient noncommunity public water supply systems must have a certified operator in direct responsible charge of the treatment and distribution systems, in accordance with 567—Chapters 40 through 44 and 81.

b. *TNC systems.* Any transient noncommunity public water supply system which is owned by the state or federal government, such as a state park, state hospital, or interstate rest stop, or is using a groundwater under the direct influence of surface water or surface water source, must have a certified operator in direct responsible charge of the treatment and distribution systems, in accordance with 567—Chapters 40 through 44 and 81. Any TNC which uses chlorine dioxide as a disinfectant or oxidant must have a certified operator in direct responsible charge of the system, pursuant to 567—Chapter 81. The department may require any TNC to have a certified operator in direct responsible charge.

43.1(6) *Return water in public water supply systems.* Steam condensate, cooling water from engine jackets, water used in conjunction with heat exchange devices, or treated wastewater shall not be returned to the public water supply system.

43.1(7) *Sanitary surveys.* Each public water supply system must have a periodic sanitary survey, conducted by the department or its designee, which is a records review and on-site inspection of the system. Systems must provide the department, at its request, any existing information that will enable the department to conduct the sanitary survey. The inspection evaluates the system's ability to produce and distribute safe drinking water and identifies improvements necessary to maintain or improve drinking water quality. The sanitary survey includes review and inspection of the following areas: water source; treatment facilities; distribution system; finished water storage; pumps, pump facilities, controls and other equipment; monitoring, reporting, and data verification, including self-monitoring requirements; system operation and management; maintenance; properly certified operators; and records. A report of the sanitary survey is issued by the department or its designee, and may include both enforceable required actions for remedying significant deficiencies and nonenforceable recommended actions. The frequency of the sanitary survey inspection must be at least once every five years for noncommunity systems and once every three years for community systems. The department or its designee must provide

the system with a written notice describing any significant deficiencies identified no later than 30 days after the department identifies the significant deficiency. The notice may be included in the sanitary survey report and may specify corrective actions and deadlines for completion of corrective actions. Systems must respond in writing to significant deficiencies outlined in the sanitary survey report or written notice within the time period specified in the report, indicating how and on what schedule the system will address significant deficiencies noted in the survey. At a maximum, the written response must be received within 30 days of receiving the survey report. All systems must take the steps necessary to address significant deficiencies identified in the sanitary survey report that are within the control of the system and its governing body.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—43.2(455B) Permit to operate.

43.2(1) *Operation fees.*

a. *Annual fee.* A fee for the operation of a public water supply system shall be paid annually. The fee will not be prorated and is nonrefundable. The fee shall be based on the population served. The fee shall be the greater of $25 per year or $0.14 multiplied by the total population served by the public water supply for all community and nontransient noncommunity public water supply systems. The fee shall be $25 per year for all transient noncommunity water systems. Where a system provides water to another public water supply system (consecutive public water supply system) which is required to have an operation permit, the population of the recipient water supply shall not be counted as a part of the water system providing the water.

b. *Fee notices.* The department will send annual notices to public water supply systems at least 60 days prior to the date that the operation fee is due.

c. *Fee payments.* The annual operation fee must be paid to the department by September 1 each year.

d. *Fee schedule adjustment.* The department may adjust the per capita fee payment by up to +/– $0.02 per person served so as to achieve the targeted revenue of $350,000 during each fiscal year. The environmental protection commission must approve any per capita fee rate above $0.14 per person. The extent of the fee adjustment must comply with Iowa Code section 455B.183A.

e. *Exempted public water supply systems.* Public water supply systems located on Indian lands are exempt from the fee requirements.

f. *Late fees.* When the owner of a public water supply fails to make timely application or to remit payment of fees by September 1, the department will notify the system by a single notice of violation. In addition, a late fee of $100 will be assessed for failure to remit the operation fee by September 1. The department may thereafter issue an administrative order pursuant to Iowa Code section 455B.175(1) or request a referral to the attorney general under Iowa Code section 455B.175(3) as necessary.

43.2(2) *Operation permit requirement.* Except as provided in 43.2(3) and 43.2(4), no person shall operate any public water supply system or part thereof without, or contrary to any condition of, an operation permit issued by the director.

43.2(3) *Application for operation permit.* The owner of any public water supply system or part thereof must make application for an operation permit. No such system shall be operated without an operation permit, unless proper application has been made. Upon submission of a completed application form, the time requirement for having a valid operation permit is automatically extended until the application has either been approved or disapproved by the director.

43.2(4) *Operation permit application form issuance.*

a. *Operation permit application form.* Application for operation permits shall be made on forms provided by the department. The application for an operation permit shall be filed at least 90 days prior to the date operation is scheduled to begin unless a shorter time is approved by the director. The director shall issue or deny operation permits for facilities within 60 days of receipt of a completed application, unless a longer period is required and the applicant is so notified. The director may require the submission of additional information deemed necessary to evaluate the application. If the application

is incomplete or otherwise deficient, processing of the application shall not be completed until such time as the applicant has supplied the missing information or otherwise corrected the deficiency.

b. *Identity of signatories of operation permit applications.* The person who signs the application for an operation permit shall be:

(1) Corporation. In the case of a corporation, a principal executive officer of at least the level of vice president. The corporation has the option of appointing a designated signatory to satisfy this requirement.

(2) Partnership. In the case of a partnership, a general partner.

(3) Sole proprietorship. In the case of a sole proprietorship, the proprietor.

(4) Public facility. In the case of a municipal, state or other public facility, by either the principal executive officer or the ranking elected official.

c. *Appeal.* The denial of a permit, or any permit condition, may be appealed by the applicant to the environmental protection commission pursuant to 567—Chapter 7.

43.2(5) *Operation permit conditions.*

a. *Operation permit conditions.* Operation permits may contain such conditions as are deemed necessary by the director to ensure compliance with all applicable rules of the department, to ensure that the public water supply system is properly operated and maintained, to ensure that potential hazards to the water consumer are eliminated promptly, and to ensure that the requirements of the Safe Drinking Water Act are met.

b. *Compliance schedule.* Where one or more maximum contaminant levels, treatment techniques, designated health advisories, or action levels cannot be met immediately, a compliance schedule for achieving compliance with standards may be made a condition of the permit. A compliance schedule requiring alterations in accordance with the standards for construction in 43.3(1) and 43.3(2) may also be included for any supply that, in the opinion of the director, contains a potential hazard.

c. *Treatment.* If the department determines that a treatment method identified in 43.3(10) is technically feasible, the department may require the system to install or use that treatment method in connection with a compliance schedule issued under the provisions of 43.2(5)*"b."* The department's determination shall be based upon studies by the system and other relevant information.

43.2(6) *Notification of change in operation permit application conditions.* The owner of a public water supply system shall notify the director within 30 days of any change in conditions identified in the permit application. This notice does not relieve the owner of the responsibility to obtain a construction permit as required by 567—43.3(455B).

43.2(7) *Renewal of operation permits.* The department may issue operation permits for durations of up to five years. Operation permits must be renewed prior to expiration in order to remain valid. The renewal date shall be specified in the permit or in any renewal. Application for renewal must be received by the director, or postmarked, 60 days prior to the renewal date, on forms provided by the department.

43.2(8) *Denial, modification, or suspension of operation permit.* The director may deny renewal of, modify, or suspend, in whole or in part, any operation permit for good cause. Denial of a new permit, renewal of an existing permit, or modification of a permit, may be appealed to the environmental protection commission pursuant to 567—Chapter 7. Suspension or revocation may occur after hearing, pursuant to 567—Chapter 7. Good cause includes the following:

a. Violation of any term or condition of the permit.

b. Obtaining a permit by misrepresentation of fact or failure to disclose fully all material facts.

c. A change in any condition that requires either a permanent or temporary modification of a permit condition.

d. Failure to submit such records and information as the director may require both generally and as a condition of the operation permit in order to ensure compliance with conditions specified in the permit.

e. Violation of any of the requirements contained in 567—Chapters 40 to 43.

f. Inability of a system to either achieve or maintain technical, managerial, or financial viability, as determined in rule 567—43.8(455B).

567—43.3(455B) Public water supply system construction.

43.3(1) *Standards for public water supplies.* Any public water supply that does not meet the drinking water standards contained in 567—Chapters 41 and 43 shall make the alterations in accordance with the standards for construction contained in 43.3(2) necessary to comply with the drinking water standards unless the public water supply has been granted a variance from a maximum contaminant level or treatment technique as a provision of its operation permit pursuant to 567—43.2(455B), provided that the public water supply meets the schedule established pursuant to 567—43.2(455B). Any public water supply that, in the opinion of the director, contains a potential hazard shall make the alterations in accordance with the standards for construction contained in this rule necessary to eliminate or minimize that hazard. A system that is not operating within the design standards may be required by the department via a compliance schedule to upgrade the deficient areas of the system before a construction permit will be issued for any work in the system that does not address the current deficiencies.

43.3(2) *Standards for construction.*

a. The standards for a project are the Ten States Standards as adopted through 2012 and the American Water Works Association (AWWA) Standards as adopted through 2016 and 43.3(7) to 43.3(9). To the extent of any conflict between the Ten States Standards and the American Water Works Association Standards and 43.3(7) to 43.3(9), the Ten States Standards, 43.3(2), and 43.3(7) to 43.3(9) shall prevail. Additional standards include the following:

(1) Polyvinyl chloride (PVC) pipe manufactured in accordance with ASTM D2241, AWWA C900, AWWA C905, ASTM F1483, or AWWA C909 may be used for water main construction. The maximum allowable pressure for PVC or polyethylene (PE) pipe shall be determined based on a safety factor of 2.0 and a surge allowance of no less than two feet per second (2 fps).

(2) For CWS groundwater systems, a minimum of two wells shall be provided, unless the system demonstrates to the department's satisfaction that a single well will provide a reliable and adequate source. For NTNC and TNC groundwater systems, a single well is acceptable.

(3) Separation of water mains from sanitary sewers and storm sewers shall be in accordance with the Iowa Wastewater Facilities Design Standards, chapter 12, section 5.8, "Protection of Water Supplies." Where the water main either crosses under or is less than 18 inches above the sewer, one full length of water main shall be located so that both joints are as far as possible from the sewer. The sewer and water pipes must be adequately supported. A low permeability soil shall be used for backfilling material within ten feet of the point of crossing. No water pipe shall pass through or come in contact with any part of a sewer manhole.

b. Variance. When engineering justification satisfactory to the director is provided substantially demonstrating that variation from the design standards will result in equivalent or improved effectiveness, such a variation from design standards may be accepted by the director. A variance denial may be appealed to the environmental protection commission pursuant to 567—Chapter 7. Variance requests for projects qualifying for a waiver from the engineering requirement of 43.3(4) may be made without the retained services of a professional engineer.

43.3(3) *Construction permits.* No person shall construct, install or modify any project without first obtaining, or contrary to any condition of, a construction permit issued by the director or by a local public works department authorized to issue permits under 567—Chapter 9 except as provided in 43.3(3)*"b,"*43.3(4) and 43.3(6). Construction permits are not required for point-of-use treatment devices installed by a noncommunity water system except those devices required by the department to meet a drinking water standard pursuant to 567—Chapters 41 and 43. No construction permit will be issued for a new public water supply system without a completed viability assessment, which has been approved by the department, and demonstrates that the system is viable, pursuant to 567—43.8(455B).

a. *Construction permit issuance conditions.* A permit to construct shall be issued by the director if the director concludes from the application and specifications submitted pursuant to 43.3(4) and 567—40.4(455B) that the project will comply with the rules of the department. The construction of the project must begin within one year from the date the permit was issued; if it is not, the permit is no longer valid. If construction is ongoing and continuous (aside from delays due to winter or exceptional weather) and the permitted project cannot be completed within one year, the permit shall remain valid

until the project is completed. The department may grant an extension of the permit for a multiphase project, for a maximum two additional years.

b. Construction permit application. Application for any project shall be submitted to the department at least 30 days prior to the proposed date for commencing construction or awarding of contracts. This requirement may be waived when it is determined by the department that an imminent health hazard exists to the consumers of a public water supply. Under this waiver, construction, installation, or modification may be allowed by the department prior to review and issuance of a permit if all the following conditions are met:

(1) The construction, installation or modification will alleviate the health hazard;

(2) The construction is done in accordance with the standards for construction pursuant to 43.3(2);

(3) Plans and specifications are submitted within 30 days after construction;

(4) A professional engineer, licensed in the state of Iowa, supervises the construction; and

(5) The supplier of water receives approval of this waiver prior to any construction, installation, or modification.

c. Construction permit fees. A nonrefundable fee for a construction permit issued in accordance with subrules 43.3(3) and 43.3(4) and 567—subrules 40.3(1) and 40.4(1) shall be submitted with the application for a construction permit prior to the authorization to commence construction. The construction permit fee shall be based upon the following rate structure:

(1) Routine construction permits. The fee shall be determined based upon the total length of water main plus the non-water-main-related construction costs, calculated as follows:

1. Water mains (minimum fee of $100; maximum fee of $5,000):

Length of permitted water main	Rate
First 1,000 ft.	$100
Next 19,000 ft.	$0.10/ft.
Next 300,000 ft.	$0.01/ft.
Over 320,000 ft.	No additional charge

2. Non-water-main-related construction costs, including source, treatment, pumping, storage and waste handling (minimum fee of $100; maximum fee of $16,000):

Estimated construction cost	Rate
First $50,000	$100
Next $950,000	0.2% of estimated construction cost
Next $14,000,000	0.1% of estimated construction cost
Over $15,000,000	No additional charge

(2) "As-built" construction. "As-built" construction is defined as construction that occurred before a construction permit is issued. The fee shall be calculated according to 43.3(3)*"c"*(1), plus an additional fee of $200, and is effective for construction that occurred after December 1, 2003. The fee for water main projects permitted in accordance with paragraph 43.3(3)*"e"* shall be calculated in accordance with subparagraph 43.3(3)*"c"*(1); however, the additional "as-built" fee of $200 shall not be assessed for these projects.

(3) Change orders, addenda, permit supplements, and request for time extensions. A fee for change orders, addenda, or permit supplements will only be charged if the aggregate of the changes approved for the project to date causes the total project construction cost to exceed the original project construction cost by at least 5 percent. For water main extensions, the fee will be charged if the total length of water main exceeds the original approved length by 5 percent. The request for a time extension is a flat fee.

Categories	Rate
Change orders, addenda, and permit supplements for water mains	$0.10/ft. of additional water main, minimum fee: $50
Change orders, addenda, and permit supplements for non-water-main-related construction costs	0.2% of additional non-water-main-related construction costs, minimum fee: $50
Request for time extension	$50

(4) Calendar year construction permit fee cap. The total amount of construction permit fees for a public water supply system owner during any calendar year shall not exceed $5,000 for water mains and $16,000 for non-water-main-related construction projects.

d. Water well construction. All water well construction must be performed by a certified well contractor in accordance with 567—Chapter 82. It is the responsibility of the public water supply and certified well contractor to ensure that a public well construction permit has been issued by the department prior to initiation of well construction and to ensure that all well construction is performed in accordance with the provisions of this chapter.

e. Minor water main construction permit. A public water system may obtain a minor water main construction permit from the department for construction or replacement of minor water mains that serve additional users. By obtaining this permit, the system is able to construct new minor water mains or extend or replace existing minor water mains without obtaining an individual construction permit for each specific water main. The permit shall allow construction or replacement of minor water mains that do not exceed six inches in diameter and, in aggregation, do not increase the average daily demand (in gallons per day) of the public water supply system by more than 5 percent over the duration of the permit.

The additional users must have been included in the system's hydraulic analysis that has been approved by the department. The water demands of the additional users must be consistent with the water demands in the approved hydraulic analysis.

(1) A minor water main construction permit shall be issued subject to the following conditions:

1. The system has standard specifications for water main construction approved and on file with the department;

2. The system has adequate source capacity and, where treatment is provided, adequate treatment plant capacity to meet the peak day demand of all existing users and the proposed additional users covered under the permit;

3. The system has adequate storage capacity to meet the average day demand of all existing users and the proposed additional users covered under the permit; and

4. The system submits an application for a minor water main construction permit prior to the construction or replacement of any water main covered by the permit. The permit application must be submitted to the department 90 days before the anticipated first use of the permit, and construction shall not commence prior to the issuance of the permit. The minor water main construction permit expires on December 31 of the year in which it is issued. The application shall include the following:

- An up-to-date hydraulic analysis of the system, prepared and submitted by a licensed professional engineer, must be either on file with the department or submitted with the permit application. The hydraulic basis of flow (gallons per minute per connection) used in the analysis must be acceptable to the department. The hydraulic analysis shall include:
  - All existing water mains within the system;
  - All proposed water mains intended to be covered by the permit;
  - A demonstration that the system has adequate hydraulic capacity to serve the existing and new users under peak flow conditions without causing the pressure to fall below 20 psi anywhere within the system;
  - The location of all potential users of the system;
  - The diameter of all existing and proposed pipes;
  - The projected system flows; and

- The static and dynamic pressures anticipated throughout the system with the addition of the new users incorporated in the analysis.

- A completed Schedule 1b, Minor Water Main Construction Permit Application (Form 542-3151), listed in 567—subrule 40.3(1).

(2) The system must submit completed Schedule 2c, Notification of Minor Water Main Construction (Form 542-3152), prior to the construction or replacement of each minor water main covered by this permit. Each water main covered by the permit must have either been included in the previously submitted hydraulic analysis or must be included in an update to the hydraulic analysis, submitted with Schedule 2c. If an update to the hydraulic analysis is submitted with Schedule 2c, it must include all portions of the distribution system potentially affected by the new construction.

(3) By January 31 of the following year, the system shall submit the following to the department:

1. A complete set of plans for all water main extensions constructed under the permit. The plans must be prepared and submitted by a licensed professional engineer.

2. Completed Schedules 1a, 1c, and 2a, listed in 567—subrule 40.3(1).

3. The construction permit fee calculated in accordance with subparagraph 43.3(3)*"c"*(1). The fee calculation shall be based upon the total length of water main constructed under the permit. For the purpose of calculating the total amount of water main construction permit fees, paid by the system in accordance with subparagraph 43.3(3)*"c"*(4), the fee shall be credited to the calendar year in which the actual fee was received by the department.

(4) A permit shall contain such conditions as are deemed necessary by the director to ensure compliance with all applicable rules of the department.

(5) The director may modify the permit, in whole or in part, at any time. The director may suspend or revoke the permit, in whole or in part, at any time by providing written notice to the permit holder and is not obligated to renew the permit. Cause for modification, suspension, or revocation of the permit includes, but is not limited to, the following:

1. Violation of any term or condition of the permit;

2. Misrepresentation of fact or failure to disclose fully all material facts in order to obtain a permit;

3. Failure to submit the records and information as required by the director, both generally and as condition of the permit;

4. Failure to submit timely reports from previous permits;

5. Failure to construct in accordance with approved design standards in accordance with subrule 43.3(2); or

6. Failure to construct in accordance with the system's approved standard specifications.

(6) No variance to the design standards is allowed under this permit. If a variance to the design standards is needed, the system must apply for an individual construction permit following the procedures in 567—subrule 40.4(1).

43.3(4) *Waiver from engineering requirements.* The requirement for plans and specifications prepared by a licensed professional engineer may be waived for the following types of projects, provided the improvement complies with the standards for construction. This waiver does not relieve the supplier of water from meeting the application and permit requirements pursuant to 43.3(3), except that the applicant need not obtain a written permit prior to installing the equipment.

a. Simple chemical feed, if all the following conditions are met:

(1) The improvement consists only of a simple chemical solution application or installation, which in no way affects the performance of a larger treatment process, or is included as part of a larger treatment project;

(2) The chemical application is by a positive displacement pump (of the piston type with a solenoid operated diaphragm), the acceptability of said pump to be determined by the department;

(3) The supplier of water provides the department with a schematic of the installation and manufacturer's specifications sufficient enough to determine if the simple chemical feed installation meets, where applicable, standards for construction pursuant to 43.3(2);

(4) The final installation is approved based on an on-site review and inspection by department staff; and

(5) The installation includes only the prepackaged delivery of chemicals (from sacks, containers, or carboys) and does not include the bulk storage or transfer of chemicals (from a delivery vehicle).

b. Self-contained treatment unit, if all the following conditions are met:

(1) The equipment is of a type which can be purchased "off the shelf," is self-contained requiring only a piping hookup for installation and operates throughout a range of 35 to 80 pounds per square inch;

(2) The plant is designed to serve no more than an average of 250 individuals per day;

(3) The department receives adequate information from the supplier of water on the type of treatment unit, such as manufacturer's specifications, a schematic indicating the installation's location within the system and any other information necessary for review by the department to determine if the installation will alleviate the maximum contaminant level violation; and

(4) The final installation is approved based on an on-site inspection by department staff.

43.3(5) *Project planning and basis of design.* An engineering report containing information and data necessary to determine the conformance of the project to the standards for construction and operation in 43.3(2) and the adequacy of the project to supply water in sufficient quantity and at sufficient pressure and of a quality that complies with drinking water standards pursuant to 567—Chapters 41 and 43 must be submitted to the department either with the project or in advance.

a. Such information and data must supply pertinent information as set forth in part one of the Ten States Standards.

b. The department may reject receipt or delay review of the plans and specifications until an adequate basis of design is received.

43.3(6) *Standard specifications for water main construction.* Standard specifications for water main construction by an entity may be submitted to the department or an authorized local public works department for approval. Such approval shall apply to all future water main construction by or for that entity for which plans are submitted with a statement requiring construction in accordance with all applicable approved standard specifications unless the standards for public water supply systems specified in 43.3(2) are modified subsequent to such approval and the standard specifications would not be approvable under the modified standards. In those cases where such approved specifications are on file, construction may commence 30 days following receipt of such plans by the department or an authorized local public works department if no response has been received indicating construction shall not commence until a permit is issued.

43.3(7) *Site, separation distance, and monitoring requirements for new raw water source(s) and underground finished water storage facilities.*

a. *Approval required.* The site for each proposed raw water supply source or finished water below-ground level storage facility must be approved by the department prior to the submission of plans and specifications.

b. *Criteria for approval.* A site may be approved by the director if the director concludes that the criteria in this paragraph are met.

(1) Groundwater source. Wells shall be planned and constructed to adapt to the geologic and groundwater conditions of the proposed well site to ensure production of water from the wells that is both microbially safe and free of substances that could cause harmful human health effects. Groundwater wells must meet the following requirements:

1. Drainage must be directed away from the well in all directions for a minimum radius of 15 feet.

2. A well site must be separated from contamination sources by the distances specified in Table A at a minimum.

3. After the well site has received preliminary approval from the department, the owner of the proposed well must submit proof of legal control of the land for a 200-foot radius around the well, through purchase, lease, easement, ordinance, or other similar means. Proof of legal control must be submitted as part of the construction permit application, prior to construction. The legal control must be maintained by the public water system for the life of the well, and the system must ensure that the siting criteria indicated in Table A are met.

However, if the proposed well is for an existing noncommunity water system and is replacing an existing well that either does not meet the current standards or is in poor condition, the requirement of 200-foot legal control may be waived by the department provided that:

- The proposed well is located on the best available site;
- The existing facility does not have adequate land to provide the 200-foot control zone;
- The owner has attempted to obtain legal control without success; and
- There is no other public water supply available to which the supply could connect.

4. When the proposed well is located in an existing well field and will withdraw water from the same aquifer as the existing well(s), individual separation distances may be waived if substantial historical data are available indicating that no contamination has resulted.

5. No well shall be constructed within the projected plume of any known anthropogenic groundwater contamination without the department's written approval. The department may allow a well to be constructed within a contamination plume if the applicant can provide adequate treatment to ensure that all drinking water standards are met and that the pumpage of the proposed well will not cause migration of the plume such that it impacts the water quality of other nearby wells. The applicant must demonstrate, using a hydrogeologic model acceptable to the department, that the time of transport is greater than two years for a viral, bacterial, or other microorganism contaminant and greater than ten years for all chemical contaminants. At a minimum, modeling of the projected plume must take into account the proposed pumpage rate of the well. The department may require additional construction standards for these situations to ensure protection of the groundwater from contamination.

6. The department may require that an identification tag be applied to each well and may supply the numbered tag. The responsibility for ensuring that the tag is properly attached to the well is with the certified water well contractor for new wells and with the department for existing wells.

(2) Surface water source. The applicant must submit proof that a proposed surface water source can, through readily available treatment methodology, comply with 567—Chapters 41 and 43, and that the raw water source is adequately protected against potential health hazards including, but not limited to, point source discharges, hazardous chemical spills, and the potential sources of contamination listed in Table A.

After a surface water impoundment has received preliminary approval from the department for use as a raw water source, the owner of the water supply system shall submit proof of legal control through ownership, lease, easement, or other similar means, of contiguous land for a distance of 400 feet from the shoreline at the maximum water level. Legal control shall be for the life of the impoundment and shall control location of sources of contamination within the 400-foot distance. Proof of legal control should be submitted as part of the construction permit application and shall be submitted prior to issuance of a permit to construct.

(3) Below-ground storage facilities. The minimum separation between a below-ground level finished water storage facility and any source of contamination listed in Table A as being 50 feet or more shall be 50 feet. The specific separation distances listed in Table A that are less than 50 feet shall apply to a below-ground level finished water storage facility as indicated in the table.

(4) Separation distances. Greater separation distances may be required where necessary to ensure that no adverse effects to water supplies or the existing environment will result. Lesser separation distances may be considered if detailed justification is provided by the applicant's engineer showing that no adverse effects will result from a lesser separation distance, and the regional staff recommends approval of the lesser distance. Such exceptions must be based on special construction techniques or localized geologic or hydrologic conditions.

c. New source water monitoring requirements. Water quality monitoring shall be conducted on all new water sources and results submitted to the department prior to placing the new water source into service.

(1) All sources. Water samples shall be collected from each new water source and analyzed for all appropriate contaminants as specified in 567—Chapter 41 consistent with the particular water system classification. If multiple new sources are being added, compositing of the samples (within a single system) shall be allowed in accordance with the composite sampling requirements outlined

in 567—Chapter 41. A single sample may be allowed to meet this requirement, if approved by the department.

Subsequent water testing shall be conducted consistent with the water system's water supply operation permit monitoring schedule.

(2) Groundwater sources. Water samples collected from groundwater sources in accordance with 43.3(7)*"c"*(1) shall be conducted at the conclusion of the drawdown/yield test pumping procedure, with the exception of bacteriological monitoring. Bacteriological monitoring must be conducted after disinfection of each new well and subsequent pumping of the chlorinated water to waste. Water samples must be analyzed for ammonia. Water samples should also be analyzed for alkalinity, pH, calcium, chloride, copper, hardness, iron, magnesium, manganese, potassium, silica, specific conductance, sodium, sulfate, filterable and nonfilterable solids, and zinc.

(3) Surface water sources. Water samples collected from surface water sources in accordance with 43.3(7)*"c"*(1) should be collected prior to the design of the surface water treatment facility and shall be conducted and analyzed prior to utilization of the source. The samples shall be collected during June, July, and August. In addition, quarterly monitoring shall be conducted in March, June, September, and December at a location representative of the raw water at its point of withdrawal. Monitoring shall be for turbidity, alkalinity, pH, calcium, chloride, color, copper, hardness, iron, magnesium, manganese, potassium, silica, specific conductance, sodium, sulfate, filterable and nonfilterable solids, carbonate, bicarbonate, algae (qualitative and quantitative), total organic carbon, five-day biochemical oxygen demand, dissolved oxygen, surfactants, nitrogen series (organic, ammonia, nitrite, and nitrate), and phosphate.

TABLE A: SEPARATION DISTANCES

SOURCE OF CONTAMINATION	REQUIRED MINIMUM LATERAL DISTANCE FROM WELL AS HORIZONTAL ON THE GROUND SURFACE, IN FEET	
	Deep Well[1]	Shallow Well[1]
WASTEWATER STRUCTURES:		
Point of Discharge to Ground Surface		
Sanitary & industrial discharges	400	400
Water treatment plant wastes	50	50
Well house floor drains	5	5
Sewers & Drains[2]		
Sanitary & storm sewers, drains	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe
Sewer force mains	0 – 75 feet: prohibited 75 – 400 feet if water main pipe 400 – 1000 feet if sanitary sewer pipe	0 – 75 feet: prohibited 75 – 400 feet if water main pipe 400 – 1000 feet if sanitary sewer main pipe
Water plant treatment process wastes that are treated onsite	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer pipe	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer main pipe
Water plant wastes to sanitary sewer	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe
Well house floor drains to sewers	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer pipe	0 – 25 feet: prohibited 25 – 75 feet if water main pipe 75 – 200 feet if sanitary sewer main pipe
Well house floor drains to surface	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer pipe	0 – 5 feet: prohibited 5 – 50 feet if sanitary sewer main pipe

SOURCE OF CONTAMINATION	REQUIRED MINIMUM LATERAL DISTANCE FROM WELL AS HORIZONTAL ON THE GROUND SURFACE, IN FEET	
	Deep Well[1]	Shallow Well[1]
Land Disposal of Treated Wastes		
Irrigation of wastewater	200	400
Land application of solid wastes[3]	200	400
Other		
Cesspools & earth pit privies	200	400
Concrete vaults & septic tanks	100	200
Lagoons	400	1000
Mechanical wastewater treatment plants	200	400
Soil absorption fields	200	400
CHEMICALS:		
Chemical application to ground surface	100	200
Chemical & mineral storage above ground	100	200
Chemical & mineral storage on or under ground	200	400
Transmission pipelines (such as fertilizer, liquid petroleum, or anhydrous ammonia)	200	400
ANIMALS:		
Animal pasturage	50	50
Animal enclosure	200	400
Earthen silage storage trench or pit	100	200
Animal Wastes		
Land application of liquid or slurry	200	400
Land application of solids	200	400
Solids stockpile	200	400
Storage basin or lagoon	400	1000
Storage tank	200	400
MISCELLANEOUS:		
Basements, pits, sumps	10	10
Cemeteries	200	200
Cisterns	50	100
Flowing streams or other surface water bodies	50	50
GHEX loop boreholes	200	200
Railroads	100	200
Private wells	200	400
Solid waste landfills and disposal sites[4]	1000	1000

[1]Deep and shallow wells, as defined in 567—40.2(455B): A deep well is a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn. A shallow well is a well located and constructed in such a manner that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

[2]The separation distances are dependent upon two factors: the type of piping that is in the existing sewer or drain, as noted in the table, and that the piping was properly installed in accordance with the standards.

[3]Solid wastes are those derived from the treatment of water or wastewater. Certain types of solid wastes from water treatment processes may be land-applied within the separation distance on an individual, case-by-case basis.

[4]Solid waste means garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities.

43.3(8) *Drinking water system components.* Any drinking water system component which comes into contact with raw, partially treated, or finished water must be suitable for the intended use in a potable water system. The component must be certified by an American National Standards Institute (ANSI) accredited third party for conformance with American National Standards Institute/National Sanitation Foundation (ANSI/NSF) Standard 61 specifications, if such specification exists for the particular product, unless approved components are not reasonably available for use, in accordance with guidance provided by the department. If the component does not meet the ANSI/NSF Standard 61 specifications or no specification is available, the person seeking to supply or use the component must prove to the satisfaction of the department that the component is not toxic or otherwise a potential hazard in a potable public water supply system.

43.3(9) *Water treatment filter media material.* For single media filters, grain sizes up to 0.8 mm effective size may be approved for filters designed to remove constituents other than those contained in the primary drinking water standards. Pilot or full-scale studies demonstrating satisfactory treatment efficiency and operation with the proposed media will be required prior to issuing any construction permits which allow filter media sizes greater than 0.55 mm.

43.3(10) *Best available treatment technology.*

a. BATs for organic compounds. The department identifies as indicated in the table below either granular activated carbon (GAC), packed tower aeration (PTA), or oxidation (OXID) as the best available technology, treatment technique, or other means available for achieving compliance with the maximum contaminant level for organic contaminants identified in 567—paragraph 41.5(1)*"b."* For the purposes of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon.

ORGANIC CONTAMINANT	GAC	PTA	OXID
Alachlor	x		
Aldicarb	x		
Aldicarb sulfone	x		
Aldicarb sulfoxide	x		
Atrazine	x		
Benzene	x	x	
Benzo(a)pyrene	x		
Carbofuran	x		
Carbon tetrachloride	x	x	
Chlordane	x		
2,4-D	x		
Dalapon	x		
Dibromochloropropane (DBCP)	x	x	
o-Dichlorobenzene	x	x	
p-Dichlorobenzene	x	x	
1,2-Dichloroethane	x	x	
cis-1,2-Dichloroethylene	x	x	
trans-1,2-Dichloroethylene	x	x	
1,1-Dichloroethylene	x	x	

ORGANIC CONTAMINANT	GAC	PTA	OXID
Dichloromethane		x	
1,2-Dichloropropane	x	x	
Di(2-ethylhexyl)adipate	x	x	
Di(2-ethylhexyl)phthalate	x		
Dinoseb	x		
Diquat	x		
Endothall	x		
Endrin	x		
Ethylene dibromide (EDB)	x	x	
Ethylbenzene	x	x	
Glyphosate			x
Heptachlor	x		
Heptachlor epoxide	x		
Hexachlorobenzene	x		
Hexachlorocyclopentadiene	x	x	
Lindane	x		
Methoxychlor	x		
Monochlorobenzene	x	x	
Oxamyl (Vydate)	x		
Pentachlorophenol	x		
Picloram	x		
Polychlorinated biphenyls (PCB)	x		
Simazine	x		
Styrene	x	x	
2,4,5-TP (Silvex)	x		
Tetrachloroethylene	x	x	
1,2,4-Trichlorobenzene	x	x	
1,1,1-Trichloroethane	x	x	
1,1,2-Trichloroethane	x	x	
Trichloroethylene	x	x	
2,3,7,8-TCDD (Dioxin)	x		
Toluene	x	x	
Toxaphene	x		
Vinyl chloride		x	
Xylene	x	x	

b. BATs for inorganic compounds and radionuclides.

(1) Inorganic compounds. The department identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the inorganic contaminants listed in 567—paragraph 41.3(1)*"b,"* except fluoride.

INORGANIC CHEMICAL	BAT(s)
Antimony	2, 7
Arsenic[d]	1, 2, 5, 6, 7, 9, 11[e]
Asbestos	2, 3, 8
Barium	5, 6, 7, 9
Beryllium	1, 2, 5, 6, 7
Cadmium	2, 5, 6, 7
Chromium	2, 5, 6[b], 7
Cyanide	5, 7, 12
Mercury	2[a], 4, 6[a], 7[a]
Nickel	5, 6, 7
Nitrate	5, 7, 9
Nitrite	5, 7
Selenium	1, 2[c], 6, 7, 9
Thallium	1, 5

Key to BATs

1=Activated Alumina	5=Ion Exchange	9=Electrodialysis
2=Coagulation/Filtration*	6=Lime Softening*	10=Chlorine
3=Direct and Diatomite Filtration	7=Reverse Osmosis	11=Oxidation/Filtration
4=Granular Activated Carbon	8=Corrosion Control	12=Alkaline Chlorination (pH greater than or equal to 8.5)

*not BAT for systems with less than 500 service connections

[a]BAT only if influent Hg concentrations are less than or equal to 10 micrograms/liter.

[b]BAT for Chromium III only.

[c]BAT for Selenium IV only.

[d]BAT for Arsenic V. Preoxidation may be required to convert Arsenic III to Arsenic V.

[e]To obtain high removals, iron to arsenic ratio must be at least 20:1.

(2) Small system compliance technologies for arsenic. The department identifies in the following table the affordable technology, treatment techniques, or other means available to systems serving 10,000 or fewer persons for achieving compliance with the arsenic maximum contaminant level.

SMALL SYSTEM COMPLIANCE TECHNOLOGIES FOR ARSENIC[1]

Technology	Affordable for listed small system categories[2]
Activated alumina	All size categories
Coagulation/filtration[3]	501 – 3,300 and 3,301 – 10,000
Coagulation-assisted microfiltration	501 – 3,300 and 3,301 – 10,000
Electrodialysis reversal[4]	501 – 3,300 and 3,301 – 10,000
Enhanced coagulation/filtration	All size categories
Enhanced lime softening (pH > 10.5)	All size categories
Ion exchange	All size categories
Lime softening[3]	501 – 3,300 and 3,301 – 10,000
Oxidation/filtration[5]	All size categories
Reverse osmosis[4]	501 – 3,300 and 3,301 – 10,000

[1]Technologies are for Arsenic V. Preoxidation may be required to convert Arsenic III to Arsenic V.

[2]There are three categories of small systems: those serving 25 to 500 people, those serving 501 to 3,300 people, and those serving 3,301 to 10,000 people.

[3]Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.

[4]Technologies reject a large volume of water. May not be appropriate for areas where water quantity may be an issue.

[5]To obtain high removals, iron to arsenic ratio must be at least 20:1.

(3) Radionuclides.

1. The department identifies in the following table the best available technology for achieving compliance with the radionuclide maximum contaminant levels as indicated.

RADIONUCLIDE BAT

Contaminant	Best Available Technology
Gross alpha particle activity (excluding radon and uranium)	Reverse osmosis
Beta particle and photon radioactivity	Ion exchange, reverse osmosis
Combined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening
Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration

2. Small system compliance technologies. The following technologies are identified as radionuclide BAT for systems serving 10,000 or fewer people.

RADIONUCLIDES SMALL SYSTEM COMPLIANCE TECHNOLOGIES

Contaminant	Compliance Technology[a]
Gross alpha particle activity	2
Beta particle and photon radioactivity	1, 2
Combined radium-226 and radium-228	1, 2, 3, 4, 5, 6, 7
Uranium	1, 2[b], 3[b], 8, 9

[a]Compliance technologies are listed with their corresponding number and potential limitations for use, as follows:

1: Ion exchange. The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology.
2: Reverse osmosis. Reject water disposal options should be carefully considered before choosing this technology.
3: Lime softening. The complexity of the water chemistry may make this technology too complex for small systems.
4: Green sand filtration. Removal efficiencies can vary depending on water quality.
5: Coprecipitation with barium sulfate. This technology has limited applications to small systems, and is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.
6: Electrodialysis/electrodialysis reversal.
7: Pre-formed hydrous manganese oxide filtration. This technology is most applicable to small systems that have existing filtration technology.
8: Activated alumina. The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology. Handling of chemicals required during regeneration and pH adjustment requires an adequately trained operator.
9: Enhanced coagulation/filtration. This technology assumes that it is a modification to an existing coagulation/filtration process.

[b]Not recommended for systems serving 25 to 500 persons.

c. BATs for disinfection byproducts and disinfectants. The department identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the disinfection byproducts listed in 567—paragraph 41.5(2)*"b,"* and the maximum residual disinfectant levels listed in 567—paragraph 41.5(2)*"c."*

DBP MCL or MRDL	Best Available Technology
Bromate MCL	Control of ozone treatment process to reduce production of bromate
Chlorite MCL	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels
HAA5 and TTHM MCL running annual average	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant
HAA5 and TTHM MCL LRAA	• Non-consecutive system: Enhanced coagulation or enhanced softening, plus GAC10; or nanofiltration with a molecular weight cutoff that is less than or equal to 1000 Daltons; or GAC20 • Consecutive system serving at least 10,000 persons*: Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance • Consecutive system serving fewer than 10,000 persons*: Improved distribution system and storage tank management to reduce residence time
MRDL	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels

* Applies only to the disinfected water that consecutive systems buy or otherwise receive.

d. Requirement to install BAT. The department shall require community water systems and nontransient noncommunity water systems to install and use any treatment method identified in 43.3(10) as a condition for granting an interim contaminant level except as provided in paragraph *"e."* If, after the system's installation of the treatment method, the system cannot meet the maximum contaminant level, the system shall be eligible for a compliance schedule with an interim contaminant level granted under the provisions of 567—subrule 42.1(9) and rule 567—43.2(455B).

e. Engineering assessment option. If a system can demonstrate through comprehensive engineering assessments, which may at the direction of the department include pilot plant studies, that the treatment methods identified in 43.3(10) would only achieve a de minimis reduction in contaminants, the department may issue a schedule of compliance that requires the system being granted the variance to examine other treatment methods as a condition of obtaining the interim contaminant level.

f. Compliance schedule. If the department determines that a treatment method identified in 43.3(10)*"a," "b,"* and *"c"* is technically feasible, the department may require the system to install or use that treatment method in connection with a compliance schedule issued under the provisions of 567—subrule 42.1(9) and rule 567—43.2(455B). The determination shall be based upon studies by the system and other relevant information.

g. Avoidance of unacceptable risk to health (URTH). The department may require a public water system to use bottled water, point-of-use devices, point-of-entry devices or other means as a condition of granting a variance or an exemption, or issuance of a compliance schedule, from the requirements of 43.3(10) to avoid an unreasonable risk to health.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—43.4(455B) Certification of completion. Within 30 days after completion of construction, installation or modification of any project, the permit holder shall submit a certification by a licensed professional engineer that the project was completed in accordance with the approved plans and specifications except if the project received a waiver pursuant to 43.3(4).

567—43.5(455B) Filtration and disinfection for surface water and influenced groundwater public water supply systems.

43.5(1) *Applicability/general requirements.*

a. These rules apply to all public water supply systems using surface water or groundwater under the direct influence of surface water, in whole or in part, and establish criteria under which filtration is

required as a treatment technique. In addition, these rules establish treatment technique requirements in lieu of maximum contaminant levels for *Giardia lamblia*, heterotrophic plate count bacteria, *Legionella*, viruses and turbidity. Each public water system with a surface water source or a groundwater source under the direct influence of surface water must provide treatment of that source water which complies with these treatment technique requirements. Systems which serve at least 10,000 persons must also comply with the requirements of 567—43.9(455B). Systems which serve fewer than 10,000 persons must also comply with the requirements of 567—43.10(455B). The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

(1) At least 99.9 percent (3-log) removal or inactivation of *Giardia lamblia* cysts between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer; and

(2) At least 99.99 percent (4-log) removal or inactivation of viruses between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer.

b. Criteria for identification of groundwater under the direct influence of surface water. "Groundwater under the direct influence of surface water" means any water beneath the surface of the ground with: (1) significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia*, or (2) significant and relatively rapid shifts in water characteristics such as turbidity (particulate content), temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the department. The department determination of direct influence may be based on site-specific measurements of water quality or documentation of well construction characteristics and geology with field evaluation. Only surface water and groundwater sources under the direct influence of surface water that are at risk to the contamination from Giardia cysts are subject to the requirements of this rule. Groundwater sources shall not be subject to this rule. The evaluation process shall be used to delineate between surface water, groundwater under the direct influence of surface water and groundwater. The identification of a source as surface water and groundwater under the direct influence of surface water shall be determined for an individual source, by the department, in accordance with the following criteria. The public water supply shall provide to the department that information necessary to make the determination. The evaluation process will involve one or more of the following steps:

(1) Preliminary evaluation. The department shall conduct a preliminary evaluation of information on the source provided by the public water supply to determine if the source is an obvious surface water (e.g., pond, lake, stream) or groundwater under the direct influence of surface water. The source shall be evaluated during that period of highest susceptibility to influence from surface water. The preliminary evaluation may include a review of surveys, reports, geological information of the area, physical properties of the source, and a review of departmental and public water system records. If the source is identified as a surface water, no additional evaluation shall be conducted. If the source is a groundwater and identified as a deep well, it shall be classified as a groundwater not under the direct influence of surface water and no additional evaluation shall be conducted, unless through direct knowledge or documentation the source does not meet the requirements of 43.5(1)*"b"*(2). The deep well shall then be evaluated in accordance with 43.5(1)*"b"*(3). If the source is a shallow well, the source shall be evaluated in accordance with 43.5(1)*"b"*(2). If the source is a spring, infiltration gallery, radial collector well, or any other subsurface source, it shall be evaluated in accordance with 43.5(1)*"b"*(3).

(2) Well source evaluation. Shallow wells greater than 50 feet in lateral distance from a surface water source shall be evaluated for direct influence of surface water through a review of departmental or public water system files in accordance with 43.5(1)*"b"*(2)"1" and 43.5(1)*"b"*(2)"2." Sources that meet the criteria shall be considered to be not under the direct influence of surface water. No additional evaluation will be required. Shallow wells 50 feet or less in lateral distance from a surface water shall be in accordance with 43.5(1)*"b"*(3) and (4).

1. Well construction criteria. The well shall be constructed so as to prevent surface water from entering the well or traversing the casing.

2. Water quality criteria. Water quality records shall indicate:

- No record of total coliform or fecal coliform contamination in untreated samples collected over the past three years.
- No history of turbidity problems associated with the well, other than turbidity as a result of inorganic chemical precipitates.
- No history of known or suspected outbreak of Giardia or other pathogenic organisms associated with surface water (e.g., *Cryptosporidium*) which has been attributed to the well.

3. Other available data. If data on particulate matter analysis of the well are available, there shall be no evidence of particulate matter present that is associated with surface water. If information on turbidity or temperature monitoring of the well and nearby surface water is available, there shall be no data on the source which correlates with that of a nearby surface water.

4. Further evaluation. Wells that do not meet all the requirements listed shall require further evaluation in accordance with 43.5(1)*"b"*(3) and (4).

(3) Formal evaluation. The evaluation shall be conducted by the department or a licensed professional engineer at the direction of the public water supply. The evaluation shall include:

1. Complete file review. In addition to the information gathered in 43.5(1)*"b"*(1), the complete file review shall consider but not be limited to: design and construction details; evidence of direct surface water contamination; water quality analysis; indications of waterborne disease outbreaks; operational procedures; and customer complaints regarding water quality or water-related infectious illness. Sources other than a well source shall be evaluated in a like manner to include a field survey.

2. Field survey. A field survey shall substantiate findings of the complete file review and determine if the source is at risk to pathogens from direct surface water influence. The field survey shall examine the following criteria for evidence that surface water enters the source through defects in the source which include but are not limited to: a lack of a surface seal on wells, infiltration gallery laterals exposed to surface water, springs open to the atmosphere, surface runoff entering a spring or other collector, and distances to obvious surface water sources.

A report summarizing the findings of the complete file review and field survey shall be submitted to the department for final review and classification of the source. If the complete file review or field survey demonstrates conclusively that the source is subject to the direct surface water influence, the source shall be classified as under the direct influence of surface water. Either method or both may be used to demonstrate that the source is a surface water or groundwater under the direct influence of surface water. If the findings do not demonstrate conclusive evidence of direct influence of surface water, the analysis outlined in 43.5(1)*"b"*(4) should be conducted.

(4) Particulate analysis and physical properties evaluation.

1. Surface water indicators. Particulate analysis shall be conducted to identify organisms which only occur in surface waters as opposed to groundwaters, and whose presence in a groundwater would indicate the direct influence of surface water.

- Identification of a Giardia cyst, live diatoms, and blue-green, green, or other chloroplast containing algae in any source water shall be considered evidence of direct surface water influence.
- Rotifers and insect parts are indicators of surface water. Without knowledge of which species is present, the finding of rotifers indicates that the source is either directly influenced by surface water, or the water contains organic matter sufficient to support the growth of rotifers. Insects or insect parts shall be considered strong evidence of surface water influence, if not direct evidence.
- The presence of coccidia (e.g., *Cryptosporidium*) in the source water is considered a good indicator of direct influence of surface water. Other macroorganisms (greater than 7 um) which are parasitic to animals and fish such as, but not limited to, helminths (e.g., tapeworm cysts), ascaris, and Diphyllobothrium, shall be considered as indicators of direct influence of surface water.

2. Physical properties. Turbidity, temperature, pH and conductivity provide supportive, but less direct, evidence of direct influence of surface water. Turbidity fluctuations of greater than 0.5-1.0 NTU over the course of a year may be indicative of direct influence of surface water. Temperature fluctuations may also indicate surface water influence. Changes in other chemical parameters such as pH, conductivity, or hardness may also give an indirect indication of influence by nearby surface water.

c. Compliance. A public water system using a surface water source or a groundwater source under the direct influence of surface water is considered to be in compliance with the requirements of this subrule if it meets the filtration requirements in 43.5(3) and the disinfection requirements in 43.5(2) in accordance with the effective dates specified within the respective subrules.

d. Certified operator requirement. Each public water system using a surface water source or a groundwater source under the direct influence of surface water must be operated by a certified operator who meets the requirements of 567—Chapter 81.

43.5(2) *Disinfection.* All community and noncommunity public water supply systems using surface water or groundwater under the direct influence of surface water in whole or in part shall be required to provide disinfection in compliance with this subrule and filtration in compliance with 43.5(3). If the department has determined that filtration is required, the system must comply with any interim disinfection requirements the department deems necessary before filtration is installed. A system providing filtration on or before December 30, 1991, must meet the disinfection requirements of this subrule beginning June 29, 1993. A system providing filtration after December 30, 1991, must meet the disinfection requirements of this subrule when filtration is installed. Failure to meet any requirement of this subrule after the applicable date specified in this subrule is a treatment technique violation. The disinfection requirements are as follows:

a. *Disinfection treatment criteria.* The disinfection treatment must be sufficient to ensure that the total treatment processes of that system achieve at least 99.9 percent (3-log) inactivation or removal of *Giardia lamblia* cysts and at least 99.99 percent (4-log) inactivation or removal of viruses, acceptable to the department. At least 0.5 log inactivation of *Giardia lamblia* cysts must be achieved through disinfection treatment using a chemical disinfectant even if the required inactivation or removal is met or exceeded through physical treatment processes. Each system is required to calculate the total inactivation ratio ($CT_{calculated}/CT_{required}$) each day the treatment plant is in operation. The system's total inactivation ratio must be equal to or greater than 1.0 in order to ensure that the minimum inactivation and removal requirements have been achieved. If the system's total inactivation ratio for the day is below 1.0, the system must notify the department within 24 hours.

b. *Disinfection system.* The disinfection system must include:

(1) Redundant components, including an auxiliary power supply with automatic start-up and alarm to ensure that disinfectant application is maintained continuously while water is being delivered to the distribution system, or

(2) Automatic shutoff of delivery of water to the distribution system whenever there is less than 0.3 mg/L of residual disinfectant concentration in the water. If the department determines that automatic shutoff would cause unreasonable risk to health or interfere with fire protection, the system must comply with 43.5(2)*"b"*(1).

c. *Residual disinfectant entering system.* The residual disinfectant concentration in the water entering the distribution system, measured as specified in 43.5(4)*"a"*(5) and 43.5(4)*"b"*(2), cannot be less than 0.3 mg/L free residual or 1.5 mg/L total residual chlorine for more than four hours.

d. *Residual disinfectant in the system.* The residual disinfectant concentration in the distribution system, measured as total chlorine, combined chlorine, or chlorine dioxide, as specified in 43.5(4)*"a"*(5) and 43.5(4)*"b"*(2), cannot be undetectable in more than 5 percent of the samples each month for any two consecutive months that the system serves water to the public. Water within the distribution system with a heterotrophic plate count bacteria concentration less than or equal to 500/mL, measured as heterotrophic plate count (HPC) as specified in 567—paragraph 41.2(3)*"e,"* is deemed to have a detectable disinfectant residual for purposes of determining compliance with this requirement. Therefore, the value "V" in the following formula cannot exceed 5 percent in one month for any two consecutive months.

$$V = \left[\frac{c + d + e}{a + b}\right] \times 100$$

where:

a = number of instances in which the residual disinfectant concentration is measured;

b = number of instances in which the residual disinfectant concentration is not measured but heterotrophic plate count bacteria (HPC) is measured;

c = number of instances in which the residual disinfectant concentration is measured but not detected and no HPC is measured;

d = number of instances in which no residual disinfectant concentration is detected and where the HPC is greater than 500/mL; and

e = number of instances in which the residual disinfectant concentration is not measured and HPC is greater than 500/mL.

43.5(3) *Filtration.*

a. Applicability. A public water system that uses a surface water source or a groundwater source under the direct influence of surface water must provide treatment consisting of both disinfection, as specified in 43.5(2), and filtration treatment which complies with the turbidity requirements of subrules 43.5(3), 43.5(4), and 43.5(5). A system providing or required to provide filtration on or before December 30, 1991, must meet the requirements of this subrule by June 29, 1993. A system providing or required to provide filtration after December 30, 1991, must meet the requirements of this subrule when filtration is installed. Beginning January 1, 2002, systems serving at least 10,000 people must meet the turbidity requirements in 567—43.9(455B). Beginning January 1, 2005, systems serving fewer than 10,000 people must meet the turbidity requirements in 567—43.10(455B). A system shall install filtration within 18 months after the department determines, in writing, that filtration is required. The department may require and the system shall comply with any interim turbidity requirements the department deems necessary. Failure to meet any requirements of the referenced subrules after the dates specified is a treatment technique violation.

b. Conventional filtration treatment or direct filtration.

(1) For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.5 nephelometric turbidity units (NTU) in at least 95 percent of the measurements taken each month when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

c. Slow sand filtration.

(1) For systems using slow sand filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

d. Diatomaceous earth filtration.

(1) For systems using diatomaceous earth filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

e. Other filtration technologies. A public water system may use either a filtration technology not listed in 43.5(3)*"b"* to 43.5(3)*"d"* or a filtration technology listed in 43.5(3)*"b"* or 43.5(3)*"c"* at a higher turbidity level if it demonstrates to the department through a preliminary report submitted by a licensed professional engineer, using pilot plant studies or other means, that the alternative filtration technology in combination with disinfection treatment that meets the requirements of 43.5(2) consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* and 99.99 percent removal or inactivation of viruses. For a system that uses alternative filtration technology and makes this demonstration, the turbidity treatment technique requirements are as follows:

(1) The turbidity level of representative samples of a system's filtered water must be less than or equal to 1 NTU in at least 95 percent of the measurements taken each month when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 5 NTU when measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

Beginning January 1, 2002, systems serving at least 10,000 people must meet the requirements for other filtration technologies in 43.9(3)*"b."*

Beginning January 1, 2005, systems serving fewer than 10,000 people must meet the requirements for other filtration technologies in 567—43.10(455B).

43.5(4) *Analytical and monitoring requirements.*

a. Analytical requirements. Only the analytical method(s) specified in this paragraph, or otherwise approved by the department, may be used to demonstrate compliance with the requirements of 43.5(2) and 43.5(3). Measurements for pH, temperature, turbidity, and residual disinfectant concentrations must be conducted by a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform analysis under 567—Chapter 83. For consecutive public water supplies from a surface water or groundwater under the direct influence of surface water system, the disinfectant concentration analyses must be conducted by a certified operator who meets the requirements of 567—Chapter 81. Measurements for heterotrophic plate count bacteria must be conducted by a laboratory certified by the department to do such analysis.

(1) Turbidity analytical methodology. Turbidity analysis shall be conducted using the methodology in the following table. Each turbidimeter must be calibrated at least once every 90 days with a primary standard. The calibration of each turbidimeter used for compliance must be verified at least once per week with a primary standard, secondary standards, or the manufacturer's proprietary calibration confirmation device or by a method approved by the department. If the verification is not within plus or minus 0.05 NTU for measurements of less than or equal to 0.5 NTU, or within plus or minus 10 percent of measurements greater than 0.5 NTU, the turbidimeter must be recalibrated.

Methodology	Analytical Method				
	EPA	SM	GLI	HACH	Other
Nephelometric[5]	180.1[1]	2130B[2]	Method 2[3]	FilterTrak 10133[4]	
Laser Nephelometry (online)					Mitchell M5271[6]; Mitchell M5331 Rev. 1.2[10]
LED Nephelometry (online)					Mitchell M5331[7]; Mitchell M5331 Rev. 1.2[10]; AMI Turbiwell[9]
LED Nephelometry (portable)					Orion AQ4500[8]
360-degree Nephelometry					Hach Method 10258[11]

[1]"Methods for the Determination of Inorganic Substances in Environmental Samples," EPA-600/R-93-100, August 1993. Available at NTIS, PB94-121811.

[2]Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, 20th edition, 1998, 21st edition, 2005, and 22nd edition, 2012 (any of these editions may be used), American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[3]GLI Method 2, "Turbidity," November 2, 1992, Great Lakes Instruments, Inc., 8855 North 55th Street, Milwaukee, WI 53223.

[4]Hach FilterTrak Method 10133, "Determination of Turbidity by Laser Nephelometry," January 2000, Revision 2.0, Hach Co., P.O. Box 389, Loveland, CO 80539-0389, telephone (800)227-4224.

[5]Styrene divinyl benzene beads (e.g., AMCO-AEPA-1 or equivalent) and stabilized formazin (e.g., Hach StablCal™ or equivalent) are acceptable substitutes for formazin.

[6]Mitchell Method M5271, Revision 1.1. "Determination of Turbidity by Laser Nephelometry," March 5, 2009. Available at www.nemi.gov or from Leck Mitchell, 656 Independence Valley Drive, Grand Junction, CO 81507.

[7]Mitchell Method M5331, Revision 1.1. "Determination of Turbidity by LED Nephelometry," March 5, 2009. Available at www.nemi.gov or from Leck Mitchell, 656 Independence Valley Drive, Grand Junction, CO 81507.

[8]Orion Method AQ4500, Revision 1.0. "Determination of Turbidity by LED Nephelometry," May 8, 2009. Available at www.nemi.gov or from Thermo Scientific, 166 Cummings Center, Beverly, MA 01915, www.thermo.com.

[9]AMI Turbiwell, "Continuous Measurement of Turbidity Using a SWAN AMI Turbiwell Turbidimeter," August 2009. Available at www.nemi.gov or from Markus Bernasconi, SWAN Analytische Instrumente AG, Studbachstrasse 13, CH-8340 Hinwil, Switzerland.

[10]Mitchell Method M5331, Revision 1.2. "Determination of Turbidity by LED or Laser Nephelometry," February 2016. Available from Leck Mitchell, 656 Independence Valley Drive, Grand Junction, CO 81507.

[11]Hach Company. "Hach Method 10258 – Determination of Turbidity by 360-Degree Nephelometry," January 2016. Available at www.hach.com.

(2) Temperature analytical methodology. The temperature shall be determined in compliance with the methodology listed in 567—subparagraph 41.4(1)*"g"*(1).

(3) pH (hydrogen ion concentration) analytical methodology. The pH shall be determined in compliance with the methodology listed in 567—subparagraph 41.4(1)*"g"*(1).

(4) Heterotrophic plate count bacteria analytical methodology. The heterotrophic plate count bacteria sampling and analysis shall be conducted in compliance with 567—subrule 41.2(3) and 43.5(2)*"d."* The time from sample collection to initiation of analysis shall not exceed eight hours, and the samples must be held below 10 degrees C during transit.

(5) Residual disinfectant analytical methodology. The residual disinfectant concentrations shall be determined in compliance with one of the analytical methods in the following table. Residual disinfectant concentrations for free chlorine and combined chlorine may also be measured by using DPD colorimetric test kits. Free and total chlorine residuals may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument provided the chemistry, accuracy and precision remain the same. Instruments used for continuous monitoring must be verified with a grab sample measurement at least every seven days. The analyzer concentration must be within plus or minus 0.1 mg/L or plus or minus 15 percent (whichever is larger) of the grab sample measurement. If the verification is not within this range, immediate actions must be taken to resolve the issue and another verification must be conducted.

Disinfectant Analytical Methodology

Residual	Methodology	Standard Methods[1,2]	Standard Methods Online[6]	Other
Free chlorine	Amperometric Titration	4500-Cl D	4500-Cl D-00	D1253-03[4], 08, 14
	DPD Ferrous Titrimetric	4500-Cl F	4500-Cl F-00	
	DPD Colorimetric	4500-Cl G	4500-Cl G-00	Hach Method 10260[10]
	Syringaldazine (FACTS)	4500-Cl H	4500-Cl H-00	
	Online Chlorine Analyzer			EPA 334.0[7]
	Amperometric Sensor			ChloroSense[8]
	Indophenol Colorimetric			Hach Method 10241[11]
Total chlorine	Amperometric Titration	4500-Cl D	4500-Cl D-00	D1253-03[4], 08, 14
	Amperometric Titration (low-level measurement)	4500-Cl E	4500-Cl E-00	
	DPD Ferrous Titrimetric	4500-Cl F	4500-Cl F-00	
	DPD Colorimetric	4500-Cl G	4500-Cl G-00	Hach Method 10260[10]
	Iodometric Electrode	4500-Cl I	4500-Cl I-00	
	Online Chlorine Analyzer			EPA 334.0[7]
	Amperometric Sensor			ChloroSense[8]
Chlorine dioxide	Amperometric Titration	4500-ClO_2 C	4500-$C10_2$ C-00	
	DPD Method	4500-ClO_2 D		
	Amperometric Titration	4500-ClO_2 E	4500-$C10_2$ E-00	
	Amperometric Sensor			ChlordioX Plus[9]
	Spectrophotometric			327.0, Revision 1.1[5]
Ozone	Indigo method	4500-O_3 B[3]	4500-O_3 B-97	

[1]Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992, 19th edition, 1995, 20th edition, 1998, 21st edition, 2005, or 22nd edition, 2012 (any of these editions may be used), American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710. Only the 18th, 19th, and 20th editions may be used for chlorine dioxide Method 4500-ClO_2 D.

[2]Other analytical test procedures are contained within Technical Notes on Drinking Water Methods, EPA-600/R-94-173, October 1994, which is available as NTIS PB95-104766.

[3]Standard Methods for the Examination of Water and Wastewater, 18th edition (1992), 19th edition (1995), 21st edition (2005), and 22nd edition (2012) (any edition may be used); American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710.

[4]Annual Book of ASTM Standards, Vol. 11.01, 2004; ASTM International; any year containing the cited version of the method may be used. Copies of this method may be obtained from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

[5]EPA Method 327.0, Revision 1.1, "Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry," US EPA, May 2005, EPA 815-R-05-008. Available online at www.nemi.gov.

[6]Standard Methods Online is available at www.standardmethods.org. The year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that may be used.

[7]EPA Method 334.0, "Determination of Residual Chlorine in Drinking Water Using an On-Line Chlorine Analyzer," August 2009. EPA 815-B-09-013. Available at www.nemi.gov.

[8]ChloroSense, "Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense," September 2009. Available at www.nemi.gov or from Palintest Ltd., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY 41018.

[9]ChlordioX Plus. "Chlorine Dioxide and Chlorite in Drinking Water by Amperometry Using Disposable Sensors," November 2013. Available from Palintest Ltd., Jamike Avenue (Suite 100), Erlanger, KY 41018.

[10]Hach Company. "Hach Method 10260 – Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-Filled Cuvettes and Mesofluidic Channel Colorimetry," April 2013. Available at www.hach.com.

[11]Hach Company. "Hach Method 10241 – Spectophotometric Measurement of Free Chlorine in Finished Drinking Water," November 2015, Revision 1.2. Available at www.hach.com.

b. Monitoring requirements. A public water system that uses a surface water source or groundwater source under the influence of surface water must monitor in accordance with this paragraph.

(1) Turbidity.

1. Routine turbidity monitoring requirements. Turbidity measurements as required by 43.5(3) must be performed on representative samples of the system's filtered water every four hours (or more frequently as long as measurements are recorded at equal time intervals and detailed in the turbidity protocol) that the system serves water to the public. A public water system may substitute continuous turbidity monitoring for grab sample monitoring or may monitor more frequently than every four hours if it validates the continuous measurement for accuracy on a regular basis using a turbidity protocol approved by the department and audited for compliance during sanitary surveys. Major elements of the protocol shall include, but are not limited to: sample measurement location, method of calibration, calibration frequency, calibration standards, method of verification, verification frequency, documentation, data collection, data recording frequency, and data reporting. For any systems using slow sand filtration or filtration treatment other than conventional treatment, direct filtration, or diatomaceous earth filtration, the department may reduce the sampling frequency to once per day if it determines that less frequent monitoring is sufficient to indicate effective filtration performance. For systems serving 500 or fewer persons, the department may reduce the turbidity sampling frequency to once per day, regardless of the type of filtration treatment used, if the department determines that less frequent monitoring is sufficient to indicate effective filtration performance. Approval shall be based upon documentation provided by the system, acceptable to the department and pursuant to the conditions of an operation permit.

2. Turbidity monitoring requirements for population greater than 100,000. A supplier of water serving a population or population equivalent of greater than 100,000 persons shall provide a continuous or rotating cycle turbidity monitoring and recording device or take hourly grab samples to determine

compliance with 43.5(3). The system must meet the requirements in 43.5(4)*"b"*(1)"1," including the turbidity protocol.

3. Failure of the continuous turbidity monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is repaired and back online. A system has a maximum of five working days after failure to repair the equipment or else the system is in violation. The system must notify the department within 24 hours of both when the turbidimeter was taken offline and when it was returned online.

(2) Residual disinfectant.

1. Residual disinfectant entering the system. The residual disinfectant concentration of the water entering the distribution system shall be monitored continuously, and the lowest value recorded each day, except that if there is a failure in the continuous monitoring equipment, grab sampling every four hours may be conducted in lieu of continuous monitoring, but not to exceed five working days following the failure of the equipment. If acceptable to the department, systems serving 3,300 or fewer persons may take grab samples in lieu of providing continuous monitoring on an ongoing basis at the frequencies prescribed below:

Residual Disinfectant Samples Required of Surface Water or IGW PWS

System size (persons served)	Samples per day*
500 or fewer	1
501 to 1,000	2
1,001 to 2,500	3
2,501 to 3,300	4

*When more than one grab sample is required per day, the day's samples cannot be taken at the same time. The sampling intervals must be at a minimum of four-hour intervals.

If at any time the disinfectant concentration falls below 0.3 mg/L free residual or 1.5 mg/L total residual chlorine in a system using grab sampling in lieu of continuous monitoring, the system shall take a grab sample every four hours until the residual disinfectant concentration is equal to or greater than 0.3 mg/L free residual or 1.5 mg/L total residual chlorine.

2. Residual disinfectant in the system. The residual disinfectant concentration must be measured at least daily in the distribution system. Residual disinfectant measurements that are required as part of the total coliform bacteria sample collection under 567—subparagraph 41.2(1)*"c"*(7) shall be used to satisfy this requirement on the day(s) when a bacteria sample(s) is collected. The department may allow a public water system that uses both a groundwater source and a surface water source or a groundwater source under direct influence of surface water to take residual disinfectant samples at points other than the total coliform sampling points, if these points are included as a part of the coliform sample site plan meeting the requirements of 567—paragraph 41.2(1)*"c"*(1)"1" and if the department determines that such points are representative of treated (disinfected) water quality within the distribution system. Heterotrophic plate count bacteria (HPC) may be measured in lieu of residual disinfectant concentration, using the analytical methods specified in 567—subparagraph 41.2(3)*"e"*(1). The time from sample collection to initiation of analysis shall not exceed eight hours. HPC samples must be kept below 10 degrees C during transit to the laboratory. All HPC samples must be analyzed by a department-certified laboratory meeting the requirements of 567—Chapter 83.

43.5(5) *Reporting requirements.* Public water supplies shall report the results of routine monitoring required to demonstrate compliance with 567—43.5(455B) and treatment technique violations as follows:

a. Waterborne disease outbreak. Each system, upon discovering that a waterborne disease outbreak potentially attributable to that water system has occurred, must report that occurrence to the department as soon as possible, but no later than by the end of the next business day.

b. Turbidity exceeds 5 NTU. If at any time the turbidity exceeds 5 NTU, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

c. Residual disinfectant entering distribution system below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine. If at any time the residual falls below 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine in the water entering the distribution system, the system must notify the department as soon as possible, but no later than by the end of the next business day. The system also must notify the department by the end of the next business day whether or not the residual was restored to at least 0.3 mg/L free residual chlorine or 1.5 mg/L total residual chlorine within four hours.

d. Routine monitoring reporting requirements. Routine monitoring results shall be provided as part of the monthly operation reports in accordance with 567—40.3(455B) and 567—subrule 42.4(3).

e. Total inactivation ratio below 1.0. If the system's total inactivation ratio for the day is below 1.0, the system must notify the department within 24 hours.

43.5(6) *Filter backwash recycle provisions.* All surface water or influenced groundwater systems that employ conventional filtration or direct filtration treatment and that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes must meet the requirements of this subrule.

a. Reporting. A system must notify the department in writing by December 8, 2003, if the system recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification must include the following information at a minimum:

(1) A plan schematic showing the origin of all flows which are recycled (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance used to transport them, and the location where they are reintroduced back into the treatment plant.

(2) Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experience in the previous year (in gpm), design flow for the treatment plant (in gpm), the minimum plant rate (in gpm) during which the filter backwash will be recycled, and department-approved operating capacity for the plant where the department has made such determinations.

b. Treatment technique requirement. Any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must return these flows through the processes of a system's existing conventional or direct filtration system as defined in 567—40.2(455B) or at an alternate location approved by the department by June 8, 2004. However, if capital improvements are required to modify the recycle location to meet this requirement, all capital improvements must be completed no later than June 8, 2006.

c. Record keeping. The system must collect and retain on file the recycle flow information specified below for review and evaluation by the department beginning June 8, 2004.

(1) A copy of the recycle notification and information submitted to the department under paragraph *"a"* of this subrule.

(2) A list of all recycle flows and the frequency with which they are returned.

(3) The average and maximum backwash flow rate through the filters and the average and maximum duration of the filter backwash process in minutes.

(4) The typical filter run length and a written summary of how filter run length is determined.

(5) The type of treatment provided for the recycle flow.

(6) Data on the physical dimensions of the equalization and treatment units, typical and maximum hydraulic loading rates, type of treatment chemicals used including average dose and frequency of use, and frequency at which solids are removed, if applicable.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—43.6(455B) Residual disinfectant and disinfection byproduct precursors.

43.6(1) *Residual disinfectant.*

a. Applicability.

(1) CWS and NTNC systems. This rule establishes criteria under which CWS and NTNC public water supply systems that add a chemical disinfectant to the water in any part of the drinking water treatment process or that provide water that contains a chemical disinfectant must modify their practices to meet the MCLs listed in 567—41.6(455B), the maximum residual disinfectant levels (MRDL) listed in this subrule, and treatment technique requirements for disinfection byproduct precursors listed in subrule 43.6(3).

(2) TNC systems with chlorine dioxide disinfection. This rule establishes criteria under which TNC public water supply systems that use chlorine dioxide as a disinfectant or oxidant must modify their practices to meet the chlorine dioxide MRDL listed in paragraph 43.6(1)*"b."*

(3) Compliance dates. Compliance dates for this rule are based upon the source water type and the population served. Systems are required to comply with this rule as follows, unless otherwise noted:

1. Surface water and IGW CWS and NTNC. CWS and NTNC systems using surface water or groundwater under the direct influence of surface water (IGW) in whole or in part and which serve 10,000 or more persons must comply with this rule beginning January 1, 2002. CWS and NTNC surface water or IGW systems serving fewer than 10,000 persons must comply with this rule beginning January 1, 2004.

2. Groundwater CWS and NTNC. CWS and NTNC systems using only groundwater not under the direct influence of surface water must comply with this rule beginning January 1, 2004.

3. TNC using chlorine dioxide. TNC systems serving over 10,000 persons and using surface water or groundwater under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this rule beginning January 1, 2002. TNC systems serving 10,000 persons or less, regardless of source water type, and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide in this rule beginning January 1, 2004.

4. Extension of compliance period for GAC or membrane technology installation. A system that is installing GAC or membrane technology to comply with this rule may apply to the department for an extension of up to 24 months past the dates in 43.6(1)*"a"*(3), but not beyond December 31, 2003. In granting the extension, the department will set a schedule for compliance and may specify any interim measures the system must take. Failure to meet a compliance schedule or interim treatment requirements constitutes a violation of the public drinking water supply rules, requires public notification per 567—subrule 42.1(1), and may result in an administrative order.

(4) Control of residual disinfectants. Notwithstanding the MRDLs in this rule, systems may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(5) Consecutive systems. Consecutive systems that provide water containing a disinfectant or oxidant are required to comply with this rule.

(6) Systems with multiple water sources. Systems with water sources that are used independently from each other, are not from the same source as determined by the department, or do not go through identical treatment processes are required to conduct the monitoring for the applicable disinfectants or oxidants and disinfection byproducts during operation of each source. The system must comply with this rule during the use of each water source.

b. Maximum residual disinfectant levels. Maximum residual disinfectant levels (MRDLs) are as follows:

Disinfection Residual	MRDL (mg/L)
Chloramines	4.0 as Cl_2
Chlorine	4.0 as Cl_2
Chlorine dioxide	0.8 as ClO_2

c. Monitoring requirements for residual disinfectants.

(1) General requirements.

1. Systems must take all samples during normal operating conditions. If the system does not use the disinfectant or oxidant on a daily basis, the system must conduct the required daily monitoring each day the disinfectant or oxidant is used, and any required monthly monitoring during those months in which the disinfectant or oxidant is used during any portion of the month.

2. Failure to monitor in accordance with the monitoring plan required under 43.6(1)*"c"*(1)"5" is a monitoring violation.

3. Failure to monitor is a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs.

4. Systems may use only data collected under the provisions of this rule or of 567—41.6(455B) to qualify for reduced monitoring.

5. Systems required to monitor under the provisions of this rule or of 567—41.6(455B) must develop and implement a monitoring plan, in accordance with 567—paragraph 41.6(1)*"c"*(1)"6."

(2) Chlorine and chloramines.

1. Routine monitoring. Community and nontransient noncommunity water systems that use chlorine or chloramines must measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in 567—subrule 41.2(1). Surface water and groundwater under the direct influence of surface water systems may use the results of residual disinfectant concentration sampling conducted under 43.5(4)*"b"*(2)"2," in lieu of taking separate samples.

2. Reduced monitoring. Chlorine and chloramine monitoring may not be reduced.

(3) Chlorine dioxide.

1. Routine monitoring. Any public water supply systems that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system must take samples in the distribution system the following day at the locations required by 43.6(1)*"c"*(3)"2," in addition to the sample required at the entrance to the distribution system.

2. Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three chlorine dioxide distribution system samples.

- If chlorine dioxide or chloramines are used to maintain a residual disinfectant in the distribution system, or if chlorine is used to maintain a residual disinfectant in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system must take three samples as close to the first customer as possible, at intervals of at least six hours.
- If chlorine is used to maintain a residual disinfectant in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

3. Reduced monitoring. Chlorine dioxide monitoring may not be reduced.

d. Analytical requirements for residual disinfectants.

(1) Analytical methods. Systems must measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in the following table:

Approved Methods for Residual Disinfectant Compliance Monitoring

Methodology	Standard Methods	Other Method	Residual measured[1]			
			Free Chlorine	Combined Chlorine	Total Chlorine	Chlorine Dioxide
Amperometric Titration	4500-Cl D	ASTM: D 1253-86 (96), 03, 08, 14	X	X	X	
Low Level Amperometric Titration	4500-Cl E				X	
DPD Ferrous Titrimetric	4500-Cl F		X	X	X	
DPD Colorimetric	4500-Cl G	Hach Method 10260[4]	X	X	X	
Syringaldazine (FACTS)	4500-Cl H		X			
Amperometric Sensor		ChloroSense[3]	X		X	
Online Chlorine Analyzer		EPA 334.0[2]	X		X	
Indophenol Colorimetric		Hach Method 10241[6]	X	X	X	
Iodometric Electrode	4500-Cl I				X	
DPD	4500-ClO_2 D					X
Amperometric Method II	4500-ClO_2 E					X
Lissamine Green Spectrophotometric		EPA: 327.0 Rev. 1.1				X
Amperometric Sensor		ChlordioX Plus[5]				X

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street, SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC 20408.

The following method is available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428:

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 1996: Method D 1253-86.

The following methods are available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710:

Standard Methods for the Examination of Water and Wastewater, 19th (1995), 20th (1998), 21st (2005), and 22nd (2012) editions, American Public Health Association: Methods: 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-Cl I, 4500-ClO_2 E. Only the 19th and 20th editions may be used for the chlorine dioxide Method 4500-ClO_2 D.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

"Determination of Chlorine Dioxide and Chlorite Ion in Drinking Water Using Lissamine Green B and Horseradish Peroxidase with Detection by Visible Spectrophotometry, Revision 1.1," USEPA, May 2005, EPA 815-R-05-008.

[1]X indicates method is approved for measuring specified residual disinfectant. Free chlorine or total chlorine may be measured for demonstrating compliance with the chlorine MRDL, and combined chlorine or total chlorine may be measured for demonstrating compliance with the chloramine MRDL.

[2]EPA Method 334.0, "Determination of Residual Chlorine in Drinking Water Using an On-Line Chlorine Analyzer," August 2009. EPA 815-B-09-013. Available at www.epa/gov/safewater/methods/analyticalmethods_ogwdw.html.

[3]ChloroSense, "Measurement of Free and Total Chlorine in Drinking Water by Palintest ChloroSense," September 2009. Available at www.nemi.gov or from Palintest Ltd., 21 Kenton Lands Road, P.O. Box 18395, Erlanger, KY 41018.

[4]Hach Method 10260, "Determination of Chlorinated Oxidants (Free and Total) in Water Using Disposable Planar Reagent-Filled Cuvettes and Mesofluidic Channel Colorimetry," April 2013. Available at Hach Company, P.O. Box 389, Loveland, CO 80539, or www.hach.com.

[5]ChlordioX Plus. "Chlorine Dioxide and Chlorite in Drinking Water by Amperometry Using Disposable Sensors," November 2013. Available from Palintest Ltd., Jamike Avenue (Suite 100), Erlanger, KY 41018.

[6]Hach Company. "Hach Method 10241 – Spectrophotometric Measurement of Free Chlorine in Finished Drinking Water," November 2015, Revision 1.2. Available at www.hach.com.

(2) Test kit use. Systems may also measure residual disinfectant concentrations for chlorine, chloramines, and chlorine dioxide by using DPD colorimetric test kits acceptable to the department. Free and total chlorine residual disinfectant concentrations may be measured continuously by adapting a specified chlorine residual method for use with a continuous monitoring instrument provided the chemistry, accuracy, and precision remain the same. Instruments used for continuous monitoring must be calibrated with a grab sample measurement at least every five days.

(3) Operator requirement. Measurements for residual disinfectant concentration shall be conducted by a Grade A through IV operator meeting the requirements of 567—Chapter 81, any person under the direct supervision of a Grade A through IV operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform analysis under 567—Chapter 83.

e. Compliance requirements for residual disinfectants.

(1) General requirements.

1. When compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

2. All samples taken and analyzed under the provisions of this rule must be included in determining compliance, even if that number is greater than the minimum required.

(2) Chlorine and chloramines.

1. Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under 43.6(1)*"c"*(2). If the average covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and must notify the public pursuant to 567—42.1(455B), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

2. In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to 567—paragraph 42.4(3)*"d"* must clearly indicate which residual disinfectant was analyzed for each sample.

(3) Chlorine dioxide.

1. Acute violations. Compliance must be based on consecutive daily samples collected by the system under 43.6(1)*"c"*(3). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one or more of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify the public pursuant to the Tier 1 requirements in 567—subrule 42.1(2) in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."* Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system must notify the public of the violation in accordance with the provisions for Tier 1 violations in 567—subrule 42.1(2), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

2. Nonacute violations. Compliance must be based on consecutive daily samples collected by the system under 43.6(1)*"c"*(3). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the Tier 2 requirements in 567—subrule 42.1(3), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."* Failure to monitor at the entrance to the distribution system the day following an exceedance of the

chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system must notify the public of the violation in accordance with the provisions for Tier 2 violations in 567—subrule 42.1(3), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

f. Reporting requirements for disinfectants. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected. The specific reporting requirements for disinfectants are listed in 567—subparagraph 42.4(3)*"d"*(3).

43.6(2) *Disinfection byproduct precursors.*

a. Applicability.

(1) Surface water or IGW CWS and NTNC systems with conventional filtration. This rule establishes criteria under which surface water or influenced groundwater CWS and NTNC public water supply systems using conventional filtration treatment, as defined in 567—40.2(455B), that add a chemical disinfectant to the water in any part of the drinking water treatment process or which provide water that contains a chemical disinfectant must modify their practices to meet the MCLs listed in 567—41.6(455B) and the maximum residual disinfectant levels (MRDL) and treatment technique requirements for disinfection byproduct precursors listed in this rule.

(2) CWS and NTNC systems using ozone treatment. CWS and NTNC systems that use ozone in their treatment process must comply with the bromide requirements of this subrule.

(3) Compliance dates. Compliance dates for this rule are based upon the population served. CWS and NTNC systems using surface water or groundwater under the direct influence of surface water in whole or in part and which serve 10,000 or more persons must comply with this rule beginning January 1, 2002; while those systems serving fewer than 10,000 persons must comply with this rule beginning January 1, 2004.

(4) The department may require groundwater systems to conduct monitoring for disinfection byproduct precursors as a part of an operation permit.

b. Monitoring requirements for disinfection byproduct precursors.

(1) Routine monitoring for total organic carbon (TOC).

1. Surface water and groundwater under the direct influence of surface water systems which use conventional filtration treatment must monitor each treatment plant for total organic carbon (TOC) no later than at the point of combined filter effluent turbidity monitoring and representative of the treated water. The systems must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired set of source water and treated water samples and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

2. Surface water and groundwater under the direct influence of surface water systems which do not use conventional filtration treatment must conduct the TOC monitoring under 43.6(2)*"b"*(1)"1" in order to qualify for reduced disinfection byproduct monitoring for TTHM and HAA5 under 567—paragraph 41.6(1)*"c"*(4)"2." The source water TOC running annual average must be less than or equal to 4.0 mg/L based on the most recent four quarters of monitoring on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

(2) Reduced monitoring. The department may allow surface water and groundwater under the direct influence of surface water systems with an average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for one year, to reduce monitoring for both TOC and alkalinity to one set of paired samples and one source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC is greater than or equal to 2.0 mg/L.

(3) Bromide. The department may allow systems required to analyze for bromate to reduce bromate monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. The system must continue bromide monitoring to remain on reduced bromate monitoring.

(4) The department may assign disinfection byproduct precursor monitoring prior to the compliance dates in 43.6(2)*"a"*(3) as part of an operation permit.

c. Analytical requirements for disinfection byproduct precursors.

(1) Analytical methods. Systems required to monitor disinfectant byproduct precursors must use the following methods, which must be conducted by a certified laboratory pursuant to 567—Chapter 83, unless otherwise specified.

Approved Methods for Disinfection Byproduct Precursor Monitoring[1]

Analyte	Methodology	EPA	Standard Methods	ASTM	Other
Alkalinity[6]	Titrimetric		2320B	D 1067-92B	
	Electrometric titration				I-1030-85
Bromide	Ion chromatography	300.0			
		300.1			
		317.0 Rev. 2.0			
		326.0			
				D 6581-00	
Dissolved Organic Carbon[2] (DOC)	High temperature combustion	415.3 Rev. 1.2	5310B or 5310B-00		
	Persulfate-UV or heated-persulfate oxidation	415.3 Rev. 1.2	5310C or 5310C-00		
	Wet oxidation	415.3 Rev. 1.1, 415.3 Rev. 1.2	5310D or 5310D-00		
pH[3]	Electrometric	150.1	4500-H^+-B	D 1293-84	
		150.2			
Specific Ultraviolet Absorbance (SUVA)	Calculation using DOC and UV_{254} data	415.3 Rev. 1.2			
Total Organic Carbon[4]	High temperature combustion	415.3 Rev. 1.2	5310B or 5310B-00		
	Persulfate-UV or heated-persulfate oxidation	415.3 Rev. 1.2	5310C or 5310C-00		Hach Method 10267[7]
	Wet oxidation	415.3 Rev. 1.1, 415.3 Rev. 1.2	5310D or 5310D-00		
	Ozone Oxidation				Hach Method 10261[8]
Ultraviolet Absorption at 254 nm[5]	Spectrophotometry	415.3 Rev. 1.1, 415.3 Rev. 1.2	5910B or 5910B-00, 11		

[1]The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register on February 16, 1999, in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at (800)426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street, SW, Washington, DC 20460 (telephone: (202)260-3027); or at the Office of Federal Register, 800 North Capitol Street, NW, Suite 700, Washington, DC 20408.

The following methods are available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428:

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 1996: Method D 1067-92B and Method D 1293-84.

Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 2001 (or any year containing the cited version): Method D 6581-00.

The following methods are available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161 (telephone: (800)553-6847):

"Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0," EPA-600/R-98/118, 1997 (NTIS, PB98-169196): Method 300.1.

Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983, (NTIS PB84-128677): Methods 150.1 and 150.2.

Methods for the Determination of Inorganic Substances in Environmental Samples, EPA-600/R-93/100, August 1993, (NTIS PB94-121811): Method 300.0.

"Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography with the Addition of a Postcolumn Reagent for Trace Bromate Analysis, Revision 2.0," USEPA, July 2001, EPA 815-B-01-001: Method 317.0.

"Determination of Inorganic Oxyhalide Disinfection By-Products in Drinking Water Using Ion Chromatography Incorporating the Addition of a Suppressor Acidified Postcolumn Reagent for Trace Bromate Analysis, Revision 1.0," USEPA, June 2002, EPA 815-R-03-007: Method 326.0.

"Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water, Revision 1.1," USEPA, February 2005, EPA/600/R-05/055: Method 415.3 Revision 1.1.

"Determination of Total Organic Carbon and Specific UV Absorbance at 254 nm in Source Water and Drinking Water, Revision 1.2," USEPA, September 2009, EPA/600/R-09/122: Method 415.3 Revision 1.2.

The following methods are available from the American Public Health Association, 800 I Street, NW, Washington, DC 20001-3710:

Standard Methods for the Examination of Water and Wastewater, 19th (1995), 21st (2005), and 22nd (2012) editions, American Public Health Association: Methods: 2320B (20th edition, 1998, is also accepted for this method), 4500-H^+-B, and 5910B (22nd edition, 2012, is also accepted for this method).

Standard Methods for the Examination of Water and Wastewater, Supplement to the 19th edition (1996), 21st (2005), and 22nd editions, American Public Health Association: Methods: 5310B, 5310C, and 5310D.

For method numbers ending "-00", the year in which each method was approved by the Standard Methods Committee is designated by the last two digits in the method number. The methods listed are the only online versions that are IBR-approved.

Method I-1030-85 is available from the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, CO 80225-0425.

[2]Dissolved Organic Carbon (DOC). DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location, prior to the addition of any disinfectant or oxidant by the system. Prior to analysis, DOC samples must be filtered through a 0.45 μ pore-diameter filter, as soon as practical after sampling, not to exceed 48 hours. After filtration, DOC samples must be acidified to achieve pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified DOC samples must be analyzed within 28 days. Inorganic carbon must be removed from the samples prior to analysis. Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet a DOC concentration of <0.5 mg/L.

[3]pH must be measured by a laboratory certified by the department to perform analysis under 567—Chapter 83; a Grade II, III or IV operator meeting the requirements of 567—Chapter 81; or any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81.

[4]Total Organic Carbon (TOC). Inorganic carbon must be removed from the samples prior to analysis. TOC samples may not be filtered prior to analysis. TOC samples must be acidified at the time of sample collection to achieve a pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified TOC samples must be analyzed within 28 days.

[5]Ultraviolet Absorption at 254 nm (UV_{254}). DOC and UV_{254} samples used to determine a SUVA value must be taken at the same time and at the same location, prior to the addition of any disinfectant or oxidant by the system. UV absorption must be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV_{254} samples must be filtered through a 0.45 μ pore-diameter filter. The pH of UV_{254} samples may not be adjusted. Samples must be analyzed as soon as practical after sampling, not to exceed 48 hours.

[6]Alkalinity must be measured by a laboratory certified by the department to perform analysis under 567—Chapter 83; a Grade II, III or IV operator meeting the requirements of 567—Chapter 81; or any person under the supervision of a Grade II, III or IV operator meeting the requirements of 567—Chapter 81. Only the listed titrimetric methods are acceptable.

[7]Hach Company. "Hach Method 10267 – Spectrophotometric Measurement of Total Organic Carbon (TOC) in Finished Drinking Water," December 2015, Revision 1.2. Available at www.hach.com.

[8]Hach Company. "Hach Method 10261 – Total Organic Carbon in Finished Drinking Water by Catalyzed Ozone Hydroxyl Radical Oxidation Infrared Analysis," December 2015, Revision 1.2. Available at www.hach.com.

(2) SUVA. Specific Ultraviolet Absorbance (SUVA) is equal to the UV absorption at 254nm (UV_{254}) (measured in m^{-1}) divided by the dissolved organic carbon (DOC) concentration (measured as mg/L). In order to determine SUVA, it is necessary to separately measure UV_{254} and DOC. When determining SUVA, systems must use the methods stipulated in subparagraph 43.6(1)*"c"*(1) to measure DOC and UV_{254}. SUVA must be determined on water prior to the addition of disinfectants/oxidants by the system. DOC and UV_{254} samples used to determine an SUVA value must be taken at the same time and at the same location.

(3) Magnesium. All methods approved for magnesium in 567—subparagraph 41.3(1)*"e"*(1) are approved for use in measuring magnesium under this rule.

d. Compliance requirements for disinfection byproduct precursors.

(1) General requirements. All samples taken and analyzed under the provisions of this rule must be included in determining compliance, even if that number is greater than the minimum required.

(2) Compliance determination. Compliance must be determined as specified by 43.6(3)*"c."* The department may assign monitoring through an operation permit, or systems may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in 43.6(3)*"b"*(2), and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to 43.6(3)*"b"*(3) and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements anytime after the compliance date. For systems required to meet Step 1 TOC removals, if the value calculated under 43.6(3)*"c"*(1)"4" is less than 1.00, the system is in violation of the treatment technique requirements and must notify the public pursuant to 567—42.1(455B), in addition to reporting to the department pursuant to 567—paragraph 42.4(3)*"d."*

e. Reporting requirements for disinfection byproduct precursors. Systems required to sample quarterly or more frequently must report to the department within ten days after the end of each quarter in which samples were collected, notwithstanding the public notification provisions of 567—42.1(455B). Systems required to sample less frequently than quarterly must report to the department within ten days after the end of each monitoring period in which samples were collected. The specific reporting requirements for disinfection byproduct precursors are listed in 567—subparagraph 42.4(3)*"d"*(4).

43.6(3) *Treatment technique for control of disinfection byproduct precursors.*

a. Applicability.

(1) Systems using surface water or groundwater under the direct influence of surface water and conventional filtration treatment (as defined in 567—40.2(455B)) must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in paragraph *"b"* of this subrule unless the system meets at least one of the alternative compliance criteria listed in 43.6(3)*"a"*(2) or (3).

(2) Alternative compliance criteria for enhanced coagulation and enhanced softening systems. Systems using surface water or groundwater under the direct influence of surface water and conventional filtration treatment may use the alternative compliance criteria in 43.6(3)*"a"*(2)"1" through "6" to comply with this subrule in lieu of complying with 43.6(3)*"b."* Systems must still comply with monitoring requirements in 43.6(2)*"b."*

1. The system's source water TOC level, measured according to 43.6(2)*"c"*(1), is less than 2.0 mg/L, calculated quarterly as a running annual average.

2. The system's treated water TOC level, measured according to 43.6(2)*"c"*(1), is less than 2.0 mg/L, calculated quarterly as a running annual average.

3. The system's source water TOC level, measured according to 43.6(2)*"c"*(1), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to 43.6(2)*"c"*(1), is greater than 60 mg/L as $CaCO_3$, calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in 567—subparagraph 41.6(1)*"a"*(3) and in 43.6(1)*"a"*(3) and 43.6(2)*"a"*(3), the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in 567—subparagraph 41.6(1)*"a"*(3) and in 43.6(1)*"a"*(3) and 43.6(2)*"a"*(3), to use of technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively. Systems must submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the department for approval not later than the effective date for compliance in 567—subparagraph 41.6(1)*"a"*(3) and in 43.6(1)*"a"*(3) and 43.6(2)*"a"*(3). These technologies must be installed and operating not later than June 30, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a treatment technique violation.

4. The TTHM and HAA5 running annual averages are less than or equal to 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

5. The system's source water SUVA, prior to any treatment and measured monthly according to 43.6(2)*"c,"* is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

6. The system's finished water SUVA, measured monthly according to 43.6(2)*"c,"* is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(3) Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the TOC removals required by 43.6(3)*"b"*(2) may use the alternative compliance criteria in 43.6(3)*"a"*(3)"1" and "2" in lieu of complying with 43.6(3)*"b."* Systems must still comply with monitoring requirements in 43.6(2)*"b."*

1. Softening that lowers the treated water alkalinity to less than 60 mg/L as $CaCO_3$, measured monthly according to 43.6(2)*"c"* and calculated quarterly as a running annual average.

2. Softening that removes at least 10 mg/L of magnesium hardness as $CaCO_3$, measured monthly and calculated quarterly as a running annual average.

b. Enhanced coagulation and enhanced softening performance requirements.

(1) Systems must achieve the percent reduction of TOC specified in 43.6(3)*"b"*(2) between the source water and the combined filter effluent, unless the department approves a system's request for alternate minimum TOC removal (Step 2 requirements under 43.6(3)*"b"*(3)).

(2) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with 43.6(2)*"c."* Systems using softening are required to meet the Step 1 TOC reductions in the right-hand column (Source water alkalinity > 120 mg/L) for the specified source water TOC:

Step 1 Required Removal of TOC by Enhanced Coagulation and Enhanced Softening for Surface Water or IGW Systems Using Conventional Treatment[1,2]

	Source water Alkalinity, mg/L as $CaCO_3$		
Source water TOC, mg/L	0-60	>60-120	>120[3]
>2.0 - 4.0	35.0%	25.0%	15.0%
>4.0 - 8.0	45.0%	35.0%	25.0%
>8.0	50.0%	40.0%	30.0%

[1]Systems meeting at least one of the conditions in 43.6(3)*"a"*(2)"1" to "6" are not required to operate with enhanced coagulation.

[2]Softening systems meeting one of the alternative compliance criteria in 43.6(3)*"a"*(3) are not required to operate with enhanced softening.

[3]Systems practicing softening must meet the TOC removal requirements in this column.

(3) Surface water and groundwater under the influence of surface water systems using conventional treatment that cannot achieve the Step 1 TOC removals required by 43.6(3)*"b"*(2) due to water quality parameters or operational constraints must apply to the department for approval of alternative minimum Step 2 TOC removal requirements submitted by the system within three months of failure to achieve the TOC removals required by 43.6(3)*"b"*(2). If the department approves the alternative minimum Step 2 TOC removal requirements, the department may make those requirements retroactive for the purposes of determining compliance. The system must meet the Step 1 TOC removals contained in 43.6(3)*"b"*(2) until the department approves the alternate minimum Step 2 TOC removal requirements.

(4) Alternate minimum Step 2 TOC removal requirements. Applications made to the department by enhanced coagulation systems for approval of alternate minimum Step 2 TOC removal requirements under 43.6(3)*"b"*(3) must include, as a minimum, results of bench-scale or pilot-scale testing conducted under 43.6(3)*"b"*(4)"1" below and be used to determine the alternate enhanced coagulation level.

1. Alternate enhanced coagulation level. Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described in 43.6(3)*"b"*(4)"1" to "5" such that an incremental addition of 10 mg/L of alum (or equivalent amount of ferric salt) results in a TOC removal of less than or equal to 0.3 mg/L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the department, this minimum requirement supersedes the minimum TOC removal required by the table in 43.6(3)*"b"*(2). This requirement will be effective until such time as the department approves a new value based on the results of a new bench-scale or pilot-scale test. Failure to achieve department-set alternative minimum TOC removal levels is a treatment technique violation.

2. Bench-scale or pilot-scale testing of enhanced coagulation must be conducted by using representative water samples and adding 10 mg/L increments of alum (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following table:

Enhanced Coagulation Step 2 Target pH

Alkalinity (mg/L as $CaCO_3$)	Target pH
0-60	5.5
>60-120	6.3
>120-240	7.0
>240	7.5

3. For waters with alkalinities of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the system must add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (or equivalent addition of iron coagulant) is reached.

4. The system may operate at any coagulant dose or pH necessary (consistent with other public drinking water rules in 567—Chapters 41 through 43) to achieve the minimum TOC percent removal approved under 43.6(3)*"b"*(3).

5. If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The system may then apply to the department for a waiver of enhanced coagulation requirements.

c. Compliance calculations.

(1) Surface water or groundwater under the influence of surface water systems other than those identified in 43.6(3)*"a"*(2) or (3) must comply with requirements contained in 43.6(3)*"b"*(2) or (3). Systems must calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method:

1. Step 1: Determine actual monthly TOC percent removal using the following equation, to two decimal places:

$$\text{Actual monthly TOC percent removal} = 1 - \left(\frac{\text{treated water TOC}}{\text{source water TOC}}\right) \times 100$$

2. Step 2: Determine the required monthly TOC percent removal from either 43.6(3)*"b"*(2) or (3).

3. Step 3: Divide the "actual monthly TOC percent removal" value (from Step 1) by the "required monthly TOC percent removal" value (from Step 2). Determine this value for each of the last 12 months.

$$\text{Monthly percent removal ratio} = \frac{\text{actual monthly TOC percent removal}}{\text{required monthly TOC percent removal}}$$

4. Step 4: Add together the "monthly percent removal ratio" values from Step 3 for each of the last 12 months and divide by 12, to determine the annual average value.

$$\text{Annual average} = \frac{\Sigma \text{ monthly percent removal ratio}}{12}$$

5. Step 5: If the "annual average" value calculated in Step 4 is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

(2) Systems may use the provisions in 43.6(3)*"c"*(2)"1" through "5" in lieu of the calculations in 43.6(3)*"c"*(1)"1" through "5" to determine compliance with TOC percent removal requirements.

1. In any month that the system's treated or source water TOC level, measured according to 43.6(2)*"c"*(1), is less than 2.0 mg/L, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

2. In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness as $CaCO_3$, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

3. In any month that the system's source water SUVA, prior to any treatment and measured according to 43.6(2)*"c"*(2), is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

4. In any month that the system's finished water SUVA, measured according to 43.6(2)*"c"*(2), is less than or equal to 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

5. In any month that a system using enhanced softening lowers alkalinity below 60 mg/L as $CaCO_3$, the system may assign a monthly value of 1.0 (in lieu of the value calculated in 43.6(3)*"c"*(1)"3") when calculating compliance under the provisions of 43.6(3)*"c"*(1).

(3) Surface water or groundwater under the direct influence of surface water systems using conventional treatment may also comply with the requirements of this subrule by meeting the criteria in 43.6(3)*"a"*(2) or (3).

d. Treatment technique requirements for disinfection byproduct precursors. The treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems, for surface water or groundwater under the direct influence of surface water systems using conventional filtration treatment, are enhanced coagulation or enhanced softening.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—43.7(455B) Lead and copper treatment techniques.

43.7(1) *Corrosion control treatment for lead and copper control.*

a. Applicability. Systems shall complete the applicable corrosion control treatment requirements by the deadlines specified in the following rules:

(1) Large systems serving more than 50,000 persons. A large system (serving greater than 50,000 persons) shall complete the corrosion control treatment steps specified in 43.7(1)*"d,"* unless the system is deemed to have optimized corrosion control under 43.7(1)*"b"*(2) or (3).

(2) Small and medium-size systems serving 50,000 or fewer persons. A small system (serving less than or equal to 3,300 persons) or a medium-size system (serving greater than 3,300 and less than or equal to 50,000 persons) shall complete the corrosion control treatment steps specified in 43.7(1)*"e,"* unless the system has optimized corrosion control under 43.7(1)*"b"*(1), (2), or (3).

b. Determination that a system has optimized corrosion control. A public water supply system has optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this subrule if the system satisfies one of the criteria specified in subparagraphs 43.7(1)*"b"*(1) through (3). Any such system deemed to have optimized corrosion control under this paragraph and which has treatment in place shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the department determines appropriate to ensure optimal corrosion control treatment is maintained.

(1) A small or medium-size water supply system has optimized corrosion control if the system meets the lead and copper action levels during each of two consecutive six-month monitoring periods, conducted in accordance with 567—paragraph 41.4(1)*"c."*

(2) Any public water supply system may be deemed to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the department that it has conducted activities equivalent to the corrosion control steps applicable to such system under this subrule. If the department makes this determination, it shall provide the water supply system with written notice explaining the basis for its decision and shall specify the water quality control parameters representing optimal corrosion control in accordance with 43.7(2)*"f."* Systems deemed to have optimized corrosion control under this paragraph shall operate in compliance with the department-designated optimal water quality control parameters in accordance with paragraph 43.7(1)*"g"* and continue to conduct lead and copper tap and water quality parameter sampling in accordance with 567—paragraph 41.4(1)*"c"*(4)"3" and 567—subparagraph 41.4(1)*"d"*(4), respectively. A system shall provide the department with the following information in order to support a determination under this paragraph:

1. The results of all test samples collected for each of the water quality parameters in 43.7(2)*"c"*(3);

2. A report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in 43.7(2)*"c"*(1), the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment;

3. A report explaining how corrosion control was installed and how it is being maintained to ensure minimal lead and copper concentrations at consumers' taps; and

4. The results of tap water samples collected in accordance with 567—paragraph 41.4(1)*"c"* at least once every six months for one year after corrosion control has been installed.

(3) Any water system has optimized corrosion control if it submits results of tap water monitoring conducted in accordance with 567—paragraph 41.4(1)*"c"* and source water monitoring conducted in accordance with 567—paragraph 41.4(1)*"e"* that demonstrate for two consecutive six-month monitoring periods that the difference between the 90th percentile tap water lead level computed under 567—subparagraph 41.4(1)*"b"*(3) and the highest source water lead concentration is less than the practical quantitation level for lead specified in 567—paragraph 41.4(1)*"g."*

1. Those systems whose highest source water lead level is below the method detection limit may also be deemed to have optimized corrosion control under this paragraph if the 90th percentile tap water lead level is less than or equal to the practical quantitation level for lead for two consecutive six-month monitoring periods.

2. Any water system deemed to have optimized corrosion control in accordance with this paragraph shall continue monitoring for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in 567—subparagraph 41.4(1)*"c"*(3) and collecting the samples at times and locations specified in 567—paragraph 41.4(1)*"c"*(4)"4," fourth bulleted paragraph.

3. Any water system deemed to have optimized corrosion control pursuant to this paragraph shall notify the department in writing pursuant to 567—subparagraph 42.4(2)*"a"*(3) of any upcoming long-term change in treatment or the addition of a new source as described in 567—subparagraph 42.4(2)*"a"*(3). The department must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system.

4. Unless a system meets the copper action level, it is not deemed to have optimized corrosion control under this paragraph and shall implement corrosion control treatment pursuant to 43.7(1)*"b"*(3)"5."

5. Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this paragraph shall implement corrosion control treatment in accordance with the deadlines in paragraph 43.7(1)*"e."* Any such large system shall adhere to the schedule specified in that paragraph for medium-size systems, with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control under this paragraph.

c. Requirements to recommence corrosion control steps. Any small or medium-size water system that is required to complete the corrosion control steps due to its exceedance of the lead or copper action level may cease completing the treatment steps whenever the system meets both action levels during each of two consecutive monitoring periods conducted pursuant to 567—paragraph 41.4(1)*"c"* and submits the results to the department. If any such water system thereafter exceeds the lead or copper action level during any monitoring period, the system shall recommence completion of the applicable treatment steps, beginning with the first treatment step which was not previously completed in its entirety. The department may require a system to repeat treatment steps previously completed by the system when it is determined by the department that this is necessary to implement properly the treatment requirements of this rule. The department will notify the system in writing of such a determination and explain the basis for its decision. The requirement for any small or medium-size system to implement corrosion control treatment steps in accordance with 43.7(1)*"e"* (including systems deemed to have optimized corrosion control under 43.7(1)*"b"*(1)) is triggered whenever any small or medium-size system exceeds the lead or copper action level.

d. Treatment steps and deadlines for large systems. Except as provided in 43.7(1)*"b"*(2) or (3), large systems shall complete the following corrosion control treatment steps (described in the referenced portions of 43.7(1)*"b,"* subrule 43.7(2), and 567—paragraphs 41.4(1)*"c"* and *"d"*) by the dates indicated below.

(1) Step 1. The system shall conduct initial monitoring pursuant to 567—paragraph 41.4(1)*"c"*(4)"1" and 567—subparagraph 41.4(1)*"d"*(2) during two consecutive six-month monitoring periods by January 1, 1993.

(2) Step 2. The system shall complete corrosion control studies pursuant to 43.7(2)*"c"* by July 1, 1994.

(3) Step 3. The department will designate optimal corrosion control treatment within six months of receiving the corrosion control study results (by January 1, 1995).

(4) Step 4. The system shall install optimal corrosion control treatment by January 1, 1997.

(5) Step 5. The system shall complete follow-up sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" and 567—subparagraph 41.4(1)*"d"*(3) by January 1, 1998.

(6) Step 6. The department will review installation of treatment and designate optimal water quality control parameters pursuant to 43.7(2)*"f"* by July 1, 1998.

(7) Step 7. The system shall operate in compliance with optimal water quality control parameters delineated by the department and continue to conduct tap sampling.

e. Treatment steps and deadlines for small and medium-size systems. Except as provided in 43.7(2), small and medium-size systems shall complete the following corrosion control treatment steps (described in subrule 43.7(2) and 567—paragraphs 41.4(1)*"c"* and *"d"*) by the indicated time periods listed below.

(1) Step 1. The system shall conduct initial tap sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"1" and 567—subparagraph 41.4(1)*"d"*(2) until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under 567—paragraph 41.4(1)*"c"*(4)"4."

A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment under 43.7(2)*"a"* within six months after the end of the monitoring period during which it exceeds one of the action levels.

(2) Step 2. Within 12 months after the end of the monitoring period during which a system exceeds the lead or copper action level, the department may require the system to perform corrosion control studies under 43.7(2)*"b."* If the system is not required to perform such studies, the department will specify optimal corrosion control treatment under 43.7(2)*"d"* as follows: for medium-size systems, within 18 months after the end of the monitoring period during which such system exceeds the lead or copper action level, and, for small systems, within 24 months after the end of the monitoring period during which such system exceeds the lead or copper action level.

(3) Step 3. If a system is required to perform corrosion control studies under Step 2, the system shall complete the studies (under 43.7(2)*"c"*) within 18 months after such studies are required to commence.

(4) Step 4. If the system has performed corrosion control studies under Step 2, the department will designate optimal corrosion control treatment under 43.7(2)*"d"* within six months after completion of Step 3.

(5) Step 5. The system shall install optimal corrosion control treatment under 43.7(2)*"e"* within 24 months after such treatment is designated.

(6) Step 6. The system shall complete follow-up sampling pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" and 567—subparagraph 41.4(1)*"d"*(3) within 36 months after optimal corrosion control treatment is designated.

(7) Step 7. The department will review the system's installation of treatment and designate optimal water quality control parameters pursuant to 43.7(2)*"f"* within six months after completion of Step 6.

(8) Step 8. The system shall operate in compliance with the department-designated optimal water quality control parameters under 43.7(2)*"f"* (and continue to conduct tap sampling as per 567—paragraph 41.4(1)*"c"*(4)"3" and 567—subparagraph 41.4(1)*"d"*(4)).

43.7(2) *Description of corrosion control treatment requirements.* Each public water supply system shall complete the corrosion control treatment requirements described below which are applicable to such systems under 43.7(1).

a. Public water supply system recommendation regarding corrosion control treatment. Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, small and medium-size water systems exceeding the lead or copper action level shall recommend installation of one or more of the corrosion control treatments listed in 43.7(2)*"c"* which the system believes constitute optimal corrosion control for that system. The department may require the system to conduct additional water quality parameter monitoring in accordance with 567—subparagraph 41.4(1)*"d"*(2) to assist in reviewing the system's recommendation.

b. Department decision to require studies of corrosion control treatment (applicable to small and medium-size systems). The department may require any small or medium-size system that exceeds the lead or copper action level to perform corrosion control studies under 43.7(2)*"c"* to identify optimal corrosion control treatment for the system.

c. Performance of corrosion control studies.

(1) Any public water supply system performing corrosion control studies shall evaluate the effectiveness of each of the following treatments and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment: alkalinity and pH adjustment; calcium hardness adjustment; and the addition of a phosphate or silicate-based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples.

(2) The water system shall evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry and distribution system configuration.

(3) The public water supply system shall measure the following water quality parameters in any tests conducted under this paragraph before and after evaluating the corrosion control treatments listed above:

1. Lead;

2. Copper;
3. pH;
4. Alkalinity;
5. Calcium;
6. Conductivity;
7. Orthophosphate (when an inhibitor containing a phosphate compound is used);
8. Silicate (when an inhibitor containing a silicate compound is used);
9. Water temperature.

(4) The public water supply system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and outline such constraints with the following: data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another water system with comparable water quality characteristics; or data and documentation demonstrating that the water system has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes.

(5) The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(6) On the basis of an analysis of the data generated during each evaluation, the water system shall recommend in writing to the department the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that system. The water system shall provide a rationale for its recommendation along with all supporting documentation required by 43.7(2)*"c"*(1) through (5).

d. Department designation of optimal corrosion control treatment.

(1) Based upon consideration of available information including, where applicable, studies performed under 43.7(2)*"c"* and a system's recommended treatment alternative, the department will either approve the corrosion control treatment option recommended by the public water supply system, or designate alternative corrosion control treatment(s) from among those listed in 43.7(2)*"c."* The department will consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes (when designating optimal corrosion control treatment).

(2) The department will notify the public water supply system of its decision on optimal corrosion control treatment in writing and explain the basis for this determination. If the department requests additional information to aid its review, the public water supply system shall provide the information.

e. Installation of optimal corrosion control. Each public water supply system shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated under 43.7(2)*"d."*

f. Department review of treatment and specification of optimal water quality control parameters.

(1) The department will evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the public water supply system and determine whether the system has properly installed and operated the optimal corrosion control treatment designated in 43.7(2)*"d."* Upon reviewing the results of tap water and water quality parameter monitoring by the public water supply system, both before and after the system installs optimal corrosion control treatment, the department will designate the following:

1. A minimum value or a range of values for pH measured at each entry point to the distribution system;
2. A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than 7.0 unless meeting a pH level of 7.0 is not technologically feasible or is not necessary for the public water supply system to optimize corrosion control;
3. If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, necessary to form a passivating film on the interior walls of the pipes of the distribution system;

4. If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples; or

5. If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples.

(2) The values for the applicable water quality control parameters listed above shall be those which reflect optimal corrosion control treatment for the public water supply system. The department may designate values for additional water quality control parameters determined by the department to reflect optimal corrosion control for the system. The department will notify the system in writing of these determinations and explain the basis for its decisions.

g. Continued operation with optimized corrosion control and water quality parameter monitoring compliance determination. All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the department under paragraph 43.7(2)*"f,"* in accordance with this paragraph for all samples collected under 567—subparagraphs 41.4(1)*"d"*(4) through (6). Compliance with the requirements of this paragraph shall be determined every six months, as specified under 567—subparagraph 41.4(1)*"d"*(4). A water system is out of compliance with the requirements of this paragraph for a six-month period if it has excursions for any department-specified parameter on more than nine days during the period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the department. Daily values are calculated as follows. The department has the discretion to invalidate results of obvious sampling errors from this calculation.

(1) On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

(2) On days when only one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the result of that measurement.

(3) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

h. Modification of department treatment decisions. A determination of the optimal corrosion control treatment under 43.7(2)*"d"* or optimal water quality control parameters under 43.7(2)*"f"* may be modified. A request for modification by a public water supply system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The department may modify its determination when it concludes that such change is necessary to ensure that the public water supply system continues to optimize corrosion control treatment. A revised determination will be made in writing, which will set forth the new treatment requirements, explain the basis for the decision, and provide an implementation schedule for completing the treatment modifications.

43.7(3) *Source water treatment requirements.* Public water supply systems shall complete the applicable source water monitoring and treatment requirements, as described in the referenced portions of 43.7(3)*"b,"* and in 567—paragraphs 41.4(1)*"c"* and *"e,"* by the following deadlines.

a. Deadlines for completing source water treatment steps.

(1) Step 1. A public water supply system exceeding the lead or copper action level shall complete lead and copper source water monitoring under 567—subparagraph 41.4(1)*"e"*(2) and make a written treatment recommendation to the department no later than 180 days after the end of the monitoring period during which the lead or copper action level was exceeded.

(2) Step 2. The department will make a determination regarding source water treatment pursuant to 43.7(3)*"b"*(2) within six months after submission of monitoring results under Step 1.

(3) Step 3. If installation of source water treatment is required, the system shall install the treatment pursuant to 43.7(3)*"b"*(3) within 24 months after completion of Step 2.

(4) Step 4. The public water supply system shall complete follow-up tap water monitoring under 567—paragraph 41.4(1)*"c"*(4)"2" and source water monitoring under 567—subparagraph 41.4(1)*"e"*(3) within 36 months after completion of Step 2.

(5) Step 5. The department will review the system's installation and operation of source water treatment and specify maximum permissible source water levels under 43.7(3)*"b"*(4) within six months after completion of Step 4.

(6) Step 6. The public water supply system shall operate in compliance with the specified maximum permissible lead and copper source water levels under 43.7(3)*"b"*(4) and continue source water monitoring pursuant to 567—subparagraph 41.4(1)*"e"*(4).

b. Description of source water treatment requirements.

(1) System treatment recommendation. Any system which exceeds the lead or copper action level shall recommend in writing to the department the installation and operation of one of the source water treatments listed in 43.7(3)*"b"*(2). A system may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

(2) Source water treatment determinations. The department will complete an evaluation of the results of all source water samples submitted by the public water supply system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the department determines that treatment is needed, the department will require installation and operation of the source water treatment recommended by the public water supply system or require the installation and operation of another source water treatment from among the following: ion exchange, reverse osmosis, lime softening or coagulation/filtration. If the department requests additional information to aid in its review, the water system shall provide the information by the date specified in its request. The department will notify the system in writing of its determination and set forth the basis for its decision.

(3) Installation of source water treatment. Public water supply systems shall properly install and operate the source water treatment designated by the department under 43.7(3)*"b"*(2).

(4) Department review of source water treatment and specification of maximum permissible source water levels. The department will review the source water samples taken by the water supply system both before and after the system installs source water treatment and determine whether the public water supply system has properly installed and operated the designated source water treatment. Based upon its review, the department will designate maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment (properly operated and maintained). The department will notify the public water supply system in writing and explain the basis for its decision.

(5) Continued operation and maintenance. Each public water supply system shall maintain lead and copper levels below the maximum permissible concentrations designated by the department at each sampling point monitored in accordance with 567—paragraph 41.4(1)*"e."* The system is out of compliance with this paragraph if the level of lead or copper at any sampling point is greater than the maximum permissible designated concentration.

(6) Modification of source water treatment decisions. The department may modify its determination of the source water treatment under 43.7(3)*"b"*(6), or maximum permissible lead and copper concentrations for finished water entering the distribution system under 43.7(3)*"b"*(4). A request for modification by a public water supply system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The department may modify its determination where it concludes that such change is necessary to ensure that the system continues to minimize lead and copper concentrations in source water. A revised determination will be made in writing, set forth the new treatment requirements, explain the basis for the decision, and provide an implementation schedule for completing the treatment modifications.

43.7(4) *Lead service line replacement requirements.*

a. Applicability. Public water supply systems that fail to meet the lead action level in tap samples taken pursuant to 567—paragraph 41.4(1)*"c"*(4)"2" after installing corrosion control or source water

treatment (whichever sampling occurs later) shall replace lead service lines in accordance with the requirements of this subrule. If a system is in violation of 43.7(1) and 43.7(3) for failure to install source water or corrosion control treatment, the department may require the system to commence lead service line replacement under this subrule after the date by which the system was required to conduct monitoring under 567—paragraph 41.4(1)*"c"*(4)"2" has passed.

b. Lead service line replacement schedule. A public water supply system shall replace annually at least 7 percent of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the system, based upon a materials evaluation, including the evaluation required under 567—subparagraph 41.4(1)*"c"*(1), and relevant legal authorities regarding the portion owned by the system such as contracts and local ordinances.

(1) The first year of lead service line replacement shall begin on the first day following the end of the monitoring period in which the action level was exceeded in tap sampling referenced in 43.7(4)*"a."* If monitoring is required annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs. If the department has established an alternate monitoring period, then the end of the monitoring period will be the last day of that period.

(2) Any water system resuming a lead service line replacement program after the cessation of its lead service line replacement program as allowed by 43.7(4)*"g"* shall update its inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under 43.7(4)*"c."* The system will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that must be replaced per year. Seven percent lead service line replacement is based on a 15-year replacement program. For example, systems resuming lead service line replacement after previously conducting two years of replacement would divide the updated inventory by 13.

(3) For those systems that have completed a 15-year lead service line replacement program, the department will determine a schedule for replacing or retesting lines that were previously exempted through testing under 43.7(4)*"c"* from the replacement program when the system re-exceeds the action level.

c. Exemption to lead service line replacement requirement. A public water supply system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to 567—paragraph 41.4(1)*"c"*(2)"3," is less than or equal to 0.015 mg/L.

d. Lead service line replacement requirements. A water system shall replace that portion of the lead service line that it owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner's authorized agent, that the system will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost of replacing the privately owned portion of the line, nor is it required to replace the privately owned portion of the line where the owner chooses not to pay the cost of replacing the privately owned portion of the line, or where replacing the privately owned portion would be precluded by state, local, or common law. A water system that does not replace the entire length of the service line shall complete the following tasks.

(1) Notification of residents. At least 45 days prior to commencing with the partial replacement of a lead service line, the water system shall provide to the resident(s) of all buildings served by the line notice explaining that the resident(s) may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers may take to minimize their exposure to lead. The department may allow the water system to provide this notice less than 45 days prior to commencing partial lead service line replacement where such replacement is in conjunction with emergency repairs. In addition, the water system shall inform the resident(s) served by the line that the system will, at the system's expense, collect from each partially replaced lead service line a sample that is representative of the water in the service line for analysis of lead content, as prescribed under 567—paragraph 41.4(1)*"c"*(2)"3," within 72 hours after the completion of the partial replacement of the service line. The system shall collect the sample and report the results of the analysis to the owner

and the resident(s) served by the line within three business days of receiving the results. Mailed notices postmarked within three business days of receiving the results shall be considered "on time."

(2) Notification methods. The water system shall provide the information required by subparagraph 43.7(4)*"d"*(1) to the residents of individual dwellings by mail or by other methods approved by the department. In instances where multifamily dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

e. Lead service line control—department review. Rescinded IAB 1/7/04, effective 2/11/04.

f. Lead service line replacement schedule. The department may require a public water supply system to replace lead service lines on a shorter schedule than that required by this subrule, taking into account the number of lead service lines in the system, where such a shorter replacement schedule is feasible. The department will make this determination in writing and notify the system of its finding within six months after the system is triggered into lead service line replacement based on monitoring referenced in 43.7(4)*"a."*

g. Cessation of lead service line replacement. Any public water supply system may cease replacing lead service lines whenever first draw samples collected pursuant to 567—paragraph 41.4(1)*"c"*(2)"2" meet the lead action level during each of two consecutive monitoring periods and the system submits the results. If the first draw tap samples collected in any such water system thereafter exceed the lead action level, the system shall recommence replacing lead service lines, as detailed in 43.7(4)*"b."*

h. Lead service line replacement reporting requirements. To demonstrate compliance with 43.7(4)*"a"* through *"d,"* a system shall report the information specified in 567—paragraph 42.4(2)*"e."*
[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—43.8(455B) Viability assessment.

43.8(1) *Definitions specific to viability assessment.*

"New system" for viability assessment purposes includes public water supply systems which are newly constructed after the effective date of this rule, as well as systems which do not currently meet the definition of a PWS, but which expand their infrastructure and thereby grow to become a PWS. Systems not currently meeting the definition of a PWS and which add additional users and thereby become a PWS without constructing any additional infrastructure are not "new systems" for the purposes of this subrule.

"Nonviable system" for viability assessment purposes means a system lacking the technical, financial, and managerial ability to comply with 567—Chapters 40 through 43 and 81.

"Significant noncompliance (SNC)" for viability assessment purposes means the failure to comply with any drinking water standard as adopted by the state of Iowa as designated by the department.

"Viability" for viability assessment purposes is the ability to remain in compliance insofar as the requirements of the federal Safe Drinking Water Act and 567—Chapters 40 through 43 and 81.

"Viable system" for viability assessment purposes means a system with the technical, financial, and managerial ability to comply with applicable drinking water standards adopted by the state of Iowa.

43.8(2) *Applicability and purpose.* These rules apply to all new and existing public water supplies, including the following: new systems commencing operation after October 1, 1999; systems deemed to be in significant noncompliance with the primary drinking water standards; DWSRF applicants; and existing systems. The purpose of the viability assessment program is to ensure the safety of the public drinking water supplies and ensure the viability of new public water supply systems upon commencement of operation. The department may assess public notification requirements and administrative penalties to any public water supply system which fails to fulfill the requirements of this rule.

43.8(3) *Contents of a viability assessment.* The viability assessment must address the areas of technical, financial, and managerial viability for a public water supply system. The assessment must include evaluation of the following areas at a minimum, and the public water supply system may be required to include additional information as directed by the department. The viability of a system should be forecast for a 20-year period.

a. Technical viability.

(1) Supply sources and facilities

(2) Treatment
(3) Infrastructure (examples: pumping, storage, distribution)
b. Financial viability.
(1) Capital and operating costs
(2) Revenue sources
(3) Contingency plans
c. Managerial viability.
(1) Operation
(2) Maintenance
(3) Management
(4) Administration

43.8(4) *New systems.*

a. Submission of system viability assessment. New public water supply systems (including community, nontransient noncommunity systems, and transient noncommunity systems) commencing operation after the effective date of this rule are required to submit a completed system viability assessment for review by the department, prior to obtaining a construction permit. The viability assessment may be submitted with the application for a construction permit. The department may reject receipt or delay review of the construction plans and specifications until an adequate viability assessment is provided. If the department finds, upon review and approval of the viability assessment, that the PWS will be viable, a construction permit will be issued in accordance with 567—Chapters 40 and 43. Prior to beginning operation, a public water supply operation permit must be obtained in accordance with 567—43.2(455B) and 567—40.5(455B).

b. Review of the viability assessment. If the department declines to approve the viability assessment as submitted by the applicant, or if the department finds that the PWS is not viable, approval of construction and operation permit applications will be denied. If the viability assessment is conditionally approved, construction and operation permits will be issued, with conditions and a schedule to achieve compliance specified in the operation permit.

43.8(5) *Existing systems.*

a. Submission of system viability assessment. Any community, nontransient noncommunity, or transient noncommunity water system which operated prior to October 1, 1999, and was regulated as a public water system by the department shall be considered an existing system. Any system which does not currently meet the definition of a PWS, but which expands their infrastructure and thereby grows to become a PWS is considered a new system. Systems not currently meeting the definition of a PWS and which add additional users and thereby become a PWS without constructing any additional infrastructure are considered existing systems for the purposes of this subrule. All PWSs should complete a viability assessment. However, only those existing PWSs which meet one or more of the following criteria are required to complete a viability assessment for the department's review and approval.

(1) Systems applying for DWSRF loan funds.

(2) Systems categorized as being in significant noncompliance by the department, due to their history of failure to comply with drinking water standards.

(3) Systems identified by the department via a sanitary survey as having technical, managerial, or financial problems as evidenced by such conditions as poor operational control, a poor state of repair or maintenance, vulnerability to contamination, or inability to maintain adequate distribution system operating pressures.

(4) Systems which have been unable to retain a certified operator in accordance with 567—Chapter 81.

b. Review of viability assessments for systems required to submit an assessment. If the assessment is incomplete and does not include all of the required elements, the supply will be notified in writing and will be given an opportunity to modify and resubmit the assessment within the time period specified by the department. If the system fails to resubmit a completed viability assessment as specified by the department, the department may find that the system is not viable. If the submitted assessment is

complete, the department will either indicate that the system is viable or not viable after the assessment review process. The system will be notified of the results of the evaluation by the department.

c. Review of voluntarily submitted viability assessments. It is recommended that all existing systems complete the viability assessment and submit it to the department. Voluntarily submitted assessments may be reviewed upon request and will be exempt from any requirements to modify the assessment if it is not approved, or from a determination that the system is not viable, providing the system does not meet any of the criteria for mandatory completion of a viability assessment as set forth in 43.8(4)*"a"* above.

43.8(6) *Systems which are determined to be not viable.*

a. Applicability. The following applies to community, nontransient noncommunity, and transient noncommunity systems:

(1) Systems applying for DWSRF loan funds must be viable, or the loan funds must be used to assist the system in attaining viable status. If a system making a loan application is found to be not viable, and loan funds will not be sufficient or available to ensure viability, then the situation must be corrected to the department's satisfaction prior to qualification to apply for loan funds.

(2) Systems which meet the department's criteria of significant noncompliance are not considered viable. The viability assessment completed by the public water supply and the most recent sanitary survey results will be evaluated by the department to assist the system in returning to and remaining in compliance, which would achieve viability. Required corrective actions will be specified in the system's operation permit and will include a compliance schedule. Field office inspections will be conducted on an as-needed basis to assist the system in implementing the required system improvements.

(3) Systems experiencing technical, managerial, or financial problems as noted by department in the sanitary survey will be considered not viable. The viability assessment completed by the public water supply will be evaluated by the department to assist the system in attaining viability, and any required corrective actions will be specified in the system's operation permit.

(4) Systems unable to retain a certified operator will be considered not viable. All community and nontransient noncommunity water systems, and transient noncommunity water systems as denoted by the department, are required to have a certified operator who meets the requirements of 567—Chapter 81. The viability assessment completed by the public water supply will be used to determine the source of the problem, and required corrective actions will be specified in the system's operation permit.

b. Reserved.

43.8(7) *Revocation or denial of operation or construction permit.*

a. Revocation or denial of an operation permit. Failure to correct the deficiencies regarding viability, as identified in accordance with a compliance schedule set by the department, may result in revocation or denial of the system's operation permit. If the department revokes or denies the operation permit, the owner of the system must negotiate an alternative arrangement with the department for providing treatment or water supply services within 30 days of receipt of the notification by the department unless the owner of the supply appeals the decision to the department. The public water supply is required to provide water that continually meets all health-based standards during the appeal process.

b. Denial of new construction permits for an existing system. In addition to the criteria provided in 567—Chapters 40 through 44, new construction permits for water system improvements may be denied until the system makes the required corrections and attains viable status unless the proposed project is necessary to attain viability.

c. Failure to conform to approved construction plans and specifications, or to comply with the requirements of 567—Chapters 40 to 44. Failure of a project to conform to approved construction plans and specifications, or failure to comply with the requirements of 567—Chapters 40 to 44, constitutes grounds for the director to withhold the applicable construction and operation permits. The system is then responsible for ensuring that the identified problem with the project is rectified so that permits may be issued. Once an agreement for correcting the problem is reached between the department and the system, the department will issue the appropriate permits according to the provisions of the agreement. If an agreement cannot be reached within a reasonable time period, the permit shall be denied.

d. Contents of the notification denying the permit. The notification of denial or withholding approval of the operation or construction permit will state the department's reasons for withholding or denying permit approval.

43.8(8) *Appeals.*

a. Request for formal review of determination of viability. A person or entity who disagrees with the decision regarding the viability of a public water supply system may request a formal review of the action. A request for review must be submitted in writing to the director by the owner or their designee within 30 days of the date of notification by the department of the viability decision.

b. Appeal of denial of operation or construction permit. A decision to deny an operation or construction permit may be appealed by the applicant to the environmental protection commission pursuant to 567—Chapter 7. The appeal must be made in writing to the director within 30 days of receiving the notice of denial by the owner of the public water supply.

567—43.9(455B) Enhanced filtration and disinfection requirements for surface water and IGW systems serving at least 10,000 people.

43.9(1) *General requirements.*

a. Applicability. The requirements of this rule constitute national primary drinking water regulations. This rule establishes the filtration and disinfection requirements that are in addition to criteria under which filtration and disinfection are required in 567—43.5(455B). The requirements of this rule are applicable, beginning January 1, 2002, to all public water systems using surface water or groundwater under the direct influence of surface water, in whole or in part, and which serve at least 10,000 people. This rule establishes or extends treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. Each surface water or groundwater under the direct influence of surface water system serving at least 10,000 people must provide treatment of its source water that complies with these treatment technique requirements and they are in addition to those identified in subrule 43.5(1). The treatment technique requirements consist of installing and properly operating water treatment processes that reliably achieve:

(1) At least 99 percent (2-log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for filtered systems.

(2) Compliance with the profiling and benchmark requirements under 43.9(2).

(3) The department may require other surface water or groundwater under the direct influence of surface water systems to comply with this rule, through an operation permit.

b. Compliance determination. A public water system subject to the requirements of this rule is considered to be in compliance with the requirements of 43.9(1)*"a"* if it meets the applicable filtration requirements in either 43.5(3) or 43.9(3) and the disinfection requirements in 43.5(2) and 43.6(2).

c. Prohibition of new construction of uncovered intermediate or finished water storage facilities. Systems that are required to comply with this rule may construct only covered intermediate or finished water storage facilities. For the purposes of this rule, an intermediate storage facility is defined as a storage facility or reservoir after the clarification treatment process.

d. Systems with populations that increased after January 1, 2002, to more than 10,000 people served. Systems using surface water or influenced groundwater sources that did not conduct optional monitoring under 43.9(2) because they served fewer than 10,000 persons when such monitoring was required, but serve more than 10,000 persons prior to January 1, 2005, must comply with 43.9(1), 43.9(3), 43.9(4), and 43.9(5). These systems must also consult with the department to establish a disinfection benchmark. A system that decides to make a significant change to its disinfection practice as described in 43.9(2)*"c"*(1)"1" through "4" must consult with the department prior to making such a change.

43.9(2) *Disinfection profiling and benchmarking.*

a. Determination of systems required to profile. A public water system subject to the requirements of this rule must determine its total trihalomethane (TTHM) and haloacetic acid (HAA5) annual averages using the procedures listed below. The annual average is the arithmetic average of the quarterly averages

of four consecutive quarters of monitoring. Both the TTHM and HAA5 samples must be collected as paired samples during the same time period in order for each parameter to have the same annual average period for result comparison. A paired sample is one that is collected at the same location and time and is analyzed for both TTHM and HAA5 parameters.

(1) Allowance of information collection rule data. Those systems that collected data under the provisions of the federal Information Collection Rule listed in Code of Federal Regulations Title 40, Part 141, Subpart M, must use the results of the TTHM and HAA5 samples collected during the last four quarters of monitoring required under 40 CFR 141.142. The system must have submitted the results of the samples collected during the last 12 months of required monitoring.

(2) Systems that have not collected TTHM and HAA5 data under 43.9(2)*"a"*(1). Those systems that have not collected four consecutive quarters of paired TTHM and HAA5 samples as described under 43.9(2)*"a"*(1) must comply with all other provisions of this subrule as if the HAA5 monitoring had been conducted and the results of that monitoring required compliance with 43.9(2)*"b."* The system that elects this option must notify the department in writing of its decision.

(3) The department may require that a system use a more representative annual data set than the data set determined under 567—subparagraph 42.9(2)*"a"*(1) for the purpose of determining applicability of the requirements of this subrule.

(4) Profiling determination criteria. Any system having either a TTHM annual average greater than 0.064 mg/L or an HAA5 annual average greater than 0.048 mg/L during the period identified in 43.9(2)*"a"*(1) through (3) must comply with 43.9(2)*"b."*

b. Disinfection profiling.

(1) Applicability. Any system that meets the criteria in 43.9(2)*"a"*(4) must develop a disinfection profile of its disinfection practice for a period of up to three years.

(2) Monitoring requirements. The system must monitor daily for a period of 12 consecutive calendar months to determine the total logs of inactivation for each day of operation, based on the $CT_{99.9}$ values in Tables 1 through 8 in Appendix A, as appropriate, through the entire treatment plant. This system must begin this monitoring as directed by the department. As a minimum, the system with a single point of disinfectant application prior to entrance to the distribution system must conduct the monitoring in 43.9(2)*"b"*(2)"1" through "4." A system with more than one point of disinfectant application must conduct the monitoring in 43.9(2)*"b"*(2)"1" through "4" for each disinfection segment. The system must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in 43.5(4)*"a"* as follows:

1. The temperature of the disinfected water must be measured once per day at each residual disinfectant concentration sampling point during peak hourly flow.

2. If the system uses chlorine, the pH of the disinfected water must be measured once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.

3. The disinfectant contact time(s) ("T") must be determined for each day during peak hourly flow.

4. The residual disinfectant concentration(s) ("C") of the water before or at the first customer and prior to each additional point of disinfection must be measured each day during peak hourly flow.

(3) Use of existing data. A system that has existing operational data may use those data to develop a disinfection profile for additional years, in addition to the disinfection profile generated under 43.9(2)*"b"*(2). Such systems may use these additional yearly disinfection profiles to develop a benchmark under the provisions of 43.9(2)*"c."* The department must determine whether these operational data are substantially equivalent to data collected under the provisions of 43.9(2)*"b"*(2). These data must also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

(4) Calculation of the total inactivation ratio. The system must calculate the total inactivation ratio as follows, using the $CT_{99.9}$ values from Tables 1 through 8 listed in Appendix A:

1. If the system uses only one point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment based on either of the following two methods:

- Determine one inactivation ratio ($CTcalc/CT_{99.9}$) before or at the first customer during peak hourly flow.

- Determine successive CTcalc/$CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the system must calculate the total inactivation ratio by determining (CTcalc/$CT_{99.9}$) for each sequence and then adding the (CTcalc/$CT_{99.9}$) values together to determine Σ(CTcalc/$CT_{99.9}$).

2. If the system uses more than one point of disinfectant application before the first customer, the system must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The CTcalc/$CT_{99.9}$ value of each segment and Σ(CTcalc/$CT_{99.9}$) must be calculated using the method in 43.9(2)*"b"*(4)"1."

3. The system must determine the total logs of inactivation by multiplying the value calculated in 43.9(2)*"b"*(4)"1" or "2" by 3.0.

(5) Systems using chloramines or ozone. A system that uses either chloramines or ozone for primary disinfection must also calculate the logs of inactivation for viruses using a method approved by the department.

(6) Profile retention requirements. The system must retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the department for review as part of sanitary surveys conducted by the department. The department may require the system to submit the data to the department directly or as part of a monthly operation report.

c. Disinfection benchmarking.

(1) Significant change to disinfection practice. Any system required to develop a disinfection profile under the provisions of 43.9(2)*"a"* or *"b"* that decides to make a significant change to its disinfection practice must obtain department approval prior to making such change. Significant changes to disinfection practice are:

1. Changes to the point of disinfection;
2. Changes to the disinfectant(s) used in the treatment plant;
3. Changes to the disinfection process; and
4. Any other modification identified by the department.

(2) Calculation of the disinfection benchmark. Any system that is modifying its disinfection practice must calculate its disinfection benchmark using the procedure specified below:

1. For each year of profiling data collected and calculated under 43.9(2)*"b,"* the system must determine the lowest average monthly *Giardia lamblia* inactivation in each year of profiling data. The system must determine the average *Giardia lamblia* inactivation for each calendar month for each year of profiling data by dividing the sum of daily *Giardia lamblia* inactivation by the number of values calculated for that month.

2. The disinfection benchmark is the lowest monthly average value (for systems with one year of profiling data) or average of lowest monthly average values (for systems with more than one year of profiling data) of the monthly logs of *Giardia lamblia* inactivation in each year of profiling data.

(3) A system that uses either chloramines or ozone for primary disinfection must also calculate the disinfection benchmark for viruses using a method approved by the department.

(4) The system must submit the following information to the department as part of its consultation process:

1. A description of the proposed change;
2. The disinfection profile for *Giardia lamblia* (and, if necessary, viruses) under 43.9(2)*"b"* and the disinfection benchmark as required by 43.9(2)*"c"*(2); and
3. An analysis of how the proposed change will affect the current levels of disinfection.

43.9(3) *Filtration.*

a. Conventional filtration treatment or direct filtration.

(1) Turbidity requirement in 95 percent of samples. For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water (combined filter effluent or CFE) must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1).

(2) Maximum turbidity level. The turbidity level of representative samples of a system's filtered water (combined filter effluent or CFE) must at no time exceed 1 NTU, measured as specified in 43.5(4)*"a"*(1) and 43.5(4)*"b"*(1). If at any time the combined filter effluent turbidity exceeds 1 NTU, either in a grab sample used for compliance or in a continuously monitored flow, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

(3) Systems with lime-softening treatment. A system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the department.

b. Filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration. The department may allow a public water system to use a filtration technology not listed in 43.9(3)*"a"* or 43.5(3)*"c"* or *"d"* if it demonstrates to the department, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of 43.5(2), consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* cysts, 99.99 percent removal or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts and the department approves the use of the filtration technology. For each approval, the department will set turbidity performance requirements that the system must meet at least 95 percent of the time and the requirement that the system shall not exceed at any time at a level that consistently achieves 99.9 percent removal or inactivation of *Giardia lamblia* cysts, 99.99 percent removal or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts.

43.9(4) *Filtration sampling requirements.*

a. Monitoring requirements for systems using filtration treatment. In addition to monitoring required by 43.5(4), a public water system subject to the requirements of this rule that provides conventional filtration treatment or direct filtration must conduct continuous monitoring of turbidity for each individual filter using an approved method in 43.5(4)*"a"*(1) and must calibrate turbidimeters at least every 90 days with a primary standard. The calibration of each turbidimeter used for compliance must be verified at least once per week with a primary standard, secondary standards, or the manufacturer's proprietary calibration confirmation device or by a method approved by the department. If the verification is not within plus or minus 0.05 NTU for measurements of less than or equal to 0.5 NTU, or within plus or minus 10 percent of measurements greater than 0.5 NTU, then the turbidimeter must be recalibrated. Systems must record the results of individual filter monitoring every 15 minutes.

b. Failure of the continuous turbidity monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is repaired and back online. A system has a maximum of five working days after failure to repair the equipment, or else it is in violation.

43.9(5) *Reporting and record-keeping requirements.* In addition to the reporting and record-keeping requirements in 567—paragraph 42.4(3)*"c,"* a system subject to the requirements of this rule that provides conventional filtration treatment or direct filtration must report monthly to the department the information specified in 43.9(5)*"a"* and *"b"* beginning January 1, 2002. In addition to the reporting and record-keeping requirements in 567—paragraph 42.4(3)*"c,"* a system subject to the requirements of this rule that provides filtration approved under 43.9(3)*"b"* must report monthly to the department the information specified in 43.9(5)*"a"* beginning January 1, 2002. The reporting in 43.9(5)*"a"* is in lieu of the reporting specified in 567—subparagraph 42.4(3)*"c"*(1).

a. Turbidity. Turbidity measurements as required by 43.9(3) must be reported in a format acceptable to the department and within ten days after the end of each month that the system serves water to the public. Information that must be reported includes:

(1) The total number of filtered water (combined filter effluent or CFE) turbidity measurements taken during the month;

(2) The number and percentage of filtered water (combined filter effluent or CFE) turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in 43.9(3)*"a"* or *"b"*; and

(3) The date and value of any combined filter effluent or CFE turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment or direct filtration or which exceed the maximum level set by the department under 43.9(3)*"b."*

(4) The dates and summary of calibration and verification of all compliance turbidimeters.

b. Individual filter turbidity monitoring. Systems must maintain the results of individual filter turbidity per monitoring taken under 43.9(4) for at least three years. Systems must report to the department that they have conducted individual filter turbidity monitoring under 43.9(4) within ten days after the end of each month that the system serves water to the public. Systems must report to the department individual filter turbidity measurement results taken under 43.9(4) within ten days after the end of each month that the system serves water to the public only if measurements demonstrate one or more of the conditions specified in 43.9(5)*"b"*(1) through (4). Systems that use lime softening may apply to the department for alternative exceedance levels for the levels specified in 43.9(5)*"b"*(1) through (4) if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(1) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within seven days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

(2) For any individual filter that has a measured turbidity level of greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart anytime following the first four hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the system must report the filter number, the turbidity, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within seven days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance.

(3) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each month of three consecutive months, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must conduct a self-assessment of the filter within 14 days of the exceedance and report that the self-assessment was conducted. The self-assessment must consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

(4) For any individual filter that has a measured turbidity level of greater than 2.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each month of two consecutive months, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must arrange for a comprehensive performance evaluation to be conducted by the department or a third party approved by the department no later than 30 days following the exceedance and have the evaluation completed and submitted to the department no later than 90 days following the exceedance.

c. Additional reporting requirement for turbidity combined filter effluent.

(1) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water (combined filter effluent or CFE) in a system using conventional filtration treatment or direct filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

(2) If at any time the turbidity in representative samples of filtered water (combined filter effluent or CFE) exceeds the maximum level set by the department under 43.9(3)*"b"* for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system must consult with the department as soon as practical, but no later than 24

hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).
[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—43.10(455B) Enhanced filtration and disinfection requirements for surface water and IGW systems serving fewer than 10,000 people.

43.10(1) *General requirements.*

a. Applicability. The requirements of this rule constitute national primary drinking water regulations. This rule establishes requirements for filtration and disinfection that are in addition to criteria under which filtration and disinfection are required in 567—43.5(455B). The requirements of this rule are applicable beginning January 1, 2005, unless otherwise noted, to all public water systems using surface water or groundwater under the direct influence of surface water, in whole or in part, and which serve less than 10,000 people. This rule establishes or extends treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

(1) At least 99 percent (2 log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for filtered systems; and

(2) Compliance with the profiling and benchmark requirements in subrules 43.10(2) and 43.10(3).

b. Prohibition of new construction of uncovered intermediate or finished water storage facilities. Systems that are required to comply with this rule may construct only covered intermediate or finished water storage facilities. For the purposes of this rule, an intermediate storage facility is defined as a storage facility or reservoir after the clarification treatment process.

43.10(2) *Disinfection profile.*

a. Applicability. A disinfection profile is a graphical representation of a system's level of *Giardia lamblia* or virus inactivation measured during the course of a year. All systems required to comply with this rule must develop a disinfection profile unless the department determines that such a profile is unnecessary. Records must be maintained according to subrule 43.10(7).

(1) The department may approve the use of a more representative data set for disinfection profiling than the data set required in paragraph 43.10(2)*"b."*

(2) The department may determine that a system's profile is unnecessary only if a system's TTHM and HAA5 levels are below 0.064 mg/L and 0.048 mg/L, respectively. To determine these levels, TTHM and HAA5 samples must be collected after January 1, 1998, during the month with the warmest water temperature, and at the point of maximum residence time in the distribution system. The department may approve the use of a more representative annual data set for purpose of determining applicability of the requirements of this subrule. The annual data set must be calculated on an annual average, of the arithmetic average of the quarterly averages of four consecutive quarters of monitoring. At least 25 percent of the samples collected in each quarter must be collected at the maximum residence time location in the distribution system.

1. For systems that provide water to other public water supplies, if the producing system meets the byproduct level requirements of less than 0.064 mg/L for TTHM and less than 0.048 mg/L for HAA5, it will not be required to develop a disinfection profile and benchmark unless:

- The consecutive system cannot meet in its distribution system the byproduct level requirements of less than 0.064 mg/L for TTHM and less than 0.048 mg/L for HAA5, and
- The producing system wants to make a significant change to its disinfection practices.

2. The department will then assign the requirement to the producing system to conduct the disinfection profiling study and determine a disinfection benchmark.

b. Required elements of a disinfection profile.

(1) Collection of the following data for 12 consecutive months, beginning by July 1, 2003, for systems serving 500 to 9,999 people, and by January 1, 2004, for systems serving fewer than 500

people. A system must monitor the following parameters to determine the total log inactivation by using the analytical methods in paragraph 43.5(4)*"a,"* once per week on the same calendar day, over 12 consecutive months.

1. Temperature of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow, measured in degrees Celsius;

2. For systems using chlorine, the pH of the disinfected water at each residual disinfectant concentration sampling point during peak hourly flow, measured in standard pH units;

3. The disinfectant contact time ("T") during peak hourly flow, measured in minutes; and

4. The residual disinfectant concentration(s) ("C") of the water following each point of disinfection at a point(s) prior to each subsequent point of disinfection and at the entry point to the distribution system or at a location just prior to the first customer during peak hourly flows, measured in mg/L.

(2) The data collected in 43.10(2)*"b"*(1) must be used to calculate the weekly log inactivation, along with the $CT_{99.9}$ tables listed in Appendix A. The system must calculate the total inactivation ratio as follows and multiply the value by 3.0 to determine log inactivation of *Giardia lamblia*:

1. If the system uses only one point of disinfectant application, it must determine:

- One inactivation ratio (CT calc/$CT_{99.9}$) before or at the first customer during peak hourly flow, or
- Successive (CT calc/$CT_{99.9}$) values, representing sequential inactivation ratios, between the point of disinfection application and a point before or at the first customer during peak hourly flow. Under this alternative, the system must calculate the total inactivation ratio by determining (CT calc/$CT_{99.9}$) for each sequence and then adding the (CT calc/$CT_{99.9}$) values together to determine (ΣCT calc/$CT_{99.9}$).

2. If a system uses more than one point of disinfectant application before the first customer, the system must determine the (CT calc/$CT_{99.9}$) value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow using the procedure specified in 43.10(2)*"b"*(2) "1," second bulleted paragraph.

3. If a system uses chloramines, ozone, or chlorine dioxide for primary disinfection, the system must also calculate the inactivation logs for viruses and develop an additional disinfection profile for viruses using methods approved by the department.

(3) The weekly log inactivations are used to develop a disinfection profile, as follows:

1. The disinfection profile is developed by graphing each log inactivation data point versus time. Each log inactivation serves as a data point in the disinfection profile. The system will have obtained 52 measurements at a minimum, one for each week of the year.

2. The disinfection profile depicts the variation of microbial inactivation over the course of the year.

3. The system must retain the disinfection profile data both in a graphic form and in a spreadsheet, which must be available for review by the department.

4. This profile is used to calculate a disinfection benchmark if the system is considering changes to its disinfection practices.

43.10(3) *Disinfection benchmark.*

a. Applicability. Any system required to develop a disinfection profile under 43.10(2) must develop a disinfection benchmark prior to making any significant change in disinfection practice. The system must receive department approval before any significant change in disinfection practice is implemented. Records must be maintained according to subrule 43.10(7).

b. Significant changes to disinfection practice. Significant changes to disinfection practice include:

(1) Changes to the point of disinfection;

(2) Changes to the disinfectant(s) used in the treatment plant;

(3) Changes to the disinfection process; or

(4) Any other modification identified by the department.

c. Calculation of the disinfection benchmark. The system must calculate the disinfection benchmark in the following manner:

(1) Step 1. Using the data collected to develop the disinfection profile, the system must determine the average *Giardia lamblia* inactivation for each calendar month by dividing the sum of all *Giardia lamblia* inactivations for that month by the number of values calculated for that month.

(2) Step 2. The system must determine the lowest monthly average value out of the 12 values. This value becomes the disinfection benchmark.

d. Information required for department approval of a change in disinfection practice. Any significant change in disinfection practice must have been approved by the department before the system institutes the change. The following information must be submitted by the system to the department as part of the consultation and approval process.

(1) A description of the proposed change;

(2) The disinfection profile for *Giardia lamblia* and, if necessary, viruses;

(3) The disinfection benchmark;

(4) An analysis of how the proposed change will affect the current levels of disinfection; and

(5) Any additional information requested by the department.

e. Additional benchmark requirements if chloramines, ozone, or chlorine dioxide is used for primary disinfection. If a system uses chloramines, ozone, or chlorine dioxide for primary disinfection, the system must calculate the disinfection benchmark from the data collected for viruses to develop the disinfection profile in addition to the *Giardia lamblia* disinfection benchmark calculated in paragraph 43.10(3)*"c."* This viral benchmark must be calculated in the same manner used to calculate the *Giardia lamblia* disinfection benchmark in paragraph 43.10(3)*"c."*

43.10(4) *Combined filter effluent turbidity requirements.* All systems using surface water or groundwater under the direct influence of surface water which serve less than 10,000 people must use filtration, and the turbidity limits that must be met depend upon the type of filtration used. Systems using lime softening may acidify representative combined filter effluent turbidity samples prior to analysis, using a protocol approved by the department.

a. Conventional filtration treatment or direct filtration.

(1) Turbidity must be measured in the combined filter effluent as described in paragraphs 43.5(4)*"a"* and *"b."*

(2) The turbidity in the combined filter effluent must be less than or equal to 0.3 NTU in 95 percent of the turbidity measurements taken each month.

(3) The turbidity in the combined filter effluent must never exceed 1 NTU at any time during the month. If at any time the combined filter effluent turbidity exceeds 1 NTU, either in a grab sample used for compliance or in a continuously monitored flow, the system must inform the department as soon as possible, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraphs 42.1(3)*"b"*(3) and 42.1(2)*"a"*(8).

(4) The monthly reporting requirements are listed in subrule 43.10(6).

b. Slow sand filtration or diatomaceous earth filtration.

(1) Turbidity must be measured in the combined filter effluent as described in paragraphs 43.5(4)*"a"* and *"b."*

(2) The combined filter effluent turbidity limits of subrule 43.5(3) must be met.

(3) The monthly reporting requirements are listed in subrule 43.10(6).

c. Other alternative filtration technologies. By using pilot studies or other means, a system using alternative filtration must demonstrate to the satisfaction of the department that the system's filtration, in combination with disinfection treatment, consistently achieves 99 percent removal of *Cryptosporidium* oocysts; 99.9 percent removal, inactivation, or a combination of both, of *Giardia lamblia* cysts; and 99.99 percent removal, inactivation, or a combination of both, of viruses. The department will then use the pilot study data to determine system-specific turbidity limits.

(1) Turbidity must be measured in the combined filter effluent as described in paragraphs 43.5(4)*"a"* and *"b."*

(2) The turbidity must be less than or equal to a value set by the department in 95 percent of the combined filter effluent turbidity measurements taken each month, based on the pilot study. The value may not exceed 1 NTU.

(3) The combined filter effluent turbidity must never exceed a value set by the department, based on the pilot study. The value may not exceed 5 NTU.

(4) The monthly reporting requirements are listed in subrule 43.10(6).

43.10(5) *Individual filter turbidity requirements.* All systems utilizing conventional filtration or direct filtration must conduct continuous monitoring of turbidity for each individual filter. Records must be maintained according to subrule 43.10(7).

a. Continuous turbidity monitoring requirements. Following are the continuous turbidity monitoring requirements.

(1) Monitoring must be conducted using an approved method listed in paragraph 43.5(4)*"a"*;

(2) Calibration of turbidimeters must be conducted at least every 90 days with a primary standard. The calibration of each turbidimeter used for compliance must be verified at least once per week with a primary standard, secondary standards, or the manufacturer's proprietary calibration confirmation device or by a method approved by the department. If the verification is not within plus or minus 0.05 NTU for measurements of less than or equal to 0.5 NTU, or within plus or minus 10 percent of measurements greater than 0.5 NTU, the turbidimeter must be recalibrated;

(3) Results of turbidity monitoring must be recorded at least every 15 minutes;

(4) Monthly reporting must be completed according to subrule 43.10(6); and

(5) Records must be maintained according to 43.10(7).

b. Failure of continuous turbidity monitoring equipment. If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in lieu of continuous monitoring until the turbidimeter is back on-line. A system has a maximum of 14 days after failure to repair the equipment, or else the system is in violation. The system must notify the department within 24 hours of both when the turbidimeter was taken off-line and when it was returned on-line.

c. Special provision for one-filter or two-filter systems. If a system has only one or two filters, it may conduct continuous monitoring of the combined filter effluent turbidity instead of individual effluent turbidity monitoring. The continuous monitoring of the combined filter effluent turbidity must meet the requirements listed in 43.10(5)*"a"* and *"b."*

d. Alternative turbidity levels for systems using lime softening. Systems using lime softening may apply to the department for alternative turbidity exceedance levels for the levels specified in 43.10(5)*"e."* The system must be able to demonstrate to the satisfaction of the department that higher turbidity levels are due to lime carryover only, and not due to degraded filter performance.

e. Requirements triggered by the individual filter turbidity monitoring data. Systems are required to conduct additional activities based upon their individual filter turbidity monitoring data, as listed in this paragraph.

(1) If the turbidity of an individual filter (or the turbidity of the combined filter effluent for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 1.0 NTU in two consecutive recordings taken 15 minutes apart, the system must report the following information in the monthly operation report to the department by the tenth day of the following month:

1. The filter number(s);
2. Corresponding date(s);
3. Turbidity value(s) which exceeded 1.0 NTU; and
4. The cause of the exceedance(s), if known.

(2) If the turbidity of an individual filter (or the turbidity of the combined filter effluent for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 1.0 NTU in two consecutive recordings 15 minutes apart in three consecutive months, the system must meet the following requirements:

1. The system must conduct a self-assessment of the filter(s) within 14 days of the day the filter exceeded 1.0 NTU in two consecutive measurements for the third straight month, unless a comprehensive performance evaluation as specified in the following paragraph is required. Two-filter systems that monitor the combined filter effluent turbidity instead of the individual filters must conduct a self-assessment of both filters.

2. The self-assessment must consist of at least the following components:

- Assessment of filter performance;

- Development of a filter profile;
- Identification and prioritization of factors limiting filter performance;
- Assessment of the applicability of corrections;
- Preparation of a filter self-assessment report;
- Date the self-assessment requirement was triggered; and
- Date the self-assessment was completed.

(3) If the turbidity of an individual filter (or the turbidity of the combined filter effluent for a system with one or two filters, pursuant to 43.10(5)*"c"*) exceeds 2.0 NTU in two consecutive recordings 15 minutes apart in two consecutive months, the system must meet the following requirements:

1. The system must arrange to have a comprehensive performance evaluation (CPE) conducted by the department or a third party approved by the department no later than 60 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month. The CPE report must be completed and submitted to the department within 120 days following the day the filter exceeded 2.0 NTU in two consecutive measurements for the second straight month.

2. A new CPE is not required if a CPE has been completed by the department or a third party approved by the department within the prior 12 months or if the system and department are jointly participating in an ongoing comprehensive technical assistance project at the system.

(4) The department may conduct a CPE at a system regardless of individual filter turbidity levels.

43.10(6) *Reporting requirements.* The system must meet the following reporting requirements:

a. Combined filter effluent turbidity monitoring.

(1) The following information must be reported in the monthly operation report to the department by the tenth day of the following month.

1. Total number of filtered water turbidity measurements taken during the month.

2. The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the system's required 95th percentile limit.

3. The date and analytical result of any turbidity measurements taken during the month which exceeded the maximum turbidity limit for the system, in addition to the requirements of (2).

4. The dates and summary of calibration and verification of all compliance turbidimeters.

(2) For an exceedance of the combined filter effluent maximum turbidity limit, the following requirements must be met.

1. If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

2. If at any time the turbidity in representative samples of filtered water exceeds the maximum level under subrule 43.5(3) for slow sand filtration or diatomaceous earth filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

3. If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the department under paragraph 43.10(4)*"c"* for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system must consult with the department as soon as practical, but no later than 24 hours after the exceedance is known, in accordance with the public notification requirements under 567—subparagraph 42.1(3)*"b"*(3).

b. Individual filter effluent turbidity monitoring. The following information must be reported in the monthly operation report to the department by the tenth day of the following month, unless otherwise noted.

(1) That the system conducted individual filter turbidity monitoring during the month.

(2) For any filter that had two consecutive measurements taken 15 minutes apart that exceeded 1.0 NTU, the following information must be reported:

1. The filter number(s);

2. The corresponding dates;

3. The turbidity values that exceeded 1.0 NTU; and

4. The cause, if known, of the exceedance.

(3) If a self-assessment was required, the date it was triggered and the date the assessment was completed must be reported. If the self-assessment requirement was triggered in the last four days of the month, the information must be reported to the department by the 14th day of the following month.

(4) If a comprehensive performance evaluation was required, the date it was triggered must be reported. A copy of the CPE report must be submitted to the department within 120 days of when the CPE requirement was triggered.

(5) The dates and summary of calibration and verification of all compliance turbidimeters.

c. Disinfection profiling. The following information must be reported to the department by January 1, 2004, for systems serving fewer than 500 people.

(1) Results of disinfection byproduct monitoring that indicate TTHM levels less than 0.064 mg/L and HAA5 levels less than 0.048 mg/L; or

(2) That the system has begun to collect the profiling data.

d. Disinfection benchmarking. Before a system that was required to develop a disinfection profile makes a significant change to its disinfection practice, it must report the following information to the department, and the system must receive department approval before any significant change in disinfection practice is implemented.

(1) Description of the proposed change in disinfection practice;

(2) The system's disinfection profile for *Giardia lamblia* and, if applicable, for viruses;

(3) The system's disinfection benchmark; and

(4) An analysis of how the proposed change will affect the current levels of disinfection.

43.10(7) *Record-keeping requirements.* The system must meet the following record-keeping requirements, in addition to the record-keeping requirements in 567—paragraph 42.4(3)*"c"* and 567—42.5(455B).

a. Individual filter effluent turbidity requirements. The results of the individual filter effluent turbidity monitoring must be kept for at least three years.

b. Disinfection profiling requirements. The results of the disinfection profile, including raw data and analysis, must be kept indefinitely.

c. Disinfection benchmarking requirements. The results of the disinfection benchmark, including raw data and analysis, must be kept indefinitely.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—43.11(455B) Enhanced treatment for *Cryptosporidium*.

43.11(1) *Applicability.* The requirements of this rule are national primary drinking water regulations and establish or extend treatment technique requirements in lieu of maximum contaminant levels for *Cryptosporidium*. These requirements are in addition to the filtration and disinfection requirements of 567—43.5(455B), 567—43.9(455B) and 567—43.10(455B) and apply to all Iowa public water systems supplied by surface water or influenced groundwater sources.

a. Wholesale systems. Wholesale systems must comply with the requirements based on the population of the largest system in the combined distribution system.

b. Filtered systems. The requirements of this rule for filtered systems apply to systems that are required to provide filtration treatment pursuant to 567—43.5(455B), whether or not the system is currently operating a filtration system.

43.11(2) *General requirements.* Systems subject to this rule must comply with the following requirements:

a. Source water monitoring. Systems must conduct two rounds of source water monitoring for each plant that treats a surface water or influenced groundwater source. This monitoring may include sampling for *Cryptosporidium*, *E. coli*, and turbidity, as described in 43.11(3), to determine what level, if any, of additional *Cryptosporidium* treatment the systems must provide.

b. Disinfection profiles and benchmarks. Systems that plan to make a significant change to their disinfection practice must develop disinfection profiles and calculate disinfection benchmarks, as described in 43.11(4).

c. Cryptosporidium treatment bin determination. Systems must determine their *Cryptosporidium* treatment bin classification and provide additional treatment for *Cryptosporidium*, if required, according to the prescribed schedule.

d. Additional treatment for Cryptosporidium. Systems required to provide additional treatment for *Cryptosporidium* must implement microbial toolbox options that are designed and operated as described in 43.11(8) through 43.11(13).

e. Record keeping and reporting. Systems must comply with the applicable record-keeping and reporting requirements described in 43.11(14) and 43.11(15).

f. Significant deficiencies. Systems must address significant deficiencies identified during sanitary surveys as described in 43.1(7).

43.11(3) *Source water monitoring.*

a. Schedule. Systems must conduct the source water monitoring no later than the month and year listed in Table 1. A system may avoid the source water monitoring if the system provides a total of at least 5.5-log treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in 43.11(6). The system must install and operate technologies to provide this level of treatment by the applicable treatment compliance date specified in 43.11(7).

Table 1: Source Water Monitoring Schedule

System	First round of monitoring	Second round of monitoring
Serves at least 100,000 people	October 2006	April 2015
Serves 50,000-99,999 people	April 2007	October 2015
Serves 10,000-49,999 people	April 2008	October 2016
Serves fewer than 10,000 people and only conducts *E. coli* monitoring	October 2008	October 2017
Serves fewer than 10,000 people and conducts *Cryptosporidium* monitoring	April 2010	April 2019

b. Monitoring requirements. The minimum monitoring requirements are listed below. Systems may sample more frequently, provided the sampling frequency is evenly spaced throughout the monitoring period.

(1) Systems serving at least 10,000 people. Systems serving at least 10,000 people must sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for 24 months.

(2) Systems serving fewer than 10,000 people. Systems serving fewer than 10,000 people are allowed to first conduct *E. coli* monitoring to determine if further monitoring for *Cryptosporidium* is required.

1. Systems must sample their source water for *E. coli* at least once every two weeks for 12 months. If the annual mean *E. coli* concentration is at or below 100 *E. coli* per 100 mL, the system can avoid further *Cryptosporidium* monitoring in that sampling round.

2. A system may avoid *E. coli* monitoring if the system notifies the department no later than three months prior to the *E. coli* monitoring start date that the system will conduct *Cryptosporidium* monitoring.

3. Systems that fail to conduct the required *E. coli* monitoring or that cannot meet the *E. coli* annual mean limit are required to conduct *Cryptosporidium* monitoring. The system must sample its source water for *Cryptosporidium* either at least twice per month for 12 months or at least monthly for 24 months.

4. A system that begins monitoring for *E. coli* and determines during the sampling period that the system mathematically cannot meet the applicable *E. coli* annual mean limit may discontinue the *E. coli*

sampling. The system is then required to start *Cryptosporidium* monitoring according to the schedule in Table 1.

(3) Plants operating only part of the year. Systems with surface water or influenced groundwater treatment plants that operate for only part of the year must conduct source water monitoring in accordance with this rule, but with the following modifications.

1. Systems must sample their source water only during the months that the plant operates unless the department specifies another monitoring period based on plant operating practices.

2. Systems with plants that operate less than six months per year and that monitor for must collect at least six samples per year for two years. The samples must be evenly spaced throughout the period the plant operates.

(4) New sources. A system that begins using a new surface water or influenced groundwater source after the dates in Table 1 must monitor according to a schedule approved by the department and meet the requirements of this subrule. The system must also meet the requirements of the bin classification and *Cryptosporidium* treatment for the new source on a schedule approved by the department. The system must conduct the second round of source water monitoring no later than six years following the initial bin classification or determination of the mean *Cryptosporidium* level, as applicable.

(5) Monitoring violation determination. Failure to collect any source water sample required under this subrule in accordance with the sampling plan, location, analytical method, approved laboratory, or reporting requirements of 43.11(3)*"c"* through 43.11(3)*"e"* is a monitoring violation.

(6) Grandfathered monitoring data. Systems were allowed to use source water monitoring *Cryptosporidium* data collected prior to the applicable start date in Table 1 to meet the requirements of the first round of monitoring, a process referred to as grandfathering data. This grandfathered data substituted for an equivalent number of months at the end of the monitoring period and had to meet the requirements of 40 CFR 141.707 as adopted on January 5, 2006, which the department hereby adopts by reference. Department approval of the grandfathered data application is required.

c. Sampling plan. Systems must submit a sampling plan that specifies the sampling locations in relation to the sources and treatment processes and the calendar dates when the system will collect each required sample. The specific treatment process locations that must be included in the plan are pretreatment, points of chemical treatment, and filter backwash recycle.

(1) The sampling plan must be submitted no later than three months prior to the applicable monitoring date in Table 1. If the department does not respond to a system regarding the submitted sampling plan prior to the start of the monitoring period, the system must sample according to the submitted sampling plan.

(2) The plan must be submitted in a form acceptable to the department.

(3) The system must monitor within two days of the date specified in the plan, unless one of the following conditions occurs.

1. If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided, and causes the system to be unable to sample in the scheduled five-day period, the system must sample as close to the scheduled date as is feasible unless the department approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the department within one week of the missed sampling period. A replacement sample must be collected.

2. If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method or quality control requirements, or failure of the laboratory to analyze the sample, the system must notify the department of the cause of the delay and collect a replacement sample.

3. A replacement sample must be collected within 21 days of the scheduled sampling period or on the resampling date approved by the department.

(4) Missed sampling dates. Systems that fail to meet the dates in their sampling plan for any source water sample must revise their sampling plan to add dates for collecting all missed samples. The revised schedule must be submitted to the department for approval prior to the collection of the missed samples.

d. Sampling locations. Systems must collect samples for each treatment plant that treats a surface water or influenced groundwater source. If multiple plants draw water from the same influent (same pipe

or intake), the department may approve one set of monitoring results to be used to satisfy the requirements for those plants.

(1) Chemical treatment location. Systems must collect source water samples prior to chemical treatment. If the system cannot feasibly collect a sample prior to chemical treatment, the department may grant approval for the system to collect the sample after chemical treatment. This approval would only be granted if the department determines in writing that collecting the samples prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

(2) Filter backwash recycle return location. Systems that recycle filter backwash water must collect the source water samples prior to the point of filter backwash water addition.

(3) Bank filtration credit sampling location.

1. Systems that receive *Cryptosporidium* treatment credit for bank filtration under 43.9(3)*"b"* or 43.10(4)*"c"* must collect source water samples in the surface water source prior to bank filtration.

2. Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well, which is after bank filtration has occurred. Use of bank filtration during monitoring must be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under 43.11(10)*"c."*

(4) Multiple sources. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and groundwater sources, must collect samples as follows:

1. The use of multiple sources during monitoring must be consistent with routine operational practice.

2. If a sampling tap is available where the sources are combined prior to treatment, the system must collect samples from that tap.

3. If a sampling tap where the sources are combined prior to treatment is not available, the system must collect samples at each source near the intake on the same day and must use either of the following options for sample analysis.

- Physically composite the source samples into a single sample for analysis. Systems may composite the sample from each source into one sample prior to analysis. The volume of the sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.
- Analyze the samples separately and mathematically composite the results. Systems may analyze samples from each source separately and calculate a weighted average of the analytical results for each sampling date. The weighted average must be calculated by multiplying the analytical result for each source by the fraction that source contributed to the total plant flow at the time the sample was collected and then summing the weighted analytical results.

e. Analytical methodology, laboratory certification, and data reporting requirements. Systems must have samples analyzed pursuant to the specifications listed in this paragraph. The system must report, in a format acceptable to the department, the analytical results from the source water monitoring no later than ten days after the end of the first month following the month when the sample is collected.

(1) *Cryptosporidium.* Systems must have *Cryptosporidium* samples analyzed by a laboratory that is approved under EPA's Laboratory Quality Assurance Evaluation Program for Analysis of *Cryptosporidium* in Water.

1. These are the approved analytical methods for *Cryptosporidium*:

- "Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA," 2005, US EPA, EPA-815-R-05-002. Available at www.nemi.gov;
- "Method 1622: *Cryptosporidium* in Water by Filtration/IMS/FA," 2005, US EPA, EPA-815-R-05-001. Available at www.nemi.gov; and
- "Method 1623.1: *Cryptosporidium* and *Giardia* in Water by Filtration/Immunomagnetic Separation/Immunofluorescence Assay Microscopy," 2012, EPA-816-R-12-001. Available at www.nepis.epa.gov.

2. Using one of the approved methods, the laboratory must analyze at least a 10 L sample or a packed pellet volume of at least 2 mL. Systems unable to process a 10 L sample must analyze as much sample volume as can be filtered by two filters specified in the method, up to a packed pellet volume of at least 2 mL.

3. A matrix spike (MS) sample must be spiked and filtered by the laboratory according to the approved method. If the volume of the MS sample is greater than 10 L, the system may filter all but 10 L of the MS sample in the field and ship the filtered sample and the remaining 10 L of source water to the laboratory. In this case, the laboratory must spike the remaining 10 L of water and filter it through the filter used to collect the balance of the sample in the field.

4. Flow cytometer-counted spiking suspensions must be used for the matrix spike samples and the ongoing precision and recovery samples.

5. The following data elements must be reported for each *Cryptosporidium* analysis:

- PWSID.
- Facility ID.
- Sample collection date.
- Sample type (i.e., field or matrix spike).
- Sample volume filtered (L), to the nearest 0.25 L.
- Whether 100 percent of the filtered volume was examined by the laboratory.
- Number of oocysts counted.
- For matrix spike samples: sample volume spiked and estimated number of oocysts spiked.
- For samples in which less than 10 L is filtered or less than 100 percent of the sample volume is examined: the number of filters used and the packed pellet volume.
- For samples in which less than 100 percent of sample volume is examined: the volume of resuspended concentrate and the volume of this resuspension processed through immunomagnetic separation.

(2) *E. coli.* Systems must have the *E. coli* samples analyzed by a laboratory certified by EPA, the National Environmental Laboratory Accreditation Conference, or the department for total coliform or fecal coliform analysis in drinking water samples using the same approved *E. coli* method for the analysis of source water.

1. The approved analytical methods for the enumeration of *E. coli* in source water are shown in Table 2.

Table 2: *E. coli* Analytical Methods

Method	EPA	Standard Methods	Other
Most probable number with multiple tube or multiple well[1, 2]		9223 B[11]	991.15[4] Colilert[3, 5] Colilert-18[3, 5, 6]
Membrane filtration, single step[1, 7, 8]	1603[9]		m-ColiBlue24[10]
Membrane filtration, two step		9222D/9222G[12]	

[1]Tests must be conducted to provide organism enumeration (i.e., density). Select the appropriate configuration of tubes/filtrations and dilutions/volumes to account for the quality, consistency, and anticipated organism density in the water sample.

[2]Samples shall be enumerated by the multiple-tube or multiple-well procedure. Using multiple-tube procedures, employ an appropriate tube and dilution configuration of the sample as needed and report the Most Probable Number (MPN). Samples tested with Colilert® may be enumerated with the multiple-well procedures, Quanti-Tray®, Quanti-Tray® 2000, and the MPN calculated from the table provided by the manufacturer.

[3]These tests are collectively known as defined enzyme substrate tests, where, for example, a substrate is used to detect the enzyme beta-glucouronidase produced by *E. coli*.

[4]Association of Official Analytical Chemists, International. "Official Methods of Analysis of AOAC International, 16th Ed., Volume 1, Chapter 17, 1995. AOAC, 481 N. Frederick Ave., Suite 500, Gaithersburg, MD 20877-2417.

[5]Descriptions of the Colilert®, Colilert-18®, Quanti-Tray®, and Quanti-Tray® 2000 may be obtained from IDEXX Laboratories, Inc., 1 IDEXX Drive, Westbrook, ME 04092.

[6]Colilert-18® is an optimized formulation of the Colilert® for the determination of total coliforms and *E. coli* that provides results within 18 hours of incubation at 35 degrees C rather than the 24 hours required for the Colilert® test.

[7]The filter must be a 0.45 micron membrane filter or a membrane filter with another pore size certified by the manufacturer to fully retain organisms to be cultivated and to be free of extractables which could interfere with organism growth.

[8]When the membrane filter method has been used previously to test waters with high turbidity or large numbers of noncoliform bacteria, a parallel test should be conducted with a multiple-tube technique to demonstrate applicability and comparability of results.

[9]"Method 1603: *Escherichia coli (E. coli)* in Water by Membrane Filtration Using Modified Membrane-Thermotolerant *Escherichia coli* Agar (modified mTEC), USEPA, July 2006." US EPA, Office of Water, Washington, DC, EPA 821-R-06-011. Available at www.nepis.epa.gov.

[10]A description of the m-ColiBlue24® test, Total Coliforms and *E. coli*, is available from Hach Company, 100 Dayton Ave., Ames, IA 50010.

[11]Standard Methods for the Analysis of Water and Wastewater, 18th (1992), 19th (1995), and 20th (1998) editions, American Public Health Association. Available from APHA, 800 I Street, NW, Washington, DC 20001-3710.

[12]Standard Methods for the Examination of Water and Wastewater, 20th edition (1998). Available from APHA, 800 I Street, NW, Washington, DC 20001-3710.

2. The holding time (the time period from sample collection to initiation of analysis) shall not exceed 30 hours. The department may approve on a case-by-case basis an extension of the holding time to 48 hours, if the 30-hour holding time is not feasible. If the extension is allowed, the laboratory must use the Colilert® reagent version of the Standard Methods 9223B to conduct the analysis.

3. The samples must be maintained between 0 and 10 degrees C during storage and transit to the laboratory.

4. The following data elements must be reported for each *E. coli* analysis:

- PWSID.
- Facility ID.
- Sample collection date.
- Analytical method number.
- Method type.
- Source type (flowing stream or river; lake or reservoir; or influenced groundwater).
- Number of *E. coli* per 100 mL.
- Turbidity in NTU.

(3) Turbidity. The approved analytical methods for turbidity are listed in 43.5(4)*"a"*(1). Measurements of turbidity must be made by a party approved by the department, and reported on the laboratory data sheet with the corresponding *E. coli* sample.

43.11(4) *Disinfection profiling and benchmarking.*

a. General requirements. Following completion of the first round of source water monitoring, a system that plans to make a significant change to its disinfection practice must develop disinfection profiles and calculate disinfection benchmarks for *Giardia lamblia* and viruses.

(1) Notification to the department. The system must notify the department prior to changing its disinfection practice and must include in the notice the completed disinfection profile and disinfection benchmark for *Giardia lamblia* and viruses, a description of the proposed change in disinfection practice, and an analysis of how the proposed change will affect the current level of disinfection.

(2) Definition of "significant change." A significant change to the disinfection practice is defined as follows:

1. Any change to the point of disinfection;
2. Any change to the disinfectant(s) used in the treatment plant;
3. Any change to the disinfection process; or
4. Any other modification identified by the department as a significant change to disinfection practice.

b. Developing the disinfection profile. In order to develop a disinfection profile, a system must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for

Giardia lamblia and viruses. If a system monitors more frequently, the monitoring frequency must be evenly spaced. A system that operates for fewer than 12 months per year must monitor weekly during the period of operation. A system must determine log inactivation for *Giardia lamblia* through the entire plant, based on $CT_{99.9}$ values in Appendix A, Tables 1 through 6, as applicable. Systems must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the department.

(1) Monitoring requirements. Systems with a single point of disinfectant application prior to the entrance to the distribution system must conduct the monitoring listed in this subparagraph. Systems with multiple points of disinfectant application must conduct the same monitoring for each disinfection segment. Systems must monitor the parameters necessary to determine the total inactivation ratio. The analytical methods for the parameters are listed in 43.5(4)*"a."* All measurements must be taken during peak hourly flow.

1. For systems using a disinfectant other than UV, the temperature of the disinfected water must be measured in degrees Celsius at each residual disinfectant concentration sampling point or at an alternative location approved by the department.

2. For systems using chlorine, the pH of the disinfected water must be measured at each chlorine residual disinfectant concentration sampling point or at an alternative location approved by the department.

3. The disinfectant contact time must be determined in minutes.

4. The residual disinfectant concentrations of the water must be determined in mg/L before or at the first customer and prior to each additional point of disinfectant application.

5. A system may use existing data to meet the monitoring requirements if the data are substantially equivalent to the required data, the system has not made any significant change to its treatment practice, and the system has the same source water as it had when the data were collected. Systems may develop disinfection profiles using up to three years of existing data.

6. A system may use disinfection profiles developed under 43.9(2) or 43.10(2) if the system has not made a significant change to its treatment practice and has the same source water as it had when the profile was developed. The virus profile must be developed using the same data on which the *Giardia lamblia* profile is based.

(2) Calculation of the total inactivation ratio for *Giardia lamblia*.

1. Systems using only one point of disinfectant application may determine the total inactivation ratio ($CT_{calc}/CT_{99.9}$) for the disinfection segment using either of the following methods.

- Determine one inactivation ratio before or at the first customer during peak hourly flow.
- Determine successive sequential inactivation ratios between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Calculate the total inactivation ratio by determining the inactivation ratio for each sequence ($CT_{calc}/CT_{99.9}$) and adding the values together.

2. Systems using more than one point of disinfectant application before the first customer must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. Calculate the ($CT_{calc}/CT_{99.9}$) value of each segment and add the values together to determine the total inactivation ratio.

3. Systems must then determine the total logs of inactivation by multiplying the total inactivation ratio by 3.0.

(3) Calculation of the total inactivation ratio for viruses. The system must calculate the log of inactivation for viruses using a protocol approved by the department.

c. Calculation of the disinfection benchmark.

(1) For each year of profiling data collected and calculated under this subrule, systems must determine the lowest mean monthly level of both *Giardia lamblia* and virus inactivation. Systems must determine the mean *Giardia lamblia* and virus inactivation for each calendar month for each year of profiling data by dividing the sum of daily or weekly *Giardia lamblia* and virus log inactivation by the number of values calculated for that month.

(2) For a system with one year of profiling data, the disinfection benchmark is the lowest monthly mean value. For a system with more than one year of profiling data, the disinfection benchmark is the mean of the lowest monthly mean values of *Giardia lamblia* and virus log inactivation in each year of profiling data.

43.11(5) *Bin classification.* Upon completion of the first round of source water monitoring, systems must calculate an initial *Cryptosporidium* bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the *Cryptosporidium* results reported under 43.11(3)*"a."*

a. Calculation of mean Cryptosporidium or bin concentration value.

(1) Systems that collect at least 48 samples. For systems that collect a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

(2) Systems that collect 24 to 47 samples. For systems that collect at least 24 samples but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which *Cryptosporidium* samples were collected.

(3) Systems serving fewer than 10,000 people and monitoring for only one year. For systems that serve fewer than 10,000 people and monitor *Cryptosporidium* for only one year (i.e., 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

(4) Systems with plants operating on a part-time basis. For systems with plants operating only part of the year that monitor fewer than 12 months per year, the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of *Cryptosporidium* monitoring.

(5) If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification.

b. Determination of bin classification.

(1) First monitoring round. A system must determine the bin classification from Table 3, using its calculated bin concentration from 43.11(5)*"a."*

Table 3: Bin Classification Table

System Type	*Cryptosporidium* Concentration, in oocysts/L	Bin Classification
Systems required to monitor for *Cryptosporidium* under 43.11(3)*"b"*(1) or 43.11(3)*"b"*(2)"3"	Fewer than 0.075 oocysts/L	Bin 1
	Between 0.075 and fewer than 1.0 oocysts/L	Bin 2
	Between 1.0 and fewer than 3.0 oocysts/L	Bin 3
	3.0 oocysts/L or greater	Bin 4
Systems serving fewer than 10,000 and not required to monitor for *Cryptosporidium*, pursuant to 43.11(3)*"b"*(2)"1"	Not applicable	Bin 1

(2) Second monitoring round. Following completion of the second round of source water monitoring, a system must recalculate its bin concentration and determine its new bin classification, using the same protocols outlined in 43.11(5)*"a"* and *"b."*

c. Reporting bin classification to the department. Within six months of the end of the sampling period, the system must report its bin classification to the department for approval. The report must also include a summary of the source water monitoring data and the calculation procedure used to determine the bin classification.

d. Treatment technique violation. Failure to comply with 43.11(5)*"b"* and *"c"* is a violation of the treatment technique requirement.

43.11(6) *Additional Cryptosporidium treatment requirements.* A system must provide the level of additional treatment for *Cryptosporidium* specified in Table 4 based on its bin classification determined in 43.11(5) and according to the schedule in 43.11(7).

a. Determination of additional Cryptosporidium treatment requirements. Using Table 4, a system must determine any additional treatment requirements based upon its bin classification. The Bin 1 classification does not require any additional treatment. Bins 2 through 4 require additional *Cryptosporidium* treatment.

Table 4: Additional *Cryptosporidium* Treatment Requirements

Bin Classification	Treatment Used by the System for Compliance with 43.5, 43.9, and 43.10			
	Conventional filtration (including softening)	Direct filtration	Slow sand or diatomaceous earth filtration	Alternative filtration technologies
Bin 1	No additional treatment	No additional treatment	No additional treatment	No additional treatment
Bin 2	1-log treatment	1.5-log treatment	1-log treatment	At least 4.0-log[1]
Bin 3	2-log treatment	2.5-log treatment	2-log treatment	At least 5.0-log[1]
Bin 4	2.5-log treatment	3-log treatment	2.5-log treatment	At least 5.5-log[1]

[1]The total *Cryptosporidium* removal and inactivation must be at least this value, as determined by the department.

b. Treatment requirements for Bins 2 through 4. A system that is classified as Bin 2, 3, or 4 must use one or more of the treatment and management options listed in 43.11(8) to comply with the required additional *Cryptosporidium* treatment. Systems classified as Bins 3 and 4 must achieve at least 1-log of the additional *Cryptosporidium* treatment required by using either one or a combination of the following: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV, as listed in 43.11(9) through 43.11(13).

c. Treatment technique violation. Failure by a system in any month to achieve treatment credit by meeting criteria in 43.11(9) through 43.11(13) that is at least equal to the level of treatment required in 43.11(6)*"a"* is a violation of the treatment technique requirement.

d. Significant changes to the watershed. If, after the system's completion of source water monitoring (either round), the department determines during a sanitary survey or an equivalent source water assessment that significant changes occurred in the system's watershed that could lead to increased contamination of the source water by *Cryptosporidium*, the system must take actions specified by the department to address the contamination. These actions may include additional source water monitoring and implementing microbial toolbox options listed in 43.11(8).

43.11(7) *Schedule for compliance with Cryptosporidium treatment requirements.* Following the initial bin classification under 43.11(5), systems must provide the level of treatment for *Cryptosporidium* required in 43.11(6), according to the schedule in Table 5. If the bin classification of a system changes following the second round of source water monitoring, the system must provide the level of treatment for *Cryptosporidium* required in 43.11(6), on a schedule approved by the department.

Table 5: *Cryptosporidium* Treatment Compliance Dates

Schedule	Population Served by System	Compliance Date for *Cryptosporidium* treatment requirements[1]
1	At least 100,000 people	April 1, 2012
2	From 50,000 to 99,999 people	October 1, 2012
3	From 10,000 to 49,999 people	October 1, 2013
4	Fewer than 10,000 people	October 1, 2014

[1]The department may allow up to an additional two years for compliance with the treatment requirement if the system must make capital improvements.

43.11(8) *Microbial toolbox options for meeting Cryptosporidium treatment requirements.* Systems receive the treatment credits listed in Table 6 by meeting the conditions for microbial toolbox options

described in 43.11(9) through 43.11(13). Systems apply these treatment credits to meet the treatment requirements in 43.11(6). Table 6 summarizes options in the microbial toolbox.

Table 6: Microbial Toolbox Summary Table: Options, Treatment Credits, and Criteria

Toolbox Option	Specific Criteria Rule	*Cryptosporidium* treatment credit with design and implementation criteria
Source Protection and Management Toolbox Options		
Watershed control program	43.11(9)	0.5-log credit for department-approved program comprising required elements, annual program status report to department, and regular watershed survey.
Alternative source/intake management	43.11(9)*"b"*	No prescribed credit. Systems may conduct simultaneous monitoring for treatment bin classification at alternative intake locations or under alternative intake management strategies.
Prefiltration Toolbox Options		
Presedimentation basin with coagulation	43.11(10)*"a"*	0.5-log credit during any month that presedimentation basins achieve a monthly mean reduction of 0.5-log or greater in turbidity or alternative department-approved performance criteria. To be eligible, basins must be operated continuously with coagulant addition and all plant flow must pass through the basins.
Two-stage lime softening	43.11(10)*"b"*	0.5-log credit for two-stage softening where chemical addition and hardness precipitation occur in both stages. All plant flow must pass through both stages. Single-stage softening is credited as equivalent to conventional treatment.
Bank filtration	43.11(10)*"c"*	0.5-log credit for 25-foot setback; 1.0-log credit for 50-foot setback; aquifer must be unconsolidated sand containing at least 10 percent fines; average turbidity in wells must be less than 1 NTU. A system using a well followed by filtration when conducting source water monitoring must sample the well to determine bin classification and is not eligible for additional credit.
Treatment Performance Toolbox Options		
Combined filter performance	43.11(11)*"a"*	0.5-log credit for combined filter effluent turbidity less than or equal to 0.15 NTU in at least 95 percent of measurements each month.
Individual filter performance	43.11(11)*"b"*	0.5-log credit (in addition to the 0.5-log combined filter performance credit) if individual filter effluent turbidity is less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter and is never greater than 0.3 NTU in two consecutive measurements in any filter.
Demonstration of performance	43.11(11)*"c"*	Credit awarded to unit process or treatment train based on a demonstration to the department with a department-approved protocol.
Additional Filtration Toolbox Options		
Bag or cartridge filters (individual filters)	43.11(12)*"a"*	Up to 2-log credit based on the removal efficiency demonstrated during challenge testing with a 1.0-log factor of safety.

Toolbox Option	Specific Criteria Rule	*Cryptosporidium* treatment credit with design and implementation criteria
Bag or cartridge filters (in series)	43.11(12)*"a"*	Up to 2.5-log credit based on the removal efficiency demonstrated during challenge testing with a 0.5-log factor of safety.
Membrane filtration	43.11(12)*"b"*	Log credit equivalent to removal efficiency demonstrated in challenge test for device if supported by direct integrity testing.
Second-stage filtration	43.11(12)*"c"*	0.5-log credit for second separate granular media filtration stage if treatment train includes coagulation prior to first filter.
Slow sand filtration	43.11(12)*"d"*	2.5-log credit as a secondary filtration step; 3.0-log credit as a primary filtration process. No prior chlorination for either option.
Inactivation Toolbox Options		
Chlorine dioxide	43.11(13)	Log credit based on measured CT in relation to CT table.
Ozone	43.11(13)	Log credit based on measured CT in relation to CT table.
Ultraviolet light (UV)	43.11(13)	Log credit based on validated UV dose in relation to UV dose table; reactor validation testing required to establish UV dose and associated operating conditions.

43.11(9) *Source toolbox components.*

a. Watershed control program. Systems receive 0.5-log *Cryptosporidium* treatment credit for implementing a watershed control program that meets the requirements of this paragraph.

(1) Notification. Systems that intend to apply for the watershed control program credit must notify the department of this intent no later than two years prior to the treatment compliance date in 43.11(7) applicable to the system.

(2) Proposed watershed control plan. Systems must submit to the department a proposed watershed control plan no later than one year before the applicable treatment compliance date in 43.11(7). The department must approve the watershed control plan for the system to receive watershed control program treatment credit. The watershed control plan must include the following elements:

1. Identification of an "area of influence" outside of which the likelihood of *Cryptosporidium* or fecal contamination affecting the treatment plant intake is not significant. This is the area to be evaluated in future watershed surveys under 43.11(9)*"a"*(5)"2."

2. Identification of both potential and actual sources of *Cryptosporidium* contamination and an assessment of the relative impact of these sources on the system's source water quality.

3. An analysis of the effectiveness and feasibility of control measures that could reduce *Cryptosporidium* loading from sources of contamination to the system's source water.

4. A statement of goals and specific actions the system will undertake to reduce source water *Cryptosporidium* levels. The plan must explain how the actions are expected to contribute to specific goals, identify watershed partners and their roles, identify resource requirements and commitments, and include a schedule for plan implementation with deadlines for completing specific actions identified in the plan.

(3) Existing watershed control programs. Systems with watershed control programs that were in place on January 5, 2006, are eligible to seek this credit. The systems' watershed control plans must meet the criteria in 43.11(9)*"a"*(2) and must specify ongoing and future actions that will reduce source water *Cryptosporidium* levels.

(4) Department response to submitted plan. If the department does not respond to a system regarding approval of a watershed control plan submitted under this subrule and the system meets the other requirements of this subrule, the watershed control program will be considered approved and

0.5-log *Cryptosporidium* treatment credit will be awarded unless and until the department subsequently withdraws such approval.

(5) System requirements to maintain 0.5-log credit. Systems must complete the following actions to maintain the 0.5-log credit.

1. Submit an annual watershed control program status report to the department. The annual watershed control program status report must describe the system's implementation of the approved plan and assess the adequacy of the plan to meet its goals. The plan must explain how the system is addressing any shortcomings in plan implementation, including those previously identified by the department or as a result of the watershed survey conducted under 43.11(9)*"a"*(5)"2." It must also describe any significant changes that have occurred in the watershed since the last watershed sanitary survey. If a system determines during implementation that making a significant change to its approved watershed control program is necessary, the system must notify the department prior to making any such changes. If any change is likely to reduce the level of source water protection, the system must also list in its notification the actions the system will take to mitigate this effect.

2. Undergo a watershed sanitary survey every three years for community water systems and every five years for noncommunity water systems and submit the survey report to the department. The survey must be conducted according to department guidelines and by persons acceptable to the department.

- The watershed sanitary survey must meet the following criteria: encompass the region identified in the department-approved watershed control plan as the area of influence; assess the implementation of actions to reduce source water *Cryptosporidium* levels; and identify any significant new sources of *Cryptosporidium.*
- If the department determines that significant changes may have occurred in the watershed since the previous watershed sanitary survey, systems must undergo another watershed sanitary survey by the date specified by the department, which may be earlier than the regular schedule of a three- or five-year frequency.

3. The system must make the watershed control plan, annual status reports, and watershed sanitary survey reports available to the public upon request. These documents must be in a plain language style and include criteria by which to evaluate the success of the program in achieving plan goals. The department may approve systems to withhold portions of an annual status report, watershed control plan, and watershed sanitary survey from the public, based on water supply security considerations.

(6) Withdrawal of watershed control program treatment credit. If the department determines that a system is not carrying out the approved watershed control plan, the department may withdraw the watershed control program treatment credit.

b. Alternative source. A system may conduct source water monitoring that reflects a different intake location (either in the same source or for an alternate source) or a different procedure for the timing or level of withdrawal from the source (alternative source monitoring). If the department approves, a system may determine its bin classification under 43.11(5) based on alternative source monitoring results.

(1) Systems conducting alternative source monitoring must also monitor their current plan intake concurrently, as described in 43.11(3).

(2) Alternative source monitoring must meet the requirements for source monitoring to determine bin classification, as described in 43.11(3). Systems must report to the department the alternative source monitoring results and provide supporting information documenting the operating conditions under which the samples were collected.

(3) If a system determines its bin classification under 43.11(5) using alternative source monitoring results that reflect a different intake location or a different procedure for managing the timing or level of withdrawal from the source, the system must relocate the intake or permanently adopt the withdrawal procedure, as applicable, no later than the applicable treatment compliance date in 43.11(7).

43.11(10) *Prefiltration treatment toolbox components.*

a. Presedimentation. Systems receive 0.5-log *Cryptosporidium* treatment credit for a presedimentation basin during any month the process meets the criteria in this paragraph.

(1) The presedimentation basin must be in continuous operation and must treat the entire plant flow taken from a surface water or influenced groundwater source.

(2) The system must continuously add a coagulant to the presedimentation basin.

(3) The presedimentation basin must achieve either of the following performance criteria:

1. Demonstrates at least 0.5-log mean reduction of influent turbidity. This reduction must be determined using daily turbidity measurements in the presedimentation process influent and effluent and must be calculated as follows: LOG_{10}(monthly mean of daily influent turbidity) – LOG_{10}(monthly mean of daily effluent turbidity).

2. Complies with department-approved performance criteria that demonstrate at least 0.5-log mean removal of micron-sized particulate material through the presedimentation process.

b. Two-stage lime softening. Systems receive an additional 0.5-log *Cryptosporidium* treatment credit for a two-stage lime softening plant if chemical addition and hardness precipitation occur in two separate and sequential softening stages prior to filtration. Both softening stages must treat the entire plant flow taken from a surface water or influenced groundwater source.

c. Bank filtration. Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this paragraph. Systems using bank filtration when they begin source water monitoring under 43.11(3)*"a"* must collect samples as described in 43.11(3)*"d"*(3) and are not eligible for this credit.

(1) Treatment credit. Wells with a groundwater flow path of at least 25 feet receive 0.5-log treatment credit; wells with a groundwater flow path of at least 50 feet receive 1.0-log treatment credit. The groundwater flow path must be determined as specified in 43.11(10)*"c"*(4).

(2) Granular aquifers only. Only wells in granular aquifers are eligible for treatment credit. Granular aquifers are those comprised of sand, clay, silt, rock fragments, pebbles or larger particles, and minor cement. A system must characterize the aquifer at the well site to determine aquifer properties. Systems must extract a core from the aquifer and demonstrate that in at least 90 percent of the core length, grains less than 1.0 mm in diameter constitute at least 10 percent of the core material.

(3) Horizontal and vertical wells only. Only horizontal and vertical wells are eligible for treatment credit.

(4) Measurement of groundwater flow path. For vertical wells, the groundwater flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100-year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the groundwater flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

(5) Turbidity monitoring at the wellhead. Systems must monitor each wellhead for turbidity at least once every four hours while the bank filtration process is in operation. If monthly average turbidity levels, based on daily maximum values in the well, exceed 1 NTU, the system must report this result to the department and conduct an assessment within 30 days to determine the cause of the high turbidity levels in the well. If the department determines that microbial removal has been compromised, the department may revoke treatment credit until the system implements corrective actions approved by the department to remediate the problem.

(6) Springs and infiltration galleries. This treatment credit is not eligible for springs and infiltration galleries. Springs and infiltration galleries are eligible for credit through demonstration of performance study under 43.11(11)*"c."*

(7) Bank filtration demonstration of performance. The department may approve *Cryptosporidium* treatment credit for bank filtration based on a demonstration of performance study that meets the criteria in this subparagraph. This treatment credit may be greater than 1.0-log and may be awarded to bank filtration that does not meet the criteria in 43.11(10)*"c"*(1) to (5).

1. The study must follow a protocol approved by the department and must involve the collection of data on the removal of *Cryptosporidium* or a surrogate for *Cryptosporidium* and related hydrogeologic and water quality parameters during the full range of operating conditions.

2. The study must include sampling both from the production well(s) and from monitoring wells that are screened and located along the shortest flow path between the surface water source and the production well(s).

43.11(11) *Treatment performance toolbox components.* This option pertains to physical treatment processes.

a. Combined filter performance. Systems using conventional filtration treatment or direct filtration treatment receive an additional 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph. Combined filter effluent (CFE) turbidity must be less than or equal to 0.15 NTU in at least 95 percent of the measurements. Turbidity must be measured as described in 43.5(4) and, if applicable, 43.10(4).

b. Individual filter performance. Systems using conventional filtration treatment or direct filtration treatment receive 0.5-log *Cryptosporidium* treatment credit during any month the system meets the criteria in this paragraph, which can be in addition to the CFE 0.5-log credit from 43.11(11)*"a."* Compliance with these criteria must be based on individual filter turbidity monitoring as described in 43.9(4) or 43.10(5), as appropriate.

(1) The filtered water turbidity for each individual filter must be less than or equal to 0.15 NTU in at least 95 percent of the measurements recorded each month.

(2) No individual filter may have a measured turbidity greater than 0.3 NTU in two consecutive measurements taken 15 minutes apart.

(3) Any system that has received treatment credit for individual filter performance and fails to meet the requirements of 43.11(11)*"b"*(2) and (3) during any month shall not receive a treatment technique violation under 43.11(6) if the department determines the following:

1. The failure was due to unusual and short-term circumstances that could not reasonably be prevented through optimizing the treatment plant design, operation, and maintenance.

2. The system has experienced no more than two such failures in any calendar year.

c. Demonstration of performance. The department may approve *Cryptosporidium* treatment credit for drinking water treatment processes based on a demonstration of performance study that meets the criteria in this paragraph. This treatment credit may be greater than or less than the prescribed treatment credits in 43.11(6) or 43.11(10) through 43.11(13) and may be awarded to treatment processes that do not meet the criteria for the prescribed credits.

(1) Systems cannot receive the prescribed treatment credit for any toolbox option in 43.11(10) through 43.11(13) if that toolbox option is included in a demonstration of performance study for which treatment credit is awarded under this paragraph.

(2) The demonstration of performance study must follow a department-approved protocol and must demonstrate the level of *Cryptosporidium* reduction the treatment process will achieve under the full range of expected operating conditions for the system.

(3) Approval by the department must be in writing and may include monitoring and treatment performance criteria that the system must demonstrate and report on an ongoing basis to remain eligible for the treatment credit. The department may designate such criteria where necessary to verify that the conditions under which the demonstration of performance credit was approved are maintained during routine operation.

43.11(12) *Additional filtration toolbox components.*

a. Bag and cartridge filters. By meeting the criteria in this paragraph, systems receive *Cryptosporidium* treatment credit of up to 2.0-log for the use of individual bag or cartridge filters and up to 2.5-log for the use of bag or cartridge filters operated in series. To be eligible for this credit, systems must report the results of challenge testing that meets the requirements of 43.11(12)*"a"*(2) through 43.11(12)*"a"*(9) to the department. The filters must treat the entire plant flow taken from a surface water or influenced groundwater source.

(1) The *Cryptosporidium* treatment credit awarded for use of bag or cartridge filters must be based on the removal efficiency demonstrated during challenge testing that is conducted in accordance with the criteria in 43.11(12)*"a"*(2) through 43.11(12)*"a"*(9). A safety factor equal to 1-log for individual bag or cartridge filters and 0.5-log for bag or cartridge filters in series must be applied to challenge testing

results to determine removal credit. Systems may use results from challenge testing conducted prior to January 5, 2006, if the prior testing was consistent with the criteria specified in this paragraph.

(2) Challenge testing must be performed on full-scale bag or cartridge filters, and the associated filter housing or pressure vessel, that are identical in material and construction to the filters and housings the system will use for removal of *Cryptosporidium*. Bag or cartridge filters must be challenge tested in the same configuration that the system will use, either as individual filters or as a series configuration of filters.

(3) Challenge testing must be conducted using *Cryptosporidium* or a surrogate that is removed no more efficiently than *Cryptosporidium*. The microorganism or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate must be determined using a method capable of discretely quantifying the specific microorganisms or surrogate used in the test; gross measurements such as turbidity shall not be used.

(4) The maximum feed water concentration that can be used during a challenge test must be based on the detection limit of the challenge particulate in the filtrate (i.e., filtrate detection limit) and must be calculated using this equation:

Maximum Feed Water Concentration = 10,000 × Filtrate Detection Limit

(5) Challenge testing must be conducted at the maximum design flow rate for the filter as specified by the manufacturer.

(6) Each filter evaluated must be tested for a duration sufficient to reach 100 percent of the terminal pressure drop, which thereby establishes the maximum pressure drop under which the filter may be used to comply with the requirements of this paragraph.

(7) Removal efficiency of a filter must be determined from the results of the challenge test and expressed in terms of log removal values using the following equation:

$$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$$

Where:

LRV = log removal value demonstrated during challenge test;

C_f = the feed concentration measured during the challenge test; and

C_p = the filtrate concentration measured during the challenge test.

Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p must be set equal to the detection limit.

(8) Each filter tested must be challenged with the challenge particulate during three periods over the filtration cycle: within two hours of start-up of a new filter; when the pressure drop is between 45 and 55 percent of the terminal pressure drop; and at the end of the cycle after the pressure drop has reached 100 percent of the terminal pressure drop. An LRV must be calculated for each of these challenge periods for each filter tested. The LRV for the filter (LRV_{filter}) must be assigned the value of the minimum LRV observed during the three challenge periods for that filter.

(9) If fewer than 20 filters are tested, the overall removal efficiency for the filter product line must be set equal to the lowest LRV_{filter} among the filters tested. If 20 or more filters are tested, the overall removal efficiency for the filter product line must be set equal to the tenth percentile of the set of LRV_{filter} values for the various filters tested. The percentile is defined by [i/(n+1)] where "i" is the rank of "n" individual data points ordered lowest to highest. If necessary, the tenth percentile may be calculated using linear interpolation.

(10) If a previously tested filter is modified in a manner that could change the removal efficiency of the filter product line, challenge testing to demonstrate the removal efficiency of the modified filter must be conducted and submitted to the department.

b. Membrane filtration.

(1) Systems receive *Cryptosporidium* treatment credit for using membrane filtration that meets the criteria of this paragraph. Systems using membrane cartridge filters that meet the definition of membrane filtration in 567—40.2(455B) are eligible for this credit. The level of treatment credit a system receives is equal to the lower of the values determined under the following two paragraphs:

1. The removal efficiency demonstrated during challenge testing conducted under the criteria in 43.11(12)*"b"*(2).

2. The maximum removal efficiency that can be verified through direct integrity testing used with the membrane filtration process under the conditions in 43.11(12)*"b"*(3).

(2) Challenge testing. The membrane used by the system must undergo challenge testing to evaluate removal efficiency, and the system must report the results of challenge testing to the department. Challenge testing must be conducted according to the criteria listed in this subparagraph. Systems may use data from challenge testing conducted prior to January 5, 2006, if the prior testing was consistent with the criteria listed in this subparagraph.

1. Challenge testing must be conducted on either a full-scale membrane module, identical in material and construction to the membrane modules used in the system's treatment facility, or a smaller-scale membrane module, identical in material and similar in construction to the full-scale module. A module is defined as the smallest component of a membrane unit in which a specific membrane surface area is housed in a device with a filtrate outlet structure.

2. Challenge testing must be conducted using *Cryptosporidium* oocysts or a surrogate that is removed no more efficiently than *Cryptosporidium* oocysts. The organisms or surrogate used during challenge testing is referred to as the challenge particulate. The concentration of the challenge particulate, in both the feed and filtrate water, must be determined using a method capable of discretely quantifying the specific challenge particulate used in the test; gross measurements such as turbidity shall not be used.

3. The maximum feed water concentration that can be used during a challenge test is based on the detection limit of the challenge particulate in the filtrate and must be determined according to the following equation:

Maximum Feed Water Concentration = 3,160,000 × Filtrate Detection Limit

4. Challenge testing must be conducted under representative hydraulic conditions at the maximum design flux and maximum design process recovery specified by the manufacturer for the membrane module. Flux is defined as the throughput of a pressure-driven membrane process expressed as flow per unit of membrane area. Recovery is defined as the volumetric percent of feed water that is converted to filtrate over the course of an operating cycle uninterrupted by events such as chemical cleaning or a solids removal process (i.e., backwashing).

5. Removal efficiency of a membrane module must be calculated from the challenge test results and expressed as a log removal value according to the following equation:

$LRV = LOG_{10}(C_f) - LOG_{10}(C_p)$

Where:

LRV = log removal value demonstrated during challenge test;

C_f = the feed concentration measured during the challenge test; and

C_p = the filtrate concentration measured during the challenge test.

Equivalent units must be used for the feed and filtrate concentrations. If the challenge particulate is not detected in the filtrate, the term C_p must be set equal to the detection limit for the purpose of calculating the LRV. An LRV must be calculated for each membrane module evaluated during the challenge test.

6. The removal efficiency of a membrane filtration process demonstrated during challenge testing must be expressed as a log removal value ($LRV_{C\text{-}Test}$). If fewer than 20 modules are tested, then $LRV_{C\text{-}Test}$ is equal to the lowest of the representative LRVs among the modules tested. If 20 or more modules are tested, then $LRV_{C\text{-}Test}$ is equal to the tenth percentile of the representative LRVs among the modules tested. The percentile is defined by [i/(n+1)] where "i" is the rank of "n" individual data points ordered lowest to highest. If necessary, the tenth percentile may be calculated using linear interpolation.

7. The challenge test must establish a quality control release value (QCRV) for a nondestructive performance test that demonstrates the *Cryptosporidium* removal capability of the membrane filtration module. In order to verify *Cryptosporidium* removal capability, this performance test must be applied to each production membrane module that was not directly challenge tested but was used by the system.

Production modules that do not meet the established QCRV are not eligible for the treatment credit demonstrated during the challenge test.

8. If a previously tested membrane is modified in a manner that could change the removal efficiency of the membrane or the applicability of the nondestructive performance test and associated QCRV, additional challenge testing to demonstrate the removal efficiency of the modified membrane must be conducted and submitted to the department, along with determination of a new QCRV.

(3) Direct integrity testing. Systems must conduct direct integrity testing in a manner that demonstrates a removal efficiency equal to or greater than the removal credit awarded for the membrane filtration process and meets the requirements described in this subparagraph. A direct integrity test is defined as a physical test applied to a membrane unit in order to identify and isolate integrity breaches (i.e., one or more leaks that could result in contamination of the filtrate).

1. The direct integrity test must be independently applied to each membrane unit in service. A membrane unit is defined as a group of membrane modules that share common valving that allows the unit to be isolated from the rest of the system for the purpose of integrity testing or other maintenance.

2. The direct integrity method must have a resolution of 3 micrometers or less, where resolution is defined as the size of the smallest integrity breach that contributes to a response from the direct integrity test.

3. The direct integrity test must have a sensitivity sufficient to verify the log treatment credit awarded by the department for the membrane filtration process, where sensitivity is defined as the maximum log removal value that can be reliably verified by a direct integrity test. Sensitivity must be determined using the approach in either of the following paragraphs as applicable to the type of direct integrity test the system uses.

- For direct integrity tests using applied pressure or vacuum, the direct integrity test sensitivity must be calculated according to the following equation:

$LRV_{DIT} = LOG_{10} [Q_p/(VCF \times Q_{breach})]$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test;

Q_p = total design filtrate flow from the membrane unit;

Q_{breach} = flow of water from an integrity breach associated with the smallest integrity test response that can be reliably measured; and

VCF = volumetric concentration factor, which is the ratio of the suspended solids concentration on the high-pressure side of the membrane relative to that in the feed water.

- For direct integrity tests using a particulate or molecular marker, the direct integrity test sensitivity must be calculated according to the following equation:

$LRV_{DIT} = LOG_{10} (C_f) – LOG_{10} (C_p)$

Where:

LRV_{DIT} = the sensitivity of the direct integrity test;

C_f = the typical feed concentration of the marker used in the test; and

C_p = the filtrate concentration of the marker from an integral membrane unit.

4. Systems must establish a control limit within the sensitivity limits of the direct integrity test that is indicative of an integral membrane unit capable of meeting the removal credit awarded by the department.

5. If the result of a direct integrity test exceeds the control limit established under 43.11(12)*"b"*(3)"4," the system must remove the membrane unit from service. Systems must conduct a direct integrity test to verify any repairs and may return the membrane unit to service only if the direct integrity test is within the established control limit.

6. Systems must conduct direct integrity testing on each membrane unit at a frequency of not less than once each day that the membrane unit is in operation. The department may approve less frequent testing, based on demonstrated process reliability, the use of multiple barriers effective for *Cryptosporidium*, or reliable process safeguards.

(4) Indirect integrity monitoring. Systems must conduct continuous indirect integrity monitoring on each membrane unit according to the following criteria. Indirect integrity monitoring is defined as monitoring some aspect of filtrate water quality that is indicative of the removal of particulate matter. A system that implements continuous direct integrity testing of membrane units in accordance with the criteria in 43.11(12)*"b"*(3) is not subject to the requirements for continuous indirect integrity monitoring. Systems must submit a monthly report to the department summarizing all continuous indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken in each case.

1. Unless the department approves an alternative parameter, continuous indirect integrity monitoring must include continuous filtrate turbidity monitoring.

2. Continuous monitoring must be conducted at a frequency of no less than once every 15 minutes.

3. Continuous monitoring must be separately conducted on each membrane unit.

4. If indirect integrity monitoring includes turbidity and if the filtrate turbidity readings are above 0.15 NTU for a period greater than 15 minutes (i.e., two consecutive 15-minute readings above 0.15 NTU), direct integrity testing must immediately be performed on the associated membrane unit as specified in 43.11(12)*"b"*(3)"1" through 43.11(12)*"b"*(3)"5."

5. If indirect integrity monitoring includes a department-approved alternative parameter and if the alternative parameter exceeds a department-approved control limit for a period greater than 15 minutes, direct integrity testing must immediately be performed on the associated membrane units as specified in 43.11(12)*"b"*(3)"1" through 43.11(12)*"b"*(3)"5."

c. Second-stage filtration. Systems receive 0.5-log *Cryptosporidium* treatment credit for using a separate second stage of filtration that consists of sand, dual media, GAC, or other fine-grain media following granular media filtration if the department approves. To be eligible for this credit, the first stage of filtration must be preceded by a coagulation step and both filtration stages must treat the entire plant flow taken from a surface water or influenced groundwater source. A cap, such as GAC, on a single stage of filtration is not eligible for this credit. The department must approve the treatment credit based on an assessment of the design characteristics of the filtration process.

d. Slow sand filtration (as secondary filter). Systems are eligible to receive 2.5-log *Cryptosporidium* treatment credit for using a slow sand filtration process that follows a separate stage of filtration if both filtration stages treat entire plant flow taken from a surface water or influenced groundwater source and no disinfectant residual is present in the influent water to the slow sand filtration process. The department must base its approval of the treatment credit on an assessment of the design characteristics of the filtration process. This does not apply to treatment credit awarded for slow sand filtration used as a primary filtration process.

43.11(13) *Inactivation toolbox components.*

a. Calculation of CT values.

(1) CT is the product of the disinfectant contact time (T, in minutes) and disinfectant concentration (C, in milligrams per liter). Systems with treatment credit for chlorine dioxide or ozone under 43.11(13)*"b"* or *"c"* must calculate CT at least once each day, with both C and T measured during peak hourly flow as specified in 43.5(4).

(2) Systems with several disinfection segments in sequence may calculate CT for each segment, where a disinfection segment is defined as a treatment unit process with a measureable disinfectant residual level and a liquid volume. Under this approach, systems must add the *Cryptosporidium* CT values in each segment to determine the total CT for the treatment plant.

b. CT values for chlorine dioxide and ozone.

(1) As described in 43.11(13)*"a,"* systems receive the *Cryptosporidium* treatment credit listed in Table 1 of Appendix B by meeting the corresponding chlorine dioxide CT value for the applicable water temperature.

(2) As described in 43.11(13)*"a,"* systems receive the *Cryptosporidium* treatment credit listed in Table 2 of Appendix B by meeting the corresponding ozone CT value for the applicable water temperature.

c. Site-specific study. The department may approve alternative chlorine dioxide or ozone CT values to those listed in 43.11(13)*"b"* on a site-specific basis. The department must base its approval on a site-specific study conducted by the system. The study must follow a department-approved protocol.

d. Ultraviolet light. Systems receive *Cryptosporidium*, *Giardia lamblia*, and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in Table 3 of Appendix B. Systems must use the following procedures to validate and monitor UV reactors in order to demonstrate that the reactors are achieving a particular UV dose value for treatment credit.

(1) Reactor validation testing. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the required UV dose (i.e., validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

1. When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.

2. Validation testing must include the following: full-scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low-pressure mercury vapor lamp.

3. The department may approve an alternative approach to validation testing.

(2) Reactor monitoring.

1. Systems must monitor their UV reactors to determine if the reactors are operating within validated conditions, as determined under 43.11(13)*"d"*(1). This monitoring must include UV sensor, flow rate, lamp status, and other parameters the department designates based on UV reactor operation. Systems must verify the calibration of UV sensors and must recalibrate sensors in accordance with a protocol approved by the department.

2. To receive treatment credit for UV light, systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose. Systems must demonstrate compliance with this condition by the monitoring required under 43.11(13)*"d"*(2)"1."

43.11(14) *Reporting requirements.*

a. Sampling schedules and monitoring results. Systems must report source water sampling schedules and monitoring results under 43.11(3)*"c"* and 43.11(3)*"e,"* unless the systems notify the department that they will not conduct source water monitoring due to meeting the criteria of 5.5-log treatment for *Cryptosporidium* under 43.11(3)*"a."*

b. Cryptosporidium bin classification. Systems must report their *Cryptosporidium* bin classification determined under 43.11(5).

c. Disinfection profiles and benchmarks. Systems must report disinfection profiles and benchmarks to the department as described in 43.11(4)*"a"* and 43.11(4)*"b"* prior to making a significant change in disinfection practice.

d. Microbial toolbox options. Systems must report to the department in accordance with Table 7 for any microbial toolbox options used to comply with treatment requirements under 43.11(6).

Table 7: Microbial Toolbox Reporting Requirements

Toolbox Option	Systems must submit this information	Information must be submitted on this schedule
1. Watershed control program	Notice of intention to develop a new or continue an existing watershed control program	No later than two years before the applicable treatment compliance date in 43.11(7)
	Watershed control plan	No later than one year before the applicable treatment compliance date in 43.11(7)
	Annual watershed control program status report	Every 12 months, beginning one year after the applicable treatment compliance date in 43.11(7)
	Watershed sanitary survey report	- For community water systems, every three years beginning three years after the applicable treatment compliance date in 43.11(7) - For noncommunity water systems, every five years beginning five years after the applicable treatment compliance date in 43.11(7)
2. Alternative source/intake management	Verification that system has relocated the intake or adopted the intake withdrawal procedure reflected in monitoring results	No later than the applicable treatment compliance date in 43.11(7)
3. Presedimentation	Monthly verification of the following: - Continuous basin operation - Treatment of 100 percent of the flow - Continuous addition of a coagulant - At least 0.5-log mean reduction of influent turbidity or compliance with alternative department-approved performance criteria	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
4. Two-stage lime softening	Monthly verification of the following: - Chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration - Both stages treated 100 percent of plant flow	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
5. Bank filtration	Initial demonstration of the following: - Unconsolidated, predominantly sandy aquifer - Setback distance of at least 25 feet for 0.5-log credit or 50 feet for 1.0-log credit	No later than the applicable treatment compliance date in 43.11(7)
	If monthly average of daily maximum turbidity is greater than 1 NTU, then system must report result and submit an assessment of the cause.	Report within 30 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
6. Combined filter performance	Monthly verification of combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the 4-hour CFE measurements taken each month	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)

Toolbox Option	Systems must submit this information	Information must be submitted on this schedule
7. Individual filter performance	Monthly verification of the following: - Individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of samples each month in each filter - No individual filter effluent turbidity levels greater than 0.3 NTU in two consecutive readings 15 minutes apart	Monthly reporting within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
8. Demonstration of performance	Results from testing following a department-approved protocol	No later than the applicable treatment compliance date in 43.11(7)
	As required by the department, monthly verification of operation within conditions of department approval for demonstration of performance credit	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
9. Bag filters and cartridge filters	Demonstration that the following criteria are met: - Process meets the definition of bag or cartridge filtration - Removal efficiency established through challenge testing that meets criteria in this subpart	No later than the applicable treatment compliance date in 43.11(7)
	Monthly verification that 100 percent of plant flow was filtered	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
10. Membrane filtration	Results of verification testing demonstrating the following: - Removal efficiency established through challenge testing that meets criteria - Integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline	No later than the applicable treatment compliance date in 43.11(7)
	Monthly report summarizing the following: - All direct integrity tests above the control limit - If applicable, any turbidity or alternative department-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
11. Second-stage filtration	Monthly verification that 100 percent of flow was filtered through both stages and that first stage was preceded by coagulation step	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)

Toolbox Option	Systems must submit this information	Information must be submitted on this schedule
12. Slow sand filtration as a secondary filter	Monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100 percent of the flow from surface or influenced groundwater sources	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
13. Chlorine dioxide	Summary of CT values for each day as described in 43.11(13)	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
14. Ozone	Summary of CT values for each day as described in 43.11(13)	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)
15. Ultraviolet light (UV)	Validation test results demonstrating operating conditions that achieve required UV dose	No later than the applicable treatment compliance date in 43.11(7)
	Monthly report summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose as specified in 43.11(13)*"d"*	Within 10 days following the month in which the monitoring was conducted, beginning on the applicable treatment compliance date in 43.11(7)

43.11(15) *Record-keeping requirements.*

a. Source water monitoring records. Systems must keep results from the initial round of source water monitoring under 43.11(3)*"a"* and the second round of source water monitoring under 43.11(3)*"b"* until three years after bin classification under 43.11(5) for the particular round of monitoring.

b. Systems meeting 5.5-log treatment for Cryptosporidium. Systems must keep for three years records of any notification to the department that the systems will meet the 5.5-log *Cryptosporidium* treatment requirements and avoid source water monitoring.

c. Microbial toolbox treatment monitoring records. Systems must keep the results of treatment monitoring associated with microbial toolbox options under 43.11(8) through 43.11(13) for three years.
[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—43.12(455B) Optimization goals.

43.12(1) *Turbidity optimization goals.* Surface water and IGW systems must meet the requirements listed in 567—43.5(455B), 567—43.9(455B), and 567—43.10(455B). To encourage operational optimization, the department has adopted the following goals for systems using surface water or influenced groundwater and that wish to pursue the optimization of their existing treatment processes. These goals are voluntary. Data collected for optimization purposes will not be used to determine compliance with the requirements in 567—43.5(455B), 567—43.9(455B), 567—43.10(455B), or 567—43.11(455B) unless the optimization data are identical to the compliance data.

a. Sedimentation performance goals. The sedimentation performance goals are based upon the average annual raw water turbidity levels.

(1) When the annual average raw water turbidity is less than or equal to 10 NTU over the course of the calendar year, the turbidity should be less than or equal to 1 NTU in at least 95 percent of measurements based on the maximum daily value of readings taken at least once every four hours from each sedimentation basin while the plant is operating.

(2) When the annual average raw water turbidity is more than 10 NTU over the course of the calendar year, the turbidity should be less than or equal to 2 NTU in at least 95 percent of measurements based on the maximum daily value of readings taken at least once every four hours from each sedimentation basin while the plant is operating.

b. Individual filter performance goals. The individual filter performance goals depend upon the system's capability of filtering to waste.

(1) For systems that have the capability of filtering to waste, the individual filter turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, based on the daily maximum value of readings recorded at least once per minute while the plant is in operation. The maximum individual filter turbidity must not exceed 0.30 NTU at any time. The filter must return to service with a turbidity of 0.10 NTU or less.

(2) For systems that do not have the capability of filtering to waste, the individual filter turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, excepting the 15 minutes following the completion of the backwash process, based on the daily maximum value of readings recorded at least once per minute while the plant is in operation. The maximum individual filter turbidity must not exceed 0.30 NTU following backwash and must return to a level at or below 0.10 NTU within 15 minutes of returning the filter to service.

c. Combined filter performance goal. The combined filter performance goal has two components:

(1) Combined filter effluent turbidity should be less than or equal to 0.10 NTU in at least 95 percent of measurements over the course of the calendar year, based on daily maximum value of readings recorded at least once per minute while the plant is operating.

(2) The maximum individual filter turbidity must not exceed 0.30 NTU at any time.

43.12(2) *Disinfection optimization goals.* Reserved.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

TABLE A: SEPARATION DISTANCES FROM WELLS
Rescinded IAB 1/7/04, effective 2/11/04

TABLE B
Minimum Self-Monitoring Requirements
Public Water Supply Systems
[Prior to 12/12/90, appeared in 567—Ch 41, Table D]
Rescinded IAB 8/11/99, effective 9/15/99

APPENDIX A: $CT_{99.9}$ TABLES FOR DISINFECTION PROFILING

TABLE 1: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 0.5°C or Lower[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	137	163	195	237	277	329	390
0.6	141	168	200	239	286	342	407
0.8	145	172	205	246	295	354	422
1.0	148	176	210	253	304	365	437
1.2	152	180	215	259	313	376	451
1.4	155	184	221	266	321	387	464
1.6	157	189	226	273	329	397	477
1.8	162	193	231	279	338	407	489
2.0	165	197	236	286	346	417	500
2.2	169	201	242	297	353	426	511
2.4	172	205	247	298	361	435	522
2.6	175	209	252	304	368	444	533
2.8	178	213	257	310	375	452	543
3.0	181	217	261	316	382	460	552

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 2: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 5.0°C[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	97	117	139	166	198	236	279
0.6	100	120	143	171	204	244	291
0.8	103	122	146	175	210	252	301
1.0	105	125	149	179	216	260	312
1.2	107	127	152	183	221	267	320
1.4	109	130	155	187	227	274	329
1.6	111	132	158	192	232	281	337
1.8	114	135	162	196	238	287	345
2.0	116	138	165	200	243	294	353
2.2	118	140	169	204	248	300	361
2.4	120	143	172	209	253	306	368
2.6	122	146	175	213	258	312	375
2.8	124	148	178	217	263	318	382
3.0	126	151	182	221	268	324	389

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 3: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 10.0°C[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	73	88	104	125	149	177	209
0.6	75	90	107	128	153	183	218
0.8	78	92	110	131	158	189	226
1.0	79	94	112	134	162	195	234
1.2	80	95	114	137	166	200	240
1.4	82	98	116	140	170	206	247
1.6	83	99	119	144	174	211	253
1.8	86	101	122	147	179	215	259
2.0	87	104	124	150	182	221	265
2.2	89	105	127	153	186	225	271
2.4	90	107	129	157	190	230	276
2.6	92	110	131	160	194	234	281
2.8	93	111	134	163	197	239	287
3.0	95	113	137	166	201	243	292

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 4: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 15.0°C[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	49	59	70	83	99	118	140
0.6	50	60	72	86	102	122	146
0.8	52	61	73	88	105	126	151
1.0	53	63	75	90	108	130	156
1.2	54	64	76	92	111	134	160
1.4	55	65	78	94	114	137	165
1.6	56	66	79	96	116	141	169
1.8	57	68	81	98	119	144	173
2.0	58	69	83	100	122	147	177
2.2	59	70	85	102	124	150	181
2.4	60	72	86	105	127	153	184
2.6	61	73	88	107	129	156	188
2.8	62	74	89	109	132	159	191
3.0	63	76	91	111	134	162	195

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 5: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 20.0°C[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	36	44	52	62	74	89	105
0.6	38	45	54	64	77	92	109
0.8	39	46	55	66	79	95	113
1.0	39	47	56	67	81	98	117
1.2	40	48	57	69	83	100	120
1.4	41	49	58	70	85	103	123
1.6	42	50	59	72	87	105	126
1.8	43	51	61	74	89	108	129
2.0	44	52	62	75	91	110	132
2.2	44	53	63	77	93	113	135
2.4	45	54	65	78	95	115	138
2.6	46	55	66	80	97	117	141
2.8	47	56	67	81	99	119	143
3.0	47	57	68	83	101	122	146

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 6: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Free Chlorine at 25.0°C and Higher[1]

Free Residual Chlorine, mg/L	pH						
	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
≤0.4	24	29	35	42	50	59	70
0.6	25	30	36	43	51	61	73
0.8	26	31	37	44	53	63	75
1.0	26	31	37	45	54	65	78
1.2	27	32	38	46	55	67	80
1.4	27	33	39	47	57	69	82
1.6	28	33	40	48	58	70	84
1.8	29	34	41	49	60	72	86
2.0	29	35	41	50	61	74	88
2.2	30	35	42	51	62	75	90
2.4	30	36	43	52	63	77	92
2.6	31	37	44	53	65	78	94
2.8	31	37	45	54	66	80	96
3.0	32	38	46	55	67	81	97

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated pH values may be determined by linear interpolation. Any CT values between the indicated temperatures of different tables may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature and at the higher pH.

TABLE 7: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Chlorine Dioxide and Ozone[1]

Disinfectant	Temperature, °C					
	<1	5	10	15	20	≥25
Chlorine Dioxide	63	26	23	19	15	11
Ozone	2.9	1.9	1.4	0.95	0.72	0.48

[1]These CT values achieve greater than a 99.99 percent inactivation of viruses. Any CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

TABLE 8: CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia lamblia* Cysts by Chloramines[1]

Disinfectant	Temperature, °C					
	<1	5	10	15	20	25
Chloramines	3800	2200	1850	1500	1100	750

[1]These values are for pH values of 6 to 9. These CT values may be assumed to achieve greater than 99.99 percent inactivation of viruses only if chlorine is added and mixed in the water prior to the addition of ammonia. If this condition is not met, the system must demonstrate, based on on-site studies or other information, as approved by the department, that the system is achieving at least 99.99 percent inactivation of viruses. Any CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

APPENDIX B: CT TABLES FOR *CRYPTOSPORIDIUM* INACTIVATION

TABLE 1: CT Values (mg-min/L) for *Cryptosporidium* Inactivation by Chlorine Dioxide[1]

Log Credit	Water Temperature, °C										
	≤0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

[1]Systems may use this equation to determine log credit between the indicated values:

Log credit = $[0.001506 \times (1.09116)^{Temp}] \times CT$

TABLE 2: CT Values (mg-min/L) for *Cryptosporidium* Inactivation by Ozone[1]

Log Credit	Water Temperature, °C										
	≤0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

[1]Systems may use this equation to determine log credit between the indicated values:

Log credit = $[0.0397 \times (1.09757)^{Temp}] \times CT$

TABLE 3: UV Dose for *Cryptosporidium*, *Giardia lamblia*, and Virus Inactivation Credit[1]

Log Credit	*Cryptosporidium* UV dose (mJ/cm^2)	*Giardia lamblia* UV dose (mJ/cm^2)	Virus UV dose (mJ/cm^2)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

[1]The treatment credits listed in Table 3 are for UV light at a wavelength of 254 nm as produced by a low-pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing. The UV dose values in this table are applicable only to post-filter applications of UV in filtered systems.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

APPENDIX C: CT TABLES FOR VIRUS INACTIVATION UNDER THE GROUNDWATER RULE, 567—41.7(455B)

TABLE 1: CT Values (mg-min/L) for Inactivation of Viruses by Free Chlorine, pH 6.0-9.0[1]

Inactivation Log Credit	Water Temperature, °C								
	1	2	3	4	5	6	7	8	9
2	5.8	5.3	4.9	4.4	4.0	3.8	3.6	3.4	3.2
3	8.7	8.0	7.3	6.7	6.0	5.6	5.2	4.8	4.4
4	11.6	10.7	9.8	8.9	8.0	7.6	7.2	6.8	6.4

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

Inactivation Log Credit	Water Temperature, °C							
	10	11	12	13	14	15	16	17
2	3.0	2.8	2.6	2.4	2.2	2.0	1.8	1.6
3	4.0	3.8	3.6	3.4	3.2	3.0	2.8	2.6
4	6.0	5.6	5.2	4.8	4.4	4.0	3.8	3.6

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

Inactivation Log Credit	Water Temperature, °C							
	18	19	20	21	22	23	24	25
2	1.4	1.2	1.0	1.0	1.0	1.0	1.0	1.0
3	2.4	2.2	2.0	1.8	1.6	1.4	1.2	1.0
4	3.4	3.2	3.0	2.8	2.6	2.4	2.2	2.0

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

TABLE 2: CT Values (mg-min/L) for Inactivation of Viruses by Free Chlorine, pH 9.1-10.0

Inactivation Log Credit	Water Temperature, °C					
	0.5	5	10	15	20	25
2	45	30	22	15	11	7
3	66	44	33	22	16	11
4	90	60	45	30	22	15

TABLE 3: CT Values (mg-min/L) for Inactivation of Viruses by Chlorine Dioxide, pH 6.0-9.0[1]

Inactivation Log Credit	Water Temperature, °C								
	1	2	3	4	5	6	7	8	9
2	8.4	7.7	7.0	6.3	5.6	5.3	5.0	4.8	4.5
3	25.6	23.5	21.4	19.2	17.1	16.2	15.4	14.5	13.7
4	50.1	45.9	41.8	37.6	33.4	31.7	30.1	28.4	26.8

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

Inactivation Log Credit	Water Temperature, °C							
	10	11	12	13	14	15	16	17
2	4.2	3.9	3.6	3.4	3.1	2.8	2.7	2.5
3	12.8	12.0	11.1	10.3	9.4	8.6	8.2	7.7
4	25.1	23.4	21.7	20.1	18.4	16.7	15.9	15.0

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

Inactivation Log Credit	Water Temperature, °C							
	18	19	20	21	22	23	24	25
2	2.4	2.2	2.1	2.0	1.8	1.7	1.5	1.4
3	7.3	6.8	6.4	6.0	5.6	5.1	4.7	4.3
4	14.2	13.3	12.5	11.7	10.9	10.0	9.2	8.4

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

TABLE 4: CT Values (mg-min/L) for Inactivation of Viruses by Ozone[1]

Inactivation Log Credit	Water Temperature, °C								
	1	2	3	4	5	6	7	8	9
2	0.90	0.83	0.75	0.68	0.60	0.58	0.56	0.54	0.52
3	1.40	1.28	1.15	1.03	0.90	0.88	0.86	0.84	0.82
4	1.80	1.65	1.50	1.35	1.20	1.16	1.12	1.08	1.04

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

Inactivation Log Credit	Water Temperature, °C							
	10	11	12	13	14	15	16	17
2	0.50	0.46	0.42	0.38	0.34	0.30	0.29	0.28
3	0.80	0.74	0.68	0.62	0.56	0.50	0.48	0.46
4	1.00	0.92	0.84	0.76	0.68	0.60	0.58	0.56

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

Inactivation Log Credit	Water Temperature, °C							
	18	19	20	21	22	23	24	25
2	0.27	0.26	0.25	0.23	0.21	0.19	0.17	0.15
3	0.44	0.42	0.40	0.37	0.34	0.31	0.28	0.25
4	0.54	0.52	0.50	0.46	0.42	0.38	0.34	0.30

[1]CT values provided in the table are modified by linear interpolation between 0.5°C increments.

No CT table is provided for chloramines or total chlorine because the CT values would be prohibitively high for groundwater systems.

Tables are from the EPA Groundwater Rule Implementation Guidance, EPA 816-R-09-004, January 2009, pages 97-98.
[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

These rules are intended to implement Iowa Code sections 455B.171 through 455B.188 and 455B.190 through 455B.192.

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[1] Effective date of 43.2(3)*"b"*(1) to (9) and 43.3(3)*"b"*(1) and (2) delayed until adjournment of the 1995 General Assembly by the Administrative Rules Review Committee at its meeting held March 13, 1995.

CHAPTER 44
DRINKING WATER STATE REVOLVING FUND

567—44.1(455B) Statutory authority. The authority for the Iowa department of natural resources to administer the drinking water state revolving fund (DWSRF) in order to assist in the construction of drinking water treatment facilities is provided by Iowa Code sections 455B.291 to 455B.299.

567—44.2(455B) Scope of title. The department has jurisdiction over the surface water and groundwater of the state to prevent, abate, and control pollution. As a part of that general responsibility, the department and the Iowa finance authority (authority) are jointly designated to administer the DWSRF loan program to assist in the financing of infrastructure projects pursuant to the Safe Drinking Water Act (SDWA). A project must comply with this chapter to be eligible for a DWSRF loan. This chapter provides the background, the general rules of practice for the department's administration of the program, including the criteria for loan eligibility, and the general project and program administration rules.

567—44.3(455B) Purpose. The DWSRF provides financial assistance to eligible public water systems for the design and construction of facilities to ensure public health and the provision of safe and adequate drinking water. The DWSRF reserves a certain percentage of money each year from capitalization grants: for administrative purposes (up to 4 percent), to assist with the administration of the public water supply supervision program (up to 10 percent), to provide technical assistance to smaller drinking water systems (up to 2 percent) and to fund local assistance and other authorized activities (up to 15 percent). The director will coordinate with the authority under the terms of an interagency agreement entered into pursuant to Iowa Code chapter 28E. The department establishes priorities for the use of the DWSRF and publishes them in its intended use plan (IUP). The IUP will identify all proposed uses of available funds. All potentially funded projects or activities must be approved by the department.

The EPA provides capitalization grants for this program to the department. Financial assistance projects must be in conformance with the requirements of the Public Health Service Act (42 U.S.C. 300f et seq.), United States Code, Title XIV, Section 1452, Part E.

567—44.4(455B) Definitions. Definitions provided in 567—Chapter 40 apply to this chapter.

567—44.5(455B) Set-asides. The Safe Drinking Water Act (SDWA) authorizes set-aside funds to enable states to implement specific requirements of the SDWA. The amount and use of set-aside money is set each year in the IUP pursuant to rule 567—44.8(455B) and may be adjusted from year to year based on available funds and priorities as outlined in the IUP. As prescribed in the SDWA, set-asides will include but are not limited to:

44.5(1) *Administration expense set-aside.* These set-aside funds are to be used to administer the DWSRF. Up to 4 percent of the funds allotted through federal capitalization grants may be used for the reasonable costs of administering the programs and providing technical assistance. These costs may include such activities as issuing debt; DWSRF program start-up costs; audit costs; financial, management and legal consulting fees; development of IUP and priority ranking system; development of affordability criteria; and cost of support services provided by other state agencies. If the entire 4 percent is not obligated for administrative costs in one year, the excess balance may be reserved and used for administrative costs in later years.

44.5(2) *Small system technical assistance set-aside.* These set-aside funds will be used to provide technical assistance to public water supplies serving 10,000 people or fewer. Up to 2 percent of funds allotted through federal capitalization grants may be used for this purpose. These funds may be used to support a technical assistance team or to contract with outside organizations to provide technical assistance. Applications for third-party technical assistance proposals must be submitted and will be accepted and evaluated pursuant to subrules 44.7(2) through 44.7(7) prior to publication of the IUP in a given year. If the entire 2 percent is not obligated for these activities in one year, the excess balance may be reserved and used for the same activities in later years.

44.5(3) *Local assistance and other state programs set-aside.* Funds from this set-aside may be used for other categories of activities to assist development or implementation of local drinking water protection initiatives or both. Up to 15 percent of the capitalization grant amount may be used for the following activities, with the stipulation that not more than 10 percent of the capitalization grant amount may be used for any one activity:

a. Assistance, in the form of a loan, to a public water system to acquire land or a conservation easement for source water protection purposes;

b. Assistance, in the form of a loan, to a community water system to implement voluntary, incentive-based source water quality protection measures;

c. Establishment and implementation of wellhead protection programs; and

d. Provision of funding to a public water system to implement technical or financial assistance under the capacity development strategy.

Source water (quality partnership) petition programs (made by individual or consortiums of public water systems) established under Section 1454 of the SDWA amendments of 1996 (P.L. 104-182, August 6, 1996) will be eligible for money under this set-aside. Applications for third-party source water petition proposals must be submitted and will be accepted and evaluated pursuant to subrules 44.7(2) through 44.7(7) prior to publication of the IUP in a given year. These funds may not be reserved for future use.

44.5(4) *State program management set-aside.* Funds from this set-aside may be reserved for public water supply supervision (PWSS) programs, including the following uses:

a. Administration of the state PWSS program;

b. Administration or provision of technical assistance through source water protection programs, which include the Class V portion of the Underground Injection Control Program;

c. Development and implementation of a capacity development strategy; and

d. Development and implementation of an operator certification program.

This set-aside allows a maximum of 10 percent of the total available federal capitalization grant in a particular year and requires a one-to-one match. If the entire 10 percent is not obligated for these activities in one year, the excess balance may be reserved and used for the same activities in later years.

567—44.6(455B) Eligibility.

44.6(1) *Eligible systems.* The following systems are eligible to receive funds from the DWSRF for improvements as listed and defined in the Safe Drinking Water Act amendments of 1996 (P.L. 104-182, August 6, 1996).

a. Community drinking water systems.

b. Nonprofit nontransient noncommunity drinking water systems.

c. Cities and counties that are PWS or can become viable new PWS as a result of this project.

d. Any other governmental subdivision of the state responsible for a public water supply.

44.6(2) *Ineligible systems.* The following systems are ineligible to receive funds from the DWSRF.

a. Any applicant that has not adopted and implemented satisfactory department-approved water conservation plans and practices, or demonstrated to the department an ongoing effort to adopt and implement such plans and practices within one calendar year from the date of the loan agreement.

b. Any applicant in significant noncompliance with any applicable primary drinking water regulation, unless the project will return the applicant to compliance.

c. Any applicant lacking viability (an applicant whose system lacks technical, financial, and managerial viability to comply with the SDWA and is nonviable or lacks capacity according to the definition of the SDWA), unless the applicant commits to undertake appropriate changes in operations, including ownership, management accounting, rates, maintenance, consolidation, alternative sources of water supply, or other procedures if the director determines that such changes are necessary to demonstrate viability.

d. Projects and activities deemed ineligible for participation in the DWSRF by the U.S. Environmental Protection Agency's Drinking Water State Revolving Fund regulations (40 CFR Part 35, Subpart L) or program guidance, or by the department.

44.6(3) *Certified operator requirement.* A system without a certified operator shall not receive loan assistance. The system must submit to the department the name, certification number and certification expiration date of the operator certified, pursuant to 567—Chapter 81, to be directly responsible (in direct responsible charge) for the operation of the facility before receiving a loan.

567—44.7(455B) Project point ranking system (project priority list).

44.7(1) *Project priority list.* The director shall develop and maintain a project priority list of public water systems that have a need for either a new or an upgraded drinking water system, including individual subcomponents. The term "public water system projects" may also include separate segments or phases of a segmented or phased project. The project priority list may include projects which are not ready to proceed (e.g., the list may include projects that by their nature are planned and implemented for a longer term than one year or projects that are unable to be implemented within one calendar year). Projects may be construed as not ready to proceed due to emergencies experienced by the applicant (or the state), or due to construction or other scheduling constraints. Projects will continue to be eligible for loan funding when funded for the first year of a multiyear project effort.

44.7(2) *Application.* Applications for placement on the project priority list shall be accepted by the department on a continuous basis.

44.7(3) *Amendment of project priority list.* The department may amend the project priority list to add eligible projects or remove projects. List adjustment can be done to ensure that the department uses at least 15 percent of each capitalization grant and required state match to provide loan assistance to systems serving fewer than 10,000 persons (allowable under Section 1452(a)(2) of SDWA), to the extent that there are a sufficient number of eligible projects to fund.

44.7(4) *Preliminary engineering study requirements.* To be eligible for placement on the project priority list for a construction loan, the water system must have a preliminary engineering study of potential system needs (e.g., a "planning" study) approved by the department, and must submit to the director a written application for placement on the list. The application must include:

a. A description of the type of project for which financial assistance is being requested;

b. The amount of financial assistance being requested; and

c. A proposed project construction schedule.

Application shall be made on the form from the DWSRF application package provided by the department; the applicant may include additional information in the application. Forms may be obtained from the Environmental Services Division, Iowa Department of Natural Resources, Water Supply Engineering Section, 401 SW 7th Street, Suite M, Des Moines, Iowa 50309, or at www.iowasrf.com.

44.7(5) *Construction project requirements.* An applicant seeking financial assistance for construction must include with the application:

a. A description of the entity's current drinking water supply system, including a discussion of existing and potential problems or failures in the current drinking water system and compliance with state and federal criteria;

b. An estimate of the population and the number of households to be served;

c. A completed Self-Assessment Manual for Iowa Water System Viability;

d. A description of the basis for project design;

e. A map showing the geographical area that the project is expected to serve; and

f. A cost estimate for the selected project.

44.7(6) *Project priority list ranking criteria.* A construction project's priority points shall be the total number of points assigned by the department pursuant to the department's scoring system, delineated in subrule 44.7(7). All projects shall be listed in descending order on the published project priority list according to the number of total priority points assigned each project. When two or more projects have the same priority point total, the project sponsored by a system in the process of consolidation shall receive the higher priority. A private system in the process of forming and becoming a PWS shall have the next highest priority (if the system is determined by U.S. EPA regulations or guidance to be eligible for DWSRF funding), and the entity with the smallest served population shall receive the next highest priority. The most current official census population shall be used for all municipalities which

serve only the population within their incorporated boundaries and which apply for these loan funds. For all other municipalities and other community public water supply systems and for nontransient noncommunity systems, population will be counted based on either the actual population verifiable by the department or population as calculated by multiplying by an occupancy factor of 2.5 persons per service connection. New systems will be counted based on census data, an occupancy factor of 2.5 persons per service connection, an occupancy factor of 2.5 persons per identifiable occupied building, or other means acceptable to the department. Funding shall be offered to the projects with highest rank on the project priority list, subject to the project's readiness to proceed, and shall proceed from the highest project downward, subject to availability of funds. The published project priority list shall also be included in the department's intended use plan (IUP), pursuant to rule 567—44.8(455B). Projects involving a multiyear, phased effort may carry over their original priority point total from the previous year's application, provided that the project owner reapplies at each stage.

44.7(7) *Project priority list scoring criteria.* Eligible public drinking water supply projects shall be scored pursuant to the following priority point scoring system.

IOWA DWSRF PROJECT SCORING SYSTEM

(Multiple attributes within a lettered subcategory are not additive, but points are additive from other subcategories; consolidation/restructuring is an approved option to correct violations or "improve" treatment.)

Scoring Criterion	Points
A. Human Health Risk-related Criteria (maximum of 60 points)	
1. Correction of acute MCL or Tier I treatment technique violation as defined in 567—paragraph 42.1(2)*"a"* (fecal coliform, nitrate, nitrite, chlorine dioxide, turbidity, CT corrective measures, and Giardia)	60
2. Correction of nonacute MCL violation (IOCs excluding acute contaminants, radionuclides, SOCs, VOCs)	50
3. Correction of an expected MCL or treatment technique violation (acute or nonacute)	45
4. Correction of Tier II treatment technique violation as defined in 567—paragraph 42.1(3)*"a"* (Pb/Cu corrective measures, disinfection byproduct precursor removal)	40
5. Mitigation of an imminent threat from groundwater contamination (from UST site, from CERCLA site, from uncontrolled site)	35
6. Connection of individual residences to PWS to eliminate use of contaminated individual private wells (bacterial, nitrate, radionuclide, or IOC/VOC/SOC well contamination all eligible)	35
7. Replacement of asbestos cement pipe (replace at least 200 feet of pipe)	15
B. Infrastructure and Engineering-related Improvement Criteria (maximum of 35 points)	
1. Development of system redundancy and additional source to meet peak day demand with largest well or intake out of service; plant process rehabilitation (made to ensure redundancy of treatment units to protect against acute or chronic MCL with system's largest treatment unit out of service); water storage improvements (system reliability enhancement—to increase effective storage to Average Daily Demand, including either at-ground or elevated storage); pumping improvements meeting hydraulic and Ten-State Standard requirements for Average Daily Demand.	35
2. Water systems over capacity expansion. Points are allowable only when system is operating at 85% or more of system design capacity. Source, plant, or distribution system improvements for system expansion are all eligible under this category.	30
3. Pressure and other distribution system improvements, including pump upgrades, pipe looping, valves, fittings, line replacement, hydrants, pumping stations, and water meters	20
4. Treatment plant improvements, excluding operation and maintenance costs	15
5. Provision of emergency power/emergency pumping capacity including purchase of diesel generators or installation of automatic switching systems	15

Scoring Criterion	Points
6. Security improvements (fencing, lighting, video surveillance, locks, access control)	10
C. Affordability Criteria (maximum of 10 points)	
1. System serves low-income population (Community Development Block Grant (CDBG) Iowa Department of Economic Development (IDED) Low-Moderate Income Criteria (LMI))	10
D. Special Category Improvements (maximum of 15 points)	
1. Wellhead or source water protection plan development or implementation meeting department standards, including loans for land or easement acquisition	15
2. Water conservation measures/conservation plan preparation, adoption, and enforcement	5
E. IDNR Adjustment Factor for Population	
1. (Project Serves) Population less than 10,000	10
TOTAL MAXIMUM POINTS	130

567—44.8(455B) Intended use plan.

44.8(1) *Development.* The director shall prepare an intended use plan (IUP) at least annually and on a quarterly basis as needed. The IUP will be submitted to a public hearing and approved by the commission and U.S. EPA.

44.8(2) *Contents.* The IUP will identify the anticipated uses of loan funds and will include:

a. The state project priority list (defined in rule 567—44.7(455B)) which includes all projects that are eligible for DWSRF loans and any proposed activities eligible for assistance under set-aside authority of the SDWA. The list will include the name of the eligible recipient, applicable PWS permit number, the projected amount of loan assistance, and a schedule of estimated disbursement of funds. The department will consider the following in developing the list of eligible recipients for the intended use plan:

(1) Whether a project will be ready to proceed on a schedule consistent with time requirements for outlay of funds; and

(2) Whether the project addresses the need upon which the system's priority is based.

b. Discussion of the long-term and the short-term goals of the DWSRF.

c. Information on the types of activities to be supported by the DWSRF, including requests for planning and design loans.

d. The method by which the IUP may be amended.

e. Assurances on how the state intends to meet environmental review requirements of the SDWA.

567—44.9(455B) Department initial approval of projects.

44.9(1) *Project initiation conference.* The department may require the applicant or the applicant's representative to meet at a location designated by the department.

44.9(2) *Required project information.* An applicant seeking financial assistance from the DWSRF for a construction project must provide the following information to the director for review and approval:

a. Plans and specifications must be signed by a professional engineer holding current license to practice in Iowa.

b. Plans and specifications must be consistent with the project identified in the application submitted pursuant to subrule 44.7(5).

c. The planned project must be described in full, and the construction requirements necessary to complete the project as proposed must be detailed.

d. The project submittal shall include the latest engineering cost estimate for the project.

e. The plans and specifications shall comply with all applicable state statutes, rules, and design standards.

f. Those portions of projects not meeting eligibility requirements may be excluded from the funded project, but included in the submitted plans and specifications if the applicant chooses to keep the loan-ineligible part of the project as part of the overall system improvement. Ineligible portions of

projects include but are not limited to dams, water rights, monitoring costs, operation and maintenance expenses, projects designed primarily in anticipation of speculative growth, and projects needed primarily for fire protection.

g. The applicant has demonstrated its ability to provide the necessary legal, institutional, managerial, and financial capability to complete the project.

44.9(3) *Department review.* An applicant seeking financial assistance from the DWSRF for any project appearing on the project priority list must submit information as required under subrule 44.7(5) on forms provided by and acceptable to the department. Departmental review requirements shall consist of the following:

a. Upon review and approval of construction projects submitted as required under subrule 44.7(5), and the plans and specifications as required under subrule 44.9(2), and following a determination that the project meets the applicable requirements of the SDWA, federal regulations, Iowa statutes, and relevant portions of this chapter, the director shall approve the project in writing.

b. If there is an alteration (change order) to a project after the director approves the project, the eligible applicant must request in writing from the department an amended approval. The director shall review the request and proposed project alteration (change order) and, upon a determination that the project meets the applicable requirements of the SDWA, federal regulations, the August 7, 2000, Drinking Water State Revolving Funds: Interim Final Rule (40 CFR Part 35, Subpart L), program guidance, Iowa statutes, and relevant portions of this chapter, the director shall approve the project as amended.

c. If the project is not approved, the director shall notify the applicant in writing of the reason for disapproval.

567—44.10(455B) General administrative requirements.

44.10(1) *Allowable costs.* Allowable costs shall be limited to those costs deemed necessary, reasonable, and directly related to the efficient completion of the project. The director will determine project costs eligible for state assistance in accordance with rule 567—44.6(455B). Land purchase, easement, or rights-of-way costs are ineligible with the exception of land which is integral to a project needed to meet or maintain public health protection and which is needed to locate eligible treatment or distribution works. Source water protection easements are considered to be integral to a project. (The acquisition of land or easements has to be from a willing seller.) In addition to those costs identified in this chapter, unallowable costs include the following:

a. Costs of service lines, except lead-containing service lines and connectors which are exterior to a home.

b. Costs of in-house plumbing.

c. Administrative costs of the loan recipient.

d. Vehicles and tools.

44.10(2) *Audits.* The recipient shall provide access at all times for the department, the authority, the state auditor and the Office of the Inspector General (OIG) at EPA to all project records and documents for inspection and audit purposes for a period of three years from the date of the final loan payment. The same access to the project site(s) shall be provided for inspection purposes.

44.10(3) *Cross-cutters.* Other federal and state statutes and programs, including federal "cross-cutters," will be applicable to DWSRF projects.

44.10(4) *Additional loan amount.* If eligible costs exceed the loan amount, the recipient may request an increase. The director in coordination with the authority will evaluate the request by considering available money in the fund as well as compliance with other state and federal requirements.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—44.11 Reserved.

567—44.12(455B) Construction phase and postconstruction phase requirements.

44.12(1) *Estimated project completion date.* The loan recipient must notify the director of the estimated project completion date. A final inspection of the project may be performed by the director to verify that construction is complete (except for weather-related items) and conforms with the approved plans and specifications and all approved change orders.

44.12(2) *Adequate project performance.* The department shall undertake measures to discern adequate project performance as follows:

a. Three months after initiation of operation of the project, the loan recipient must certify to the director that the project is operating as planned and designed. This certification must be made on a form provided by and approved by the department.

b. If the loan recipient is unable to certify that the project is operating as planned and designed, the recipient must submit a corrective action report to the director for review and approval. An acceptable corrective action report must contain an analysis of the project's failure to operate as designed; a discussion of the nature, scope, and cost of the action needed to correct the failure; and a schedule for completing the corrective work.

567—44.13(455B) Sanctions. Failure of a project to conform to approved plans and specifications or failure of a loan recipient to comply with the requirements of 567—Chapter 40 through 567—Chapter 44 pertaining to drinking water supply systems constitutes grounds for the withholding of loan disbursements. The loan recipient is then responsible for ensuring that the identified problem either in the plans and specifications or in the other relevant portion of the project is rectified such that disbursements may be resumed. Once an agreement for correcting the conditions which led to the withholding of funds is reached between the department and the loan recipient, the retained funds shall be released according to the provisions of the agreement.

567—44.14(455B) Disputes. A person or entity that disagrees with the project rankings, department decisions, or the withholding of project funding pursuant to rule 567—44.7(455B), 567—44.8(455B), or 567—44.13(455B) may request a formal review of the action. The person or entity must submit to the director a request for review in writing within 45 days of the date of notification of the final decision made by the department or department staff. A decision by the director in a formal review case may be further appealed to the commission.

These rules are intended to implement Iowa Code sections 455B.291 to 455B.299.

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CHAPTERS 45 and 46
Reserved

CHAPTER 47
PRIVATE WELL SAMPLING, REHABILITATION, AND CLOSURE—
GRANTS TO COUNTIES
Rescinded IAB 10/11/06, effective 11/15/06

CHAPTER 48
Reserved

CHAPTER 49
NONPUBLIC WATER SUPPLY WELLS

[Prior to 7/1/83, Health Dept. Ch 45]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—49.1(455B) Purpose. The purpose of this chapter is to protect the public health by protecting groundwater supplies from contamination by establishing uniform minimum standards and methods for well construction and reconstruction for nonpublic water supply wells. This chapter also provides minimum standards for installation of water well pumps or equipment employed in withdrawing or obtaining water from a well for any use, except monitoring wells, including such seals and safeguards as may be necessary to protect from contamination the water in the aquifer and water being pumped from the well.

567—49.2(455B) Definitions.

"Abandoned well" means a well whose use has been permanently discontinued. A well shall be considered abandoned when its condition is such that continued use is impractical or no longer desired.

"Administrative authority" means the local boards of health.

"Anaerobic lagoon" means an impoundment, the primary function of which is to store and stabilize organic wastes. The impoundment is designed to receive wastes on a regular basis, and the design waste loading rates are such that the predominant biological activity in the impoundment will be anaerobic. An anaerobic lagoon does not include:

1. A runoff control basin which collects and stores only precipitation-induced runoff from an open feedlot feeding operation; or
2. A waste slurry storage basin which receives waste discharges from confinement feeding operations and which is designed for complete removal of accumulated wastes from the basin at least semiannually; or
3. Any anaerobic treatment system which includes collection and treatment facilities for all off-gases.

"Annular space" means the open space between the well hole excavation and the well casing.

"Backflow prevention device" means any device, method or type of construction to prevent backflow of water, liquids, mixtures, or substances into a well or into the distribution pipes of a potable supply of water from any source other than its intended source.

"Cesspool" means a covered excavation, lined or unlined, into which wastes from toilets or urinals are discharged for disposal. Cesspools are not an approved method of sewage disposal.

"Class 1 well" means a well 100 feet or less in depth and 18 inches or more in diameter.

"Class 2 well" means a well more than 100 feet in depth or less than 18 inches in diameter or a bedrock well. Bedrock wells include:

1. Wells completed in a single confined aquifer;
2. Wells completed in a single unconfined aquifer; and
3. Wells completed in multiple aquifers.

"Class 3 well" means a sandpoint well 50 feet or less in depth and having a casing inside diameter of 2 inches or less constructed by joining a screened drive point with lengths of pipe and driving the assembly into a shallow sand and gravel aquifer.

"Compensation for well interference" means payment to the owner of a nonregulated well for damages caused by a lowered water level in the well due to withdrawal of water for a permitted use.

"Confinement building" means a building used in conjunction with a confinement feeding operation to house animals.

"Conforming well" means a well that complies with the standards of this chapter, including wells properly plugged according to 567—Chapter 39.

"Deep well" means a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Earthen manure storage basin" means an earthen cavity, either covered or uncovered, which, on a regular basis, receives waste discharges from a confinement feeding operation if accumulated wastes from the basin are completely removed at least once each year.

"Established grade" means the permanent point of contact of the ground to artificial surface with the casing or curbing of the well.

"Formed manure storage structure" means a structure, either covered or uncovered, used to store manure from a confinement feeding operation, which has walls and a floor constructed of concrete, concrete block, wood, steel, or similar materials. Similar materials may include, but are not limited to, plastic, rubber, fiberglass, or other synthetic materials. Materials used in a formed manure storage structure shall have the structural integrity to withstand expected internal and external load pressures.

"Grout" means a material used to seal the annular space between the casing and the borehole and shall consist of neat cement, concrete, high solids bentonite slurry, or hydrated bentonite chips.

"Health-related problem" means well water that contains any contaminant at a level that exceeds MCLs (maximum contaminant levels), or HALs (health advisory levels) as adopted by the department of natural resources.

"Heavy drilling fluid" means water used for drilling which because of the natural clay content of the borehole or by addition of bentonite grout has a solids density of at least 10 percent by weight or a mud weight of at least 9.25 lb/gal.

"Low permeability material" means a geological unit of unconsolidated material (usually clay or till) or bedrock (usually shale) that is all or partially saturated, and having permeability low enough (10^{-7} cm/sec) to give water in the aquifer artesian head.

"Nonpublic water supply well" means a well that does not supply a public water supply system.

"Nonregulated well" means a well used to supply water for a nonregulated use (a use of water less than 25,000 gallons per day which is not required to have a water use permit).

"Open feedlot" means an unroofed or partially roofed animal feeding operation in which no crop, vegetation, or forage growth or residue cover is maintained during the period that animals are confined in the operation.

"Permitted use" means a use of water in excess of 25,000 gallons per day which requires a water use permit pursuant to 567—Chapters 50 through 52 and Iowa Code chapter 455B, division III, part 4.

"Pitless adapter" means a device designed for attachment to one or more openings through a well casing. It shall be constructed so as to prevent the entrance of contaminants into the well through such openings, conduct water from the well, protect the water from freezing or extremes of temperature, and provide access to water system parts within the well.

"Pitless unit" means an assembly which extends the upper end of the well casing to above grade. It shall be constructed so as to prevent the entrance of contaminants into the well, conduct water from the well, and protect the water from freezing or extremes of temperature, and shall provide full access to the well and to water system parts within the well. It shall provide a pitless well cap for the top terminal of the well.

"Public water supply" means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. The term includes (1) any collection, treatment, storage, and distribution facilities under control of the supplier of water and used primarily in connection with the system; and (2) any collection (including wells) or pretreatment storage facilities not under the control of the supplier which are used primarily in connection with the system.

"Pump installer" means a person certified by the department to perform pump services.

"Pumps and pumping equipment" means any equipment or materials, including seals, tanks, fittings and controls utilized or intended for use in withdrawing or obtaining water for any use.

"Pump services" means the installation, repair, and maintenance of water systems; modification of the upper terminus of a well; well plugging; well rehabilitation; or the construction of Class 3 wells.

"Runoff control basin" means an impoundment designed and operated to collect and store runoff from an open feedlot.

"Shallow well" means a well located and constructed in such a manner that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Stuffing box" means an approved receptacle in which packing may be compressed to form a watertight or airtight junction between two objects.

"Upper terminus" means the upper ten feet of the well casing as measured from the finished surface grade.

"Water systems" means any part of the mechanical portion of a water well that delivers water from the well to a valve that separates the well from the plumbing system. "Water systems" includes the pump, drop pipe to the well, electrical wire from the pump to the first electrical panel or connection outside the casing, piping from the well to the pressure tank or first valve outside the casing, pitless unit or adapter, and all related miscellaneous fittings necessary to operate the pump. "Water systems" does not include any outside piping to other buildings and does not include the piping that carries the water in the remainder of the distribution system.

"Well" means any excavation that is drilled, cored, driven, dug, bored, augered, jetted, washed or is otherwise constructed for the purpose of exploring for groundwater, monitoring groundwater, utilizing the geothermal properties of the ground, or extracting water from or injecting water into the aquifer. "Well" does not include an open ditch, drain tiles, an excavation made for obtaining or prospecting for oil, natural gas, minerals, or products mined or quarried, lateral geothermal heat exchange systems less than 20 feet deep, nor temporary dewatering wells such as those used during the construction of subsurface facilities only for the duration of the construction.

"Well construction" means constructing a water well and installing necessary casing, screen, liners, grout, seals, and other appurtenances.

"Well driller" means a person certified by the department to perform well drilling services.

"Well drilling services" means new well construction, well reconstruction, well repair, well rehabilitation, installation of pitless equipment, or well plugging.

"Well liner" means a pipe used to line the inside of a well hole but not designed to hold hydraulic or structural loading. Liners must be installed within a casing or in an ungrouted open borehole.

"Well plugging" means the closure of an abandoned well with plugging materials by procedures which will permanently seal the well from contamination by surface drainage and permanently seal off the well from contamination into an aquifer. "Well plugging" includes the proper application of filling and sealing materials.

"Well reconstruction" means modification of the original construction of a well. "Well reconstruction" includes, but is not limited to, deepening the well, installing a liner, installing or replacing a screen with one of a different diameter or length, installing a pitless adapter, extending the casing, or hydrofracturing a well. Replacing a screen with one of identical diameter and length or replacing a pitless adapter is considered repair, not reconstruction.

"Well rehabilitation" means the physical or chemical cleaning of a well.

"Well seal" means a device used to cover or seal a well that establishes or maintains a junction between the casing of the well and the piping, electric conduit or equipment installed, so as to prevent water or other foreign material from entering the well at the uppermost terminal.

1. "Well cap" means a snug-fitting, watertight device used above flood level that excludes dust and vermin and allows for screened venting.

2. "Sanitary seal" means a watertight fitting which uses mechanical compression that is installed on wells that terminate in a wellhouse.

"Well services" means both well drilling services and pump services.

567—49.3(455B) Applicability. The provisions contained herein apply to all nonpublic water supply wells constructed for the purpose of domestic, livestock, irrigation, recreation, and commercial or industrial use. They shall also apply to existing water wells undergoing reconstruction.

Ponds and surface water supplies are not covered by these standards. Information regarding use of these sources of water should be sought from the administrative authority prior to the development of the sources.

49.3(1) *Nonconforming well construction installations.* Certified well drilling contractors shall ensure that the reconstruction of nonconforming wells adheres to all applicable provisions of this chapter or to comparable construction or installation requirements approved by the administrative authority.

When any construction or reconstruction is done on a nonconforming feature of a well, that feature shall be upgraded and brought into compliance with the material and installation standards contained in this chapter.

49.3(2) *Nonconforming water system installations.* Certified pump installers shall ensure that the reconstruction or repair of nonconforming water systems adheres to all applicable provisions of this chapter or to construction or installation requirements approved by the administrative authority. When pump services are to be performed on a well that has a contamination problem, the well shall be upgraded and shall be brought into compliance with installation standards contained in this chapter. When pump services are to be performed on a well that does not have a contamination problem, the well may be put back into service with nonconforming features. However, the certified installer shall notify the owner of the well in writing of the defects with recommendations as to what should be done to correct these deficiencies.

49.3(3) *Exemptions.* This chapter shall not apply to public water supply wells, horizontal heat pump installations, elevator shafts, underground storage tank monitoring wells as covered under 567—Chapter 135, or monitoring wells for solid waste disposal facilities as covered in 567—Chapter 110.

567—49.4(455B) General. The administrative authority shall have the authority to visit well sites during any phase of the work without prior notice. The administrative authority shall by rule require the issuance of permits and the submission of water well logs. No well construction or reconstruction shall be initiated until a permit has been issued by the proper authority. The administrative authority may also require posting of performance bonds and collection and submission of other data. The issuance of permits is covered in 567—Chapter 38 and shall be coordinated with the water withdrawal permits issued by the Iowa department of natural resources as covered in 567—Chapters 51 and 52. All well services shall be performed by a certified well contractor or the property owner as specified in 567—Chapter 82.

It shall be the responsibility of the certified well contractor to ensure that a well construction permit has been issued prior to initiation of well construction or reconstruction. It shall also be the responsibility of the certified well contractor to ensure that all well services are performed in accordance with the provisions of this chapter.

567—49.5(455B) Variances. Variances to these rules may be granted by the administrative authority if sufficient information is provided to substantiate equal protection and the need for such action. Variance requests and reasoning shall be in writing. Variance approvals or rejections shall also be in writing. Where permitting authority has not been delegated to the county, the department will review and grant or deny any variance requests within that jurisdiction.

567—49.6(455B) Location of wells. Wells shall be located with consideration given to the lot size, contour, porosity and absorbency of the soil, local groundwater conditions, flooding, and other factors necessary to implement the rules. The lack of specific distances to other possible sources of contamination, such as refuse disposal sites and high-pressure gas lines, does not minimize their potential hazard. These must be evaluated in each particular situation and a distance arrived at that is based on pertinent facts. The well contractor shall consult the administrative authority for assistance in determining a proper distance in such cases.

49.6(1) *Minimum distances.* The following minimum lateral distances shall apply for the common sources of contamination listed in the following table.

Table 49.6(1) Minimum Lateral Distances

Sources of Contamination	Minimum Lateral Distance (feet)	
	Shallow Well	Deep Well
Formed manure storage structure, confinement building, feedlot solids settling facility, open feedlot	200	100
Public water supply well	400	200

	All Wells
Earthen manure storage basin, runoff control basins and anaerobic lagoons (see subrule 49.6(2) below)	1000
Domestic wastewater lagoon	400
Sanitary landfills	1000
Preparation or storage area for spray materials, commercial fertilizers or chemicals that may result in groundwater contamination	100
Drainage wells	1000
Conforming wells	10
Nonconforming wells	100
Soil absorption field, any sewage treatment system with an open discharge, pit privy or septic tank discharge line (not conforming to 567—Chapter 69)	100
Septic tank, concrete vault privy, sewer of tightly joined tile or equivalent material, sewer-connected foundation drain, or sewers under pressure	50
Sewer of cast iron with leaded or mechanical joints, sewer of plastic pipe with glued or compression joints, independent clear water drains, cisterns, well pits, or pump house floor drains	10
Hydrants	10
Property lines (unless a mutual easement is signed and recorded by both parties)	4
Liquid hydrocarbon storage tanks	100
Ditches, streams, ponds, or lakes	25
Frost pit	10

49.6(2) *Exception to minimum lateral distances.* The minimum separation distance between a well and an anaerobic lagoon, earthen manure slurry storage basin, earthen manure storage basin, or runoff control basin shall be 400 feet if the lagoon or basin was permitted by the department after January 1, 1989, or if the applicant demonstrates through percolation testing that the seepage loss through the lagoon or basin does not exceed 1/16 inch per day (0.0625 inch/day). The percolation test shall meet the requirements of ASTM-1587 and 567—subrule 65.15(11).

49.6(3) *Frost pits.* Wells are not permitted to be located within frost pits. Frost pits that do not contain wells are permitted for the purpose of housing pressure tanks and valves, for example, provided the frost pits are not located closer than ten feet from any well.

49.6(4) *Relation to buildings.* The well shall be located so that no building interferes with reasonable access for cleaning, treatment, repair, testing, inspection and other maintenance. Wells shall not be located in basements.

49.6(5) *Easements.* No well shall be located on a property not owned by the well owner unless an easement allowing such placement is reviewed and approved by the administrative authority and the easement is legally recorded.

567—49.7(455B) General construction requirements. Wells shall be planned and constructed to adapt to the geologic and groundwater conditions of the proposed well site to ensure reasonable utilization of every natural protection against contamination of the water-bearing formation(s) and the exclusion of possible sources of contamination, to attempt to produce bacterially safe water which is free of health-related problems.

49.7(1) *Water used in construction.* Water used in the construction process shall be obtained from a potable water source that will not result in contamination of the well. Water used for drilling shall be treated with 3 pints of 5.25 percent sodium hypochlorite solution per 100 gallons of water or 0.25 pounds of 65 percent calcium hypochlorite per 100 gallons of water or other additives to produce an equivalent concentration of chlorine residual (50 ppm).

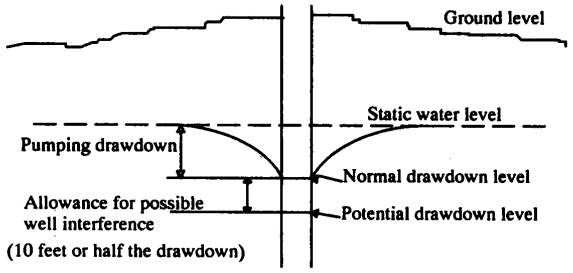
49.7(2) *Wellhead.* The upper terminal casing of all wells shall extend at least 12 inches above established grade or pump house floor, or the 100-year flood level, whichever is higher. A well cap or sanitary seal shall be installed immediately following well completion. A well cap shall be used on an exposed well, a sanitary seal only on a well terminating within a wellhouse. Any openings in the cap or seal, such as for pump wiring or water depth measurement, shall be properly grommeted or sealed except properly screened and oriented vent openings.

The ground surface immediately adjacent to the well casing shall be compacted and graded so that surface water is diverted away from the casing. Well platforms are not recommended other than those used as pump house floors as indicated in 49.12(2).

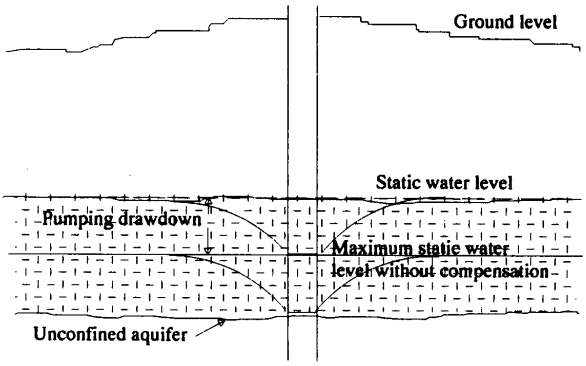
49.7(3) *Criteria for well interference protection.* 567—Chapter 54 provides an administrative process for owners of nonregulated wells to receive compensation for well interference caused by permitted uses. To be eligible for compensation due to well interference, nonregulated wells constructed after July 1, 1986, must be constructed to allow for some potential well interference.

Allowance for potential well interference is accomplished by constructing a nonregulated well to anticipate a lowering of the static head of the well which may be caused by interference from a nearby permitted use well.

a. The well must be drilled deep enough to allow for setting the pump at least 10 feet or half the normal pumping drawdown, whichever is greater, below the initial recommended setting depth.

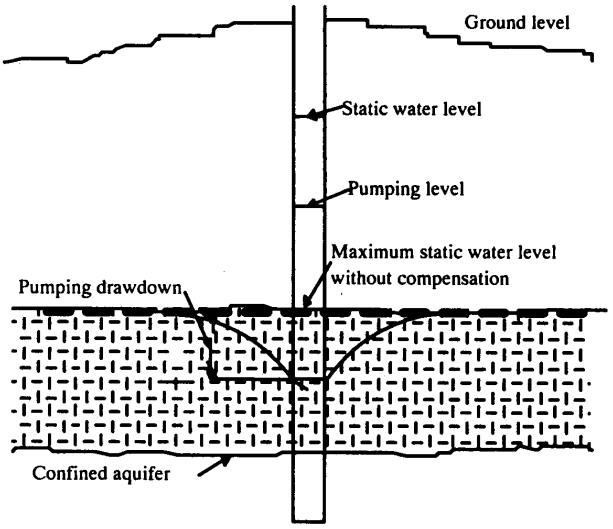


b. If the well draws from an unconfined aquifer, the static water level may drop to half the saturated thickness of the aquifer before well interference is considered, if the calculation in *"a"* above should indicate a shallower depth. Shallow aquifers that are only slightly confined may be classified as unconfined aquifers for this purpose.



c. Where a well penetrates a confined aquifer, the static water level is protected only to the top of the aquifer if the calculation in *"a"* above should indicate a deeper level.

d. Protected levels for flowing wells will be considered the top of the confined aquifer or 100 feet below the surface, whichever is higher. Flowing wells must be constructed to accommodate a pump capable of supplying a sufficient water supply at protected levels.



The well design also needs to consider drought and reduced well efficiency. (Additional information is contained in 567—Chapter 54.)

A well that is used to withdraw more than 25,000 gallons of water per day requires a water use permit from the Iowa department of natural resources. Upon obtaining such a permit, the well is called

a permitted use. If a permitted use exists prior to the construction of a well without a water use permit, no compensation for well interference will be allowed unless a significant change in the permitted use occurs. A physical change to withdrawal facilities may be considered a significant change to a permitted use (e.g., moving the withdrawal location, installing a new well, or installing a higher capacity pump). A person desiring to construct a well not requiring a water use permit should first obtain information concerning nearby permitted use wells. The department of natural resources will provide information on permitted use wells upon request.

49.7(4) *Access port for measurement of water levels.* Permitted use wells shall be equipped with an access port having a minimum diameter of ¾ inch. The access port shall be fitted with a threaded cap or plug and be located to allow insertion of a steel tape or electric probe into the well for measurement of water levels. When a spool type of pitless adapter is used which obstructs clear access to the water, a ¾-inch pipe shall be attached to the spool and brought to the surface below the well cap to allow water level measurements. Wells not requiring a water use permit should be constructed with an access port for water level measurement for possible future well interference concerns.

49.7(5) *Interconnection of aquifers.* There may be local confining beds that serve an important protective function. Permitted use wells shall use casing and grouting to maintain a hydraulic separation between distinct aquifers separated by confining intervals. Extreme caution should be exercised in the construction of non-permitted use wells if allowing the well to connect aquifers across confining intervals, particularly in areas where that would open the aquifer to surficial contamination, i.e., in areas where the upper rock unit is unconfined or contains less than 40 feet of unconsolidated materials. The administrative authority shall be consulted for possible local regulations when interconnection of aquifers across confining intervals is anticipated.

567—49.8(455B) Types of well construction.

49.8(1) *Drilled wells.*

a. Drilled wells in unconsolidated materials.

(1) Depth. In no case shall less than 20 feet of permanent casing be installed in wells drilled in unconsolidated materials. If the alluvial aquifer where the water is to be drawn from is covered by less than 40 feet of low permeability materials, the well screen shall be set at the bottom of the water-bearing aquifer or at least 60 feet from the surface. (Deeper depths may be required if nitrate contamination is excessive.) If more than 40 feet of low permeability materials are present above the aquifer, the casing shall extend down at least to the top of the aquifer.

(2) Grouting. Grout shall be placed to a minimum depth of 40 feet or along the full length of the casing where less than 40 feet of casing is set. Grouting the full length of the casing below 40 feet may be necessary to isolate any contaminated water lenses or aquifers. If a layer of low permeability material at least 5 feet thick is encountered less than 40 feet from the surface, the grout may be terminated no less than 5 feet below the top of this low permeability material, but in no case less than 20 feet from the ground surface. Grout must be placed in accordance with 49.9(3), except when driving casing. When driving casing a #8 mesh bentonite or bentonite grout must be maintained around the outside of the casing. The bottom of driven casing must be equipped with a drive shoe.

(3) Annular space. The diameter of the borehole shall be at least 3 inches greater than the outside diameter of the well casing to the minimum grouting depth. When steel well casing pipe is installed using percussion methods, the annular space shall be at least 5 inches greater than the outside diameter of the well casing to a minimum depth of 25 feet.

(4) If the depth of casing is greater than 40 feet, the annular space below 40 feet may be filled with heavy drilling fluid taken from the borehole as long as the top 40 feet of annular space is properly grouted. In this case, the annular space below 40 feet shall be kept as small as possible to avoid settling.

b. Drilled wells in consolidated material.

(1) Minimum casing depth. Casing shall extend to a depth of at least 40 feet and be seated in firm rock. When the uppermost bedrock consists of creviced limestone or dolomite that does not produce water, the casing shall extend through the creviced formation, be seated in firm rock and be properly grouted.

(2) Grouting. For bedrock wells, full-length grouting of the casing is strongly recommended. Grout shall be placed to a minimum depth of 40 feet in accordance with 49.9(3), except when driving casing using percussion or casing-hammer/rotary drilling. When driving casing, #8 mesh bentonite or bentonite grout must be maintained around the outside of the casing. The bottom of driven casing must be equipped with a drive shoe. If a layer of low permeability material at least 5 feet thick is encountered less than 40 feet from the surface, the grout may be terminated no less than 5 feet below the top of this low permeability material, but in no case less than 20 feet from the ground surface. Where local conditions warrant, the administrative authority may require more extensive grouting to protect any aquifer(s) that are penetrated.

(3) Annular space. The borehole shall be at least 3 inches greater than the outside diameter of the well casing for the upper 40 feet or the minimum grouting depth. When steel casing pipe is installed using percussion, or casing-hammer/rotary methods, the annular space shall be at least 5 inches greater than the outside diameter of the well casing to a minimum depth of 25 feet. When bedrock wells are full-length pressure-grouted through the casing, the borehole diameter shall be 3 inches larger than the outside diameter of the casing for the minimum depth of at least 25 feet.

(4) If the depth of casing is greater than 40 feet, the annular space below 40 feet may be filled with heavy drilling fluid taken from the borehole as long as the top 40 feet of annular space is properly grouted. In this case, the annular space below 40 feet shall be kept as small as possible to avoid settling.

(5) In fractured rock, where circulation of slurry cannot be maintained, grouting may be done with bentonite chips. The chips shall be hydrated with one gallon of water per bag of bentonite.

49.8(2) *Bored and augered wells in unconsolidated materials.* For bored or augered wells with concrete or clay tile casings at least 18 inches in diameter, buried-slab construction is required.

a. Casing. The concrete or vitrified clay pipe casing shall be terminated not less than 10 feet below ground surface and extend to a minimum depth of 20 feet. The casing shall be fitted with a reinforced concrete or steel plate into which a watertight steel or thermoplastic casing is firmly imbedded in or connected to a pipe cast or welded into the plate. This casing shall be at least 5 inches in diameter and shall extend from the plate to not less than 12 inches above established grade or the 100-year flood level, whichever is higher. A pitless adapter shall be installed below frost depth on the newly installed plastic or steel casing.

b. Backfilling annular space. A 12-inch grout seal shall be poured over and around the plate. The annular space between the steel or thermoplastic casing and the borehole shall be backfilled with clean compacted soil free of debris or large organic material. During the backfilling process, the earth shall be thoroughly tamped to minimize settling. Grading around the well shall then be accomplished in accordance with subrule 49.7(2).

49.8(3) *Driven and direct push wells.* Sandpoint wells are typically constructed in sandy areas with a high water table. Groundwater in these areas is often susceptible to contamination. This type of construction is not recommended for potable water supply. Sandpoint wells shall meet the requirements of this chapter except for casing depth and grouting requirements.

49.8(4) *Flowing artesian wells.* Drilling operations shall extend into but not through the formation confining the water. The casing shall then be installed and the annular space full-length pressure-grouted and allowed to set. After the grout is set, the drill hole shall be extended into the confined water-bearing formation. Flow control from the well shall be provided by valved pipe connections or a receiving tank set at an altitude corresponding to that of the artesian head. Under no circumstances shall the water flow uncontrolled to waste. A direct connection between the discharge pipe and a receiving tank, sewer, or other source of contamination is prohibited.

567—49.9(455B) Material standards. All materials utilized in well water construction shall conform to the standards of the American Water Works Association (AWWA), the American Petroleum Institute (API), the American Society for Testing and Materials (ASTM), and the National Ground Water Association (NGWA) except as modified by these standards.

49.9(1) *Water well casing.*

[1]*a. Steel well casing and couplings.*

(1) Steel well casing pipe shall have the dimensions and weights specified in Table 49.9(1)*"a"*(4). Well casing pipe shall be new steel pipe meeting one of the following standards:

1. ASTM A 53-96,
2. ASTM A 106-95,
3. ASTM A 589-95a - Type I, II or III,
4. API 5CT (5th Edition, 4/1/95),
5. API 5D (3rd Edition, 8/1/92), or
6. API 5L (41st Edition, 4/1/95).

(Copies of these standards are available for inspection at the Des Moines office of the department of natural resources records center or may be obtained for personal use from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, or the American Petroleum Institute, 1220 L Street NW, Washington, DC 20005.)

(2) Each length of casing shall be legibly marked in accordance with API or ASTM marking specifications showing the manufacturer's or processor's name or trademark, size in inches, weight in pounds per foot, whether seamless or welded (type of weld) and the API or ASTM specification or trade monogram.

(3) All casing pipe joints shall be watertight welded construction or threaded couplings.

(4) Minimum casing pipe and coupling weights and dimensions are as follows:

Table 49.9(1)*"a"*(4)

Minimum Casing Pipe and Coupling Weights and Dimensions

Size (inches)	Weight (lbs/ft)		Pipe				Couplings	
	Threads & Coupling	Plain End	Thickness (inches)	External Diameter (inches)	Internal Diameter (inches)	Threads per inch	External Diameter (inches)	Length (inches)
1	1.70	1.68	.133	1.315	1.049	11-1/2	1.576	2-5/8
1-1/4	2.30	2.27	.140	1.660	1.380	11-1/2	1.900	2-3/4
1-1/2	2.75	2.72	.145	1.900	1.610	11-1/2	2.200	2-3/4
2	3.75	3.65	.154	2.375	2.067	11-1/2	2.750	2-7/8
2-1/2	5.90	5.79	.203	2.875	2.469	8	3.250	3-15/16
3	7.70	7.58	.216	3.500	3.068	8	4.000	4-1/16
3-1/2	9.25	9.11	.226	4.000	3.548	8	4.625	4-3/16
4	11.00	10.79	.237	4.500	4.026	8	5.200	4-5/16
5	15.00	14.62	.258	5.563	5.047	8	6.296	4-1/2
6	19.46	18.97	.280	6.625	6.065	8	7.390	4-11/16
6-5/8 OD	20.00	19.49	.288	6.625	6.049	8	7.390	4-11/16
7 OD	20.00	19.54	.272	7.000	6.366	8 R	7.657	4-11/16
8	29.35	28.55	.322	8.625	8.071	8	9.625	5-1/16
10	41.85	40.48	.365	10.750	10.136	8	11.750	5-9/16
12	51.15	49.56	.375	12.750	12.090	8	14.000	5-15/16
14 OD	57.00	54.57	.375	14.000	13.250	8	15.000	6-3/8
16 OD	65.30	62.58	.375	16.000	15.250	8	17.000	6-3/4
18 OD	73.00	70.59	.375	18.000	17.250	8	19.000	7-1/8
20 OD	81.00	78.60	.375	20.000	19.250	8	21.000	7-5/8

R = Round Threads

b. Thermoplastic casing and couplings.

(1) Materials. Thermoplastic well casing pipe and couplings shall be new polyvinyl chloride (PVC) or acrylonitrile-butadiene-styrene (ABS) material produced to and meeting the ASTM F 480 standard and shall have a standard dimension ratio (SDR) of 21, 17, or 13.5, a dimension ratio (DR) of 18 or 14, or a schedule 40 or 80 rating depending upon the specification. Styrene-rubber thermoplastic well casing pipe, including ASTM F 480, may not be used.

(2) Potable water standards. The thermoplastic well casing pipe, pipe couplings, cement, primer and other components used shall be approved for well casing pipe in potable water supplies by the NSF Standard Number 61 or the health effects portion of Standard Number 14 as they relate to well casing pipe, or an approved equivalent organization.

(3) Markings. Each length of casing shall be legibly marked showing the manufacturer's or processor's name or trademark, size in inches, and the ASTM F 480 specification or trade monogram.

(4) Casing joints. The thermoplastic pipe shall be assembled with either flush-threaded joints, integral-bell, solvent-cemented joints, one-piece solvent-cemented couplings or nonmetallic restrained joint system in a manner according to the specifications in ASTM F 480.

(5) Hydraulic collapse pressure for plastic casing. The following table provides specifications for maximum hydraulic collapse pressure (in feet of water head) to which PVC well casing of different strengths can be installed.

Table 49.9(1)*"b"*(5)

PVC WELL CASING

Maximum Hydraulic Loading (in feet of water head) [1]

	ASTM F 480 or ASTM 2241			C-900		ASTM 1785	
	SDR	SDR	SDR	DR	DR	SCH.	SCH.
SIZE	21	17	13.5	18	14	40	80
4″	257′	496′	1,024′	—	—	353′	1,055′
4½″	257′	496′	1,024′	—	—	—	—
5″	257′	496′	1,024′	—	—	236′	758′
6″	257′	496′	1,024′	490′	956′	177′	678′
8″	257′	496′	1,024′	490′	956′	121′	471′
10″	257′	496′	1,024′	490′	956′	90′	404′
12″	257′	496′	1,024′	490′	956′	74′	376′
16″	257′	496′	1,024′	490′	956′	70′	350′

[1] Determined by formulae in ASTM F 480 with Poisson's ratio of .38

(6) When cement grout is used with thermoplastic casing, the manufacturer's specifications for use shall be followed except in the top 40 feet.

(7) Thermoplastic pipe extending above ground shall be protected from ultraviolet light exposure.

(8) Under no circumstances shall thermoplastic water well casing be driven.

49.9(2) *Grouting guides.* Casing that is to be grouted shall have a minimum of two sets of centering guides attached to the casing so as to permit the unobstructed flow and deposition of grout.

49.9(3) *Grouting.* Materials and procedures for grouting shall be as follows:

a. Concrete grout. The mixture, used with bored and augered wells, shall consist of cement, sand aggregate and water, in the proportion of one bag cement (94 lbs.) and an equal volume of aggregate to not more than six gallons of clean water. Concrete grout shall not be used below the water table. Admixtures to reduce permeability or control setting time must meet ASTM Standard C 494-92. Concrete grout may be used with permission of the administrative authority where large void spaces need to be filled.

b. *Neat cement grout.* The mixture shall consist of one bag of cement (94 lbs.) to not more than six gallons of clean water. Admixtures to reduce permeability or control setting time must meet ASTM Standard C 494-92.

c. *Bentonite grout.* This is a mixture of water and commercial sodium-bentonite clay manufactured for the purpose of water well grouting. Mixing shall be per manufacturer's specifications. Sodium-bentonite mixtures that have high viscosity but contain less than 10 percent solids are designed for drilling purposes and shall not be used as grout. Organic polymers used in grout mixtures must meet NSF Standard 60.

d. *Exclusion.* Drilling fluids and cuttings may not be used as grouting material to satisfy the minimum grouting requirements.

e. *Application.* Grouting shall be performed by pumping the mixture into the annular space from the bottom upward through the casing or through a tremie pipe until the annular space is filled. Grouting shall be done in one continuous operation, if possible. The bottom of the tremie pipe must remain submerged in grout while grouting.

f. *Exceptions.* The exceptions to this method of application are the use of buried-slab, percussion, or casing-hammer/rotary methods to construct a well. The proper grouting methods for these types of wells are specified in 49.8(1) and 49.8(2). Another exception is where dry bentonite is required because circulation cannot be maintained as described in 49.8(1)*"b"*(5).

49.9(4) *Pitless adapters and pitless units.* Rescinded IAB 7/21/04, effective 8/25/04.

[1] Effective date of 49.9(1)*"a"* delayed 70 days by the Administrative Rules Review Committee at its meeting held May 12, 1998.

567—49.10(455B) Well reconstruction. All well reconstruction must meet the requirements of this chapter. If the well feature in need of reconstruction cannot be brought into compliance with these rules, the well must be properly plugged.

49.10(1) *Installing a liner.* If the reconstruction will involve the placement of a liner, the certified well contractor must then determine whether the proposed reconstruction will be done in order to correct a health-related problem. The work to be performed must then be done in accordance with paragraph *"a"* or *"b"* below.

a. Standards for installation of a liner to correct a health-related problem.

(1) The liner shall have a minimum of two sets of centering guides to allow the proper placement of grout. In no case shall the liner be driven into place.

(2) The liner shall extend to the ground surface or top of the pitless adapter.

(3) The annular space between the old casing and the liner shall be pressure-grouted in place throughout its entire length using an approved grout.

b. Standards for installation of a liner to correct a problem that is not health-related.

(1) The liner shall extend at least ten feet above the static water level or, if a caving zone is present, shall extend above this region.

(2) The liner may be pressure-grouted in place if there is a sufficient annular space for proper application of the grout.

c. Liner material standards. Liners must meet well casing standards as defined in 49.9(1). Liners may be composed of either steel or thermoplastic with a minimum inside diameter of 4 inches. Steel liners must be new and have a minimum wall thickness of .188 inches. Plastic liners must have a standard dimension ratio of 26 or less or a schedule rating of SCH 40 or SCH 80. If the installation does not meet the definition of a liner, then casing material shall be used.

49.10(2) *Upper terminus.* All well reconstruction performed on the upper terminus of a well must meet the standards of this chapter.

567—49.11(455B) Disposal of drilling mud. Drilling fluid and mud remaining after construction of a well shall not be disposed of in a stream or storm sewer nor shall these materials be discharged into a sanitary sewer without permission of the owner and operator of the wastewater treatment facility.

567—49.12(455B) Pumps and pumping equipment.

49.12(1) *General pump installation requirements.* The installation of pumps shall be planned and carried out so the pump will be:

a. Installed so that it and its surroundings are not exposed to chemical or biological contamination;

b. Properly sized so as to provide the volume of water necessary, where obtainable, for an adequate water supply;

c. Designed to meet the well characteristics and not exceed the yield of the well except for low yield seepage/storage wells;

d. Installed for operation without repriming or breaking suction;

e. Installed in such a manner as to provide adequate protection against contamination of the water supply from any surface or subsurface sources;

f. Installed in a manner so that it is accessible for maintenance, repair, and removal.

49.12(2) *Lubrication.* Pump motor lubricant or coolant oil shall be United States Department of Agriculture- or United States Food and Drug Administration-approved food contact grade formulations.

49.12(3) *Other power pumps.* Other power pumps located over the well shall be mechanically joined to the casing or on a pump foundation or stand in such a manner as to effectively seal the top of the well. A sanitary seal shall be used where the pump is not located over the well, and the pump delivery or suction pipe emerges from the top.

49.12(4) *Hand pumps or similar devices.*

a. A hand pump, hand pump head, hand pump stand or similar device shall be constructed so that there are no openings into the interior of the pump or well casing where rain water, insects or vermin can enter. Hand pumps shall be provided with a casing vent as defined in 567—49.17(455B), and shall have a closed, downward-directed spout and a sealed pump rod packing assembly.

b. A hand pump shall be attached to a well casing by a sealed flange or other method approved by the administrative authority to adequately prevent the entrance of surface water, dirt, animals, insects, or other foreign matter. The flange shall not be less than 12 inches above a concrete slab or the ground surface.

c. Where a well casing functions as a hand pump cylinder wall, the plunger shall not be less than 25 feet below the ground surface. A casing wall weep hole is not permitted.

567—49.13(455B) Drop pipe.

49.13(1) *Discharge pipe.* Galvanized, black, or stainless steel drop pipe shall be minimum schedule 40 wall thickness. PVC drop pipe shall be minimum schedule 80 wall thickness. Schedule 80 machined PVC, brass, or stainless steel couplings shall be used with PVC pipe. Polyethylene drop pipe shall be minimum ASTM Standard PE3406 SDR9. Only brass or stainless steel fittings are permitted for use on polyethylene drop pipe. If polyethylene drop pipe is used, the outside diameter of the pump must be at least one inch smaller than the inside diameter of the well casing.

49.13(2) *Check valve.* For potable water installations, all pumps shall have a check valve within 20 feet of the pump for pump installations without drain-back aeration. For pump installations with drain-back aeration, the check valve shall be below the pitless adapter.

567—49.14(455B) Pump wiring. Pump wiring within the well shall be double-jacketed copper wire and shall meet the National Electrical Code specifications for wire sizing, unless the pump manufacturer requires a non-jacketed wire. Wire outside of the casing must meet, at a minimum, National Electrical Code specifications. Wire shall be secured to the drop pipe at a minimum of 20-foot intervals.

567—49.15(455B) Pitless adapters and pitless units.

49.15(1) Pitless adapters and pitless units conforming to Pitless Adapter Standard—1997 (PAS-97) as promulgated by the Water Systems Council are considered as complying with these rules. A copy of the standard is available for inspection at the Des Moines office of the department of natural resources records center or may be obtained for personal use from the Pitless Adapter Division, Water Systems Council, 1101 30th Street, NW, Suite 500, Washington, DC 20007.

49.15(2) No well casing shall be cut off or cut into below ground surface except to install a pitless well adapter below the frost level.

49.15(3) A pitless subsurface pipe connection to a well casing pipe shall be made with a weld-on, clamp-on, or bolt-on pitless adapter or weld-on or threaded pitless unit. Aboveground discharge pitless adapters with a drain-back into the well are prohibited on systems under continuous pressure.

49.15(4) If the pitless adapter is gasketed, the opening in the casing shall be sawed to the diameter recommended by the manufacturer with a hole saw and not cut with a torch. The pitless adapter used shall have the correct curvature to fit the diameter of the casing.

567—49.16(455B) Well caps and seals. A well cap shall be used on any well not protected by a wellhouse and must seal tightly against the casing to exclude surface water, dirt, insects or any foreign matter from entering the well. The well casing shall terminate at least one foot above the finished grade surface. A split-top sanitary seal may only be used on a well terminating within a wellhouse. Any openings in the cap or seal, such as for pump wiring, water depth measurement, or chemical feed, shall be properly grommeted or sealed, except properly screened and oriented vent openings. There shall be no openings through the well cap except for a factory installed vent, air line chemical feed, and power supply wiring, unless a proposal is submitted to and approved by the administrative authority. To be approved, the proposal must show that any entrance into the well cap is watertight and meets the following conditions: prevents surface water from entering the water supply, is secured in position, is removable with tools only, and is resistant to weathering and corrosion.

Well pump systems that are not under continuous pressure and have no pressure tank may discharge out of the top of the well if all connections are watertight welds or grommeted openings. Venting, heights and other cap requirements shall be met.

567—49.17(455B) Vents. A well cap used on a well that has a pitless adapter or pitless unit must have a screened vent hole, pointing downward, with not less than 24-mesh noncorrosive screen, and that is at least ½ inch in diameter. Vent openings shall terminate at least 12 inches above finished ground surface. Venting is required on all wells except Class 3 wells or flowing water wells.

567—49.18(455B) Underground piping. Underground piping from the well casing to the pressure tank shall be a minimum 100 psi pressure rating, NSF Standard 61, and meet ASTM standards for potable water.

567—49.19(455B) Underground wiring. Underground wiring from the well shall be enclosed in a watertight electrical conduit extending from the entrance of the conduit into the casing to a minimum of three feet below ground level, threaded into the well cap, or sealed into the cap or casing in a watertight manner. The internal passage of the conduit shall be sealed around the wire with a nonhardening, pliable sealing compound.

567—49.20(455B) Sampling faucets. In all pressure water systems, provision shall be made for collection of water samples directly from the well by installation of a sampling faucet before the pressure tank, and prior to encountering any water treatment equipment. The sampling faucet shall be installed at least 12 inches above the floor, have a downturned spout and be in an accessible location. All sample faucets shall be metal and have a smooth (nonthreaded) outlet.

567—49.21(455B) Hydropneumatic (pressure) tanks.

49.21(1) *Sizing.* The pressure tank shall have an effective water volume large enough to require the well pump to operate at least one minute between low-pressure activation and high-pressure shut off while no water is being used by the system. The minimum allowable pressure at the pressure tank shall be 30 psi.

49.21(2) *Constant pressure pump.* Constant pressure/variable speed pumps shall operate at a minimum pressure of 30 psi. Pressure tank size shall be according to manufacturer's recommendation.

49.21(3) *Pressure relief valve.* The tank shall have a pressure relief valve of a size based on the pump capacity if the pump is capable of developing pressure greater than the working pressure of any component of the system. The pressure relief valve shall be located prior to any shut-off valve on the distribution system side of the tank.

49.21(4) *Pressure gauge.* The pressure tank shall have a pressure gauge capable of reading at least 100 psi.

49.21(5) *Tank appurtenances.* If a non-bladder tank is used, it shall be equipped with a means of adding or venting air from the tank to maintain the proper air-water ratio.

49.21(6) *Tank location.* Buried pressure tanks shall not be permitted after July 1, 2009. If pressure tanks are not located in a residence or other heated structure, they should be housed in the following manner:

a. *Buried vault (frost pit).* The vault and vault opening shall be sized to allow ease of access for the installation and maintenance of necessary equipment. The vault shall be as watertight as possible. The outside of the vault should be completely tiled at the base and either drain to daylight or to a sump pit that is equipped with a sump pump. The trench should be backfilled with pea gravel to one foot above the tile. All wiring in the vault shall be in watertight conduit. No buried vault shall be allowed within a 100-year flood plain. Buried vaults are not recommended because of the hazard associated with confined space entry.

b. *Aboveground structure.* The structure and access opening shall be sized to allow the installation and maintenance of necessary equipment with a minimum of inconvenience. The structure shall be of an all-seasons design. It shall be insulated and heated to prevent freezing of the tank. If a poured concrete floor is provided, the top of the floor shall be at least four inches above the surrounding ground and be sloped to a drain or to the door to facilitate drainage of the room. It is recommended that the structure be located no closer than ten feet from the well. If the structure is located over the well, it must have a hinged roof or removable hatch over the well or have other provisions for pulling the well pump.

567—49.22(455B) Electrical connections. At a minimum, all electrical installation shall be performed and maintained in accordance with the current National Electrical Code. A certified pump installer may perform wiring from the pump to the electrical panel unless local ordinances require additional licensing.

567—49.23(455B) Interconnections and cross connections. No connection between a well or boring and another well, boring, water supply system, any chemical injection or contamination source is allowed unless the connection is:

1. Protected by an air gap;
2. Protected by a backflow prevention device; or
3. Between wells or borings that meet the construction standards of this chapter, are used for the same purpose, and have equivalent quality water supply.

567—49.24(455B) Backflow prevention for chemical injection systems for nonpotable water wells.

49.24(1) *Backflow protection for irrigation.* Where a chemical injection system is connected directly to a water well used for irrigation and that is not used as a potable water supply, a single-check spring-loaded backflow preventer shall be installed between the point of chemical injection on the pump discharge piping and the water well in accordance with the manufacturer's instructions. The check valve shall withstand a minimum hydraulic pressure of 150 psi without leaking. The backflow device shall be provided with the following:

a. Valving so that water can be drained from the system to prevent freezing.

b. A vacuum relief valve to prevent backsiphoning of chemicals into the well.

c. An automatic low-pressure drain at least ¾ inches in diameter, positioned so that when draining occurs liquid will flow away from the well. The low-pressure drain shall be at least six inches above grade. The automatic low-pressure drain shall quickly drain the check valve body of water when operation of the water well pump is discontinued.

d. A watertight seal around the check valve.

e. An inspection port four inches in diameter to allow inspection of the operation of the check valve.

49.24(2) *Pump control interconnection.* The water well pump and the chemical injection pump shall be electrically connected so that, when the water well pump stops, the chemical pump will shut off automatically.

567—49.25(455B) Filters and water treatment equipment. Filters and water treatment equipment shall be installed and operated in accordance with manufacturers' directions.

567—49.26(455B) Well disinfection. All new, repaired or rehabilitated wells shall be pumped to waste until the water is free of drilling mud, drill cuttings and sand, and the water is clear. Wells and water systems shall be disinfected by the contractor following completion of construction and whenever any well services have been performed. A chlorine solution such as a sodium or calcium hypochlorite shall be used. Chlorine compounds used for well disinfection must meet NSF Standard 61 and have no additives.

49.26(1) The disinfectant shall be dispersed throughout the entire water column in the well. The disinfectant shall also be brought into contact with the inside of the well casing pipe above the static water level.

49.26(2) The disinfectant shall remain in the well for a minimum of 2 hours if a concentration of at least 100 mg/L chlorine is achieved, or a minimum of 24 hours if at least 50 mg/L is achieved.

49.26(3) For emergency situations, a contact time of a minimum of 30 minutes shall be provided at a chlorine concentration of at least 200 mg/L.

49.26(4) The amount of HTH or household bleach required for a chlorine concentration of 200 mg/L is given in the following table:

Table 49.26(4)

Amount of chlorine disinfectant required for every 25 feet of water in well

Well casing diameter (in inches)	4	6	8	12	18	24	30	36
Amount of pelleted HTH (in ounces containing approx. 70 percent $Ca(OCl)_2$)	0.7	1.5	2.6	5.6	13	23	36	52
Amount of chlorine bleach (in pints containing 5.25 percent NaOCl)	0.5	1.2	2.1	4.7	10.6	18.8	29.3	42.2

49.26(5) Dry disinfectant shall be dissolved in a separate container of water before introduction into the well. The solution shall contain not more than eight ounces of pelleted HTH disinfectant per five gallons of water.

567—49.27(455B) Water sampling and analysis.

49.27(1) The owner of a new, reconstructed, or rehabilitated well shall be responsible for submitting a water sample to a certified laboratory for coliform bacteria and nitrate analysis. The water sample shall be collected at least 10 days and not more than 30 days after a well is put into service following the construction, reconstruction, or rehabilitation. The analysis results shall be submitted to the administrative authority.

49.27(2) If the water sample analysis detects presence of bacteria, the disinfection procedure described in rule 49.26(455B) shall be repeated.

567—49.28(455B) Abandonment of wells. Abandoned wells are a contamination hazard to the water bearing formation as well as a physical hazard for people.

49.28(1) *Plugging rules.* Abandoned wells shall be properly plugged as required in 567—Chapter 39.

49.28(2) *Waste disposal prohibition.* Under no circumstances shall abandoned wells be used for the disposal of debris, solid waste, septic tank sludge or effluents, or for any other type of unauthorized disposal of waste materials, or as a receptacle for field tile drainage.

567—49.29(455B) Closed circuit vertical heat exchangers. These provisions apply to closed circuit vertical heat exchanger construction.

49.29(1) Piping used must be 160 psi pressure-rated high-density polyethylene or polybutylene.

49.29(2) Connection to piping must use socket fusion or butt fusion joining methods.

49.29(3) Piping must be pressure-tested with air or potable water for 15 minutes at a pressure of 1.5 times the system operating pressure after installation in the borehole.

49.29(4) The annular space between the vertical heat exchanger piping and the borehole must be grouted as required in subrule 49.9(3) using an approved grouting method and material. Grout shall be placed at least in the top 40 feet. Any confining layers between aquifers shall be replaced with grout. Grouting must be performed within 24 hours of completion of the borehole.

49.29(5) Only food-grade or USP-grade propylene glycol or calcium chloride may be used as heat transfer fluid. Any other materials or additives must be NSF-approved for drinking water applications. A permanent sign must be attached to the heat pump specifying that only approved heat transfer fluids may be used.

49.29(6) A flow measurement device must be installed on each system.

49.29(7) Water make-up lines to the vertical heat exchanger must be protected with a backflow prevention device.

These rules are intended to implement Iowa Code chapter 455B.

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[1] Effective date of Chapter 49 [Health Dept. Ch 45] delayed 70 days by the Administrative Rules Review Committee [Published 10/1/80]. Effective date of Chapter 49 [Health Dept. Ch 45] delayed by the Administrative Rules Review Committee 45 days after convening of the next General Assembly pursuant to §17A.8(9) [Published 11/26/80].

[2] Effective date of 49.9(1)*"a"* delayed 70 days by the Administrative Rules Review Committee at its meeting held May 12, 1998.

DIVISION C
WITHDRAWAL, DIVERSION AND STORAGE
OF WATER: WATER RIGHTS ALLOCATION

CHAPTER 50
SCOPE OF DIVISION—DEFINITIONS—FORMS—RULES OF PRACTICE

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—50.1(455B) Scope of division. The department has jurisdiction over the surface and groundwater of the state to establish and administer a comprehensive program to ensure that the water resources of the state be put to beneficial use to the fullest extent possible, that the waste or unreasonable use, or unreasonable methods of use of water be prevented, and that the conservation and protection of water resources be required with the view to their reasonable and beneficial use in the interest of the people.

Any person who proposes to pump or divert by gravity more than 25,000 gallons of water during a period of 24 hours or less from any source of groundwater or surface water, including streams bordering the state, impound surface water, divert surface runoff into a well, sinkhole or excavation or inject water or any material into a well has a duty to review the thresholds in Chapter 51 and contact the department to resolve any doubt concerning whether a permit is required.

Chapter 51 explains when approval is required for withdrawal, diversion or storage of water. Chapter 52 explains criteria for permitting withdrawal, diversion or storage of water. Chapter 53 sets forth the procedure for designating certain ground and surface water sources as protected sources and explains special criteria and conditions which may be applicable to those sources. Chapter 54 describes procedures and criteria for determining compensation to owners of nonregulated wells for well interference caused by permitted uses.

567—50.2(455B) Definitions. Definitions used in this division of these rules are listed in alphabetical order as follows:

"Adequate groundwater supply" means an aquifer which is capable of providing enough water to satisfy the demands which have been placed on it.

"Administrative resolution" means the settlement of well interference conflicts by the department according to established rules.

"Agricultural drainage well" means a vertical opening to an aquifer or permeable substratum which is constructed by any means including but not limited to drilling, driving, digging, boring, using an auger, jetting, washing, or coring, and which is capable of intercepting or receiving surface or subsurface drainage water from land directly or by a drainage system.

"Agricultural drainage well area" means an area of land where surface or subsurface water drains into an agricultural drainage well directly or through a drainage system connecting to the agricultural drainage well.

"Apparent well interference" means well interference in a nonregulated well resulting from a permitted use is likely but has not been verified.

"Aquifer" means a water-bearing geologic formation (soil or rock) of sufficient volume, porosity, and permeability to be capable of yielding a usable quantity of water to a well or spring.

"Bulletin No. 23" means Technical Bulletin No. 23 entitled "Guidelines for Well Interference Compensation," March 1986.

"Certified well contractor" means a well contractor who has successfully passed an examination prescribed by the department to determine the applicant's qualifications to perform well drilling or pump services or both pursuant to 567—Chapter 82.

"Community public water supply" means a system for the provision to the public of piped water for domestic use which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Compensation" means payment to the owner of a nonregulated well for damages caused by a lowered water level in the well due to withdrawal of water for a permitted use.

"Complainant" means the owner of a nonregulated well who is suspected of being or has been shown to be adversely affected by well interference.

"Complaint" means the formal allegation against a permitted water user who is suspected of causing well interference.

"Confined aquifer" means an aquifer which contains water under pressure overlain by impermeable formations such as clay or shale. In a well penetrating a confined aquifer, pressure will cause water to rise above the top of the aquifer. If the pressure in a confined aquifer is sufficiently great, water will rise above the ground surface and flow from a well, thus resulting in a "flowing artesian well" or a "naturally flowing well."

"Conflict" means a dispute between a nonregulated well owner and a permitted water user regarding the liability of the permitted user for well interference damages to the nonregulated well.

"Consumptive use" means any use of water which involves substantial evaporation, transpiration, incorporation of water into a product or removal of water from a source without return thereto. Consumptive uses include, but are not limited to, irrigation, evaporative cooling, and flooding of wildlife areas by withdrawals or diversions from watercourses or aquifers.

"Controlled aquifer test" means a test, as approved by the department, for pumping from a well at a controlled rate for a specified duration while water levels are accurately measured at given frequencies in the pumping well and other nearby wells which use the same aquifer.

"Designated agricultural drainage well area" means an agricultural drainage well area in which there is located an anaerobic lagoon or earthen manure storage structure which requires a construction permit under 567—Chapter 65.

"Domestic use" means a use of water for human consumption and sanitation and public safety (fire protection).

"Drainage system" means tile lines, laterals, surface inlets, or other improvements which are constructed to facilitate the drainage of land.

"Earthen storage structure" means an earthen cavity, either covered or uncovered, including but not limited to an anaerobic lagoon or earthen manure storage basin which is used to store manure, sewage, wastewater, industrial waste, or other waste as regulated by the department of natural resources, if stored in a liquid or semiliquid state.

"General crop" means hay, corn, soybeans, oats, grain sorghum or wheat.

"Industrial use" means a use of water by manufacturing, processing, commercial, and other industrial facilities incidental to providing a product or a service; excluding domestic use, irrigation use, livestock use, nonindustrial power generation use, and recreational and aesthetic use. Examples include but are not limited to manufacturing, food processing, industrial cooling, excavation and processing of rock and gravel products, commercial laundries, cooling of perishables and electrical power generation other than for public consumption.

"Informal negotiations" means discussion between a complainant and permittee or applicant regarding settlement of a well interference conflict.

"Informal settlement" means a resolution of a well interference conflict by informal negotiations between a complainant and permittee or applicant without formal action by the department.

"Irrigation use" means a use of water which is artificially applied to land to aid the growing of general crops and specialty crops.

"Livestock use" means a use of water in the production of animals such as for drinking, sanitation and cooling.

"Nonregulated well" means a well used to supply water for a nonregulated use (a use of water less than 25,000 gallons per day which is not required to have a water use permit).

"Permanent storage" means the volume of water expressed in acre-feet which is stored upstream from a dam or in an impoundment up to the level of the principal outlet works of the structure.

"Permitted use" means a use of water in excess of 25,000 gallons per day which requires a water use permit pursuant to these rules and 567—Chapters 51 and 52 and Iowa Code chapter 455B, division III, part 4.

"Pesticide" means (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating directly or indirectly any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living persons, which the secretary of

agriculture shall declare to be a pest; and (2) any substance intended for use as a plant growth regulator, defoliant, or desiccant.

"Power generation use" means a use of water incidental to the generation of electric power for distribution and sale to the public including process water (e.g., boiler makeup) and water for cooling purposes.

"Protected flow" means the *"established average minimum flow"* defined in Iowa Code section 455B.261.

"Protected source" means a surface water or groundwater source recognized by rule as needing special protection in order to ensure its long-term availability, in terms of either quality or quantity, or both, to preserve the public health and welfare.

"Recreational and aesthetic use" means a use of water which can be curtailed and is not essential for the preservation of life, the general welfare, or the state's economic base. Examples include but are not limited to flooding of wildlife areas; filling of pools and fountains; nonessential cooling; car washing; street cleaning; washing of other exterior surfaces such as windows and walls; amusement park-type water rides; turf watering such as lawns, golf courses, and athletic fields; and watering of landscape plantings.

"Seven-day, 1-in-10 year low flow (7Q10)" means the minimum average flow expected to occur during a period of seven consecutive days which has an average recurrence interval of once in ten years. The 7Q10 may be calculated for specific seasonal periods of less than one year when appropriate.

"Specialty crop" means all other crops not listed as a general crop, including but not limited to melons, sod farm or seed corn.

"Stream" means a *"watercourse"* other than a lake as defined in Iowa Code section 455B.261.

"Stream bordering the state" means those reaches of the Missouri, Mississippi, Des Moines, and Big Sioux rivers that serve as a state boundary.

"Sufficient water supply" means a nonregulated well which is capable of providing enough water for the nonregulated use.

"Surface water" means water occurring on the surface of the ground.

"Surface water intake" means an artificial opening to a drain tile which drains into an agricultural drainage well, if the artificial opening allows surface water to enter the drain tile without filtration through the soil profile.

"Suspect permittee" means a party possessing a water use permit when the permitted use is suspected of causing well interference in a nonregulated well.

"Test pumping" means a controlled aquifer test for verification of well interference using the existing wells and pumping systems of the complainant and suspect permittee.

"Verified well interference" means well interference which has been proven by test pumping or with other substantial evidence to have caused or will cause a nonregulated well to be unable to maintain a sufficient water supply.

"Water use reduction plan" means a program that establishes numeric water reduction goals (e.g., percent or volume of water per day) on a short-term time frame through either voluntary or mandatory conservation regulatory requirements (e.g., plumbing codes, sprinkling ordinances, et al.) for each customer category (residential, commercial, industrial, landscape irrigation, agricultural, recreational, or other). Such a plan shall include a mechanism for evaluating the system's unaccounted-for water (water audit or the equivalent). An industrial permittee water use reduction plan shall examine reduction of the use of water in heat transfer, use of water in materials transfer, use of water for washing, and use of water as an incorporated ingredient. Each customer category or use category should be evaluated by the permittee. The permittee will then determine how to meet the water reduction goals.

"Well interference" means the lowering of water level in a well caused by the withdrawal of water at another location (usually a nearby well).

[**ARC 2053C**, IAB 7/8/15, effective 8/12/15]

567—50.3(17A,455B) Forms for withdrawal, diversion or storage of water.

50.3(1) *Application forms.* The following application forms are currently in use:

Form 16: Application for a New Water Use Permit or to Modify an Existing Water Use Permit. 542-3106.

Form 18: Application for Permit to Store Water for Beneficial Use. 542-3109.

Form 20: Registration of Minor Nonrecurring Use of Water. 542-3112.

Form 542-1470: Water Supply Section Water Use Permit Renewal.

Form 542-1539: Application for Use of an Agricultural Drainage Well.

50.3(2) *Supplementary information forms.* The following forms are used to obtain additional information to supplement various types of applications:

Form 21: Survey of Land Owners and Occupants. 542-3113.

Form 22: Well Inventory Form. 542-3114.

Form 122: Water Well Inspection Report.

50.3(3) *Reporting form.* The following form is for reporting permitted activities:

Form 23: Report of Water Use by all Regulated Users. 542-3115.

567—50.4(17A,455B) How to request a permit.

50.4(1) *Application form.*

a. Application for approval of a new withdrawal, diversion or storage of water unrelated to the use of an agricultural drainage well. For withdrawals, diversions, or storage of water unrelated to the use of an agricultural drainage well, a request for a new permit as distinguished from modification or renewal of an existing permit shall be made on Form 16 (542-3106). An application form must be submitted by or on behalf of the owner, lessee, easement holder or option holder of the area where the water is to be withdrawn, diverted or stored, and used. An application must be accompanied by a map portraying the points of withdrawal or diversion and storage, and the land on which water is to be used oriented as to section, township, and range. One application normally will be adequate for all uses on contiguous tracts of land. Tracts of land involved in the same operation separated only by roads or railroads will be deemed contiguous tracts.

b. Application for diversion of water related to the use of an agricultural drainage well. An application for the diversion of water and any other materials to an aquifer related to the use of an agricultural drainage well shall be made on a form obtained from the department and be submitted by or on behalf of such owners, lessees, easement holders, or option holders of all lands within the agricultural drainage well area. If the agricultural drainage well is part of a legally organized drainage district, the drainage district shall be a joint applicant. Applications for permits for diversions related to the use of an agricultural drainage well that existed prior to February 18, 1998, shall be made by July 1, 1999, with the exception of agricultural drainage wells that must be closed to comply with the provisions of 1997 Iowa Acts, Senate File 473. An application will not have to be filed for wells in a designated agricultural drainage well area which must be closed by December 31, 1999. In addition, the department may grant up to a six-month delay in the application date for owners of agricultural drainage wells where it can be shown there is a reasonable expectation that the agricultural drainage well will be voluntarily closed by December 31, 1999.

c. Application for modification or renewal of a permit. A request for renewal of a permit should be submitted on Form 542-1470. A request to modify an existing permit shall be made on Form 16 (542-3106) and must include an explanation of the necessity for the modification.

d. Where to submit application. Rescinded IAB 6/7/06, effective 7/12/06.

50.4(2) *Fees.*

a. Application fee. An application to the department for a new permit, modification of an existing permit, or registration of a minor nonrecurring use of water must be accompanied with the fee listed in the table below. These fees are nonrefundable and are not transferable. For any single application, if more than one fee in the table below applies, only the higher fee is required. The fees become effective on July 1, 2009.

Application Description	Form	Fees, in dollars
(1) To apply for a new permit to withdraw or divert water	16 (542-3106)	$350
(2) To renew an existing permit	542-1470	$0
(3) To modify an existing permit to either add a new source or increase the amount or rate of water withdrawn or diverted from a source or sources	16 (542-3106)	$350
(4) To modify the conditions of an existing permit which are not described in Item 3 of this table (see above)	16 (542-3106)	$0
(5) To apply for an aquifer storage and recovery permit or a protected source designation	N/A	$700
(6) To apply for a permit to store water	18 (542-3109)	$75
(7) To register a minor nonrecurring use of water	20 (542-3112)	$75

b. Annual permit fee. In addition to the application fee, there is an annual permit fee for a water use permit or an aquifer storage and recovery permit. The annual fee shall be based on the number of active permits. Each permit holder shall pay the same annual fee. The fee will not be prorated and is nonrefundable. The annual permit fee is due December 1 of each year, beginning with December 1, 2009. The department will provide an annual fee notice to each permittee at least 60 days prior to the fee due date. An additional fee of $100 will be imposed if the fee is not received by December 1. Failure to remit the fee by January 1 may result in the cancellation of the permit.

(1) There is no annual fee for a water storage permit (see (6) of table, paragraph 50.4(2)*"a"*) or for a minor nonrecurring water use registration (see (7) of table, paragraph 50.4(2)*"a"*).

(2) The annual fee shall be based on the costs for administering the water use permitting program for the previous calendar years and on the anticipated expenses for succeeding fiscal years. The department will review the annual permit fee each year and adjust the fee as necessary to cover all reasonable costs required to develop and administer the water use permitting program. Permit holders that have paid an application fee after December 1, but prior to November 30, will not be required to pay an annual fee until December 1 of the following year. If an applicant remits an annual fee for the 12-month period beginning December 1 and then later submits an application fee for a permit modification, the applicant will be refunded the lesser of the fees. The department shall request commission approval of the amount of the annual fee no later than September 30 of each year.

50.4(3) *Supporting information required for complete application.* An application shall not be considered complete until the fee specified in this rule and all supporting information requested under 567—50.6(17A,455B) have been submitted by the applicant or agents of the applicant.

[**ARC 7694B**, IAB 4/8/09, effective 5/13/09; **ARC 5052C**, IAB 6/17/20, effective 7/22/20]

567—50.5(455B) Initial screening of applications.

50.5(1) *General procedure.* Each application upon receipt shall be promptly evaluated by the department to determine whether adequate information is available to review the project. The department shall then advise the applicant of additional information required to review the project.

50.5(2) *Application to withdraw groundwater.* Evaluation of the potential effects of a proposed withdrawal of groundwater requires review of available hydrogeological information. The department may require additional supporting hydrogeological information, which the applicant is responsible for providing.

567—50.6(17A,455B) Supporting information. Applicants shall submit supporting information which is reasonably required to assist the department in conducting the investigation of an application required by Iowa Code sections 455B.264 and 455B.281 and in determining whether granting of a permit would be consistent with the policies and principles of beneficial use set forth in Iowa Code section 455B.262. Certain supporting information requirements are described in this rule. This description is intended to identify frequently required information. The department may require additional information relative to the permit application.

50.6(1) *Application for permit to withdraw groundwater.*

a. Identification of source and effects of pumping. An applicant shall be required to submit information needed by the department to identify the aquifer(s) from which withdrawals of water are proposed, predict the effects of pumping with a reasonable degree of confidence, and determine any permit conditions for well interference pursuant to 567—Chapter 54. At many locations the only reliable methods to determine the availability of a water source of adequate quantity and quality and to predict the effects of pumping require test drilling, yield test pumping, and a controlled aquifer test with measurements in one or more observation wells conducted with prior approval in a manner that is acceptable to the department. The applicant shall be required to perform each of these exploratory operations to the extent necessary for the department to obtain information from which to determine whether a permit should be granted and to identify conditions which should be imposed in any permit granted. The following requirements apply to exploratory drilling and test pumping.

(1) Test drilling. In cases where test drilling is needed for geological information relevant to the application, the applicant is responsible for employing a driller who will collect, bag and properly label cutting samples at each five-foot interval and at each apparent change in geological formation from a test hole or production well hole at least the approximate depth of the proposed production well. The cutting samples must be saved for collection in sample bags provided by the Iowa geological survey (IGS). The samples shall be submitted to IGS and be accompanied by a driller's log showing the location and total depth of the hole and a description of the materials encountered at successive intervals.

(2) Yield testing. An applicant shall be required to construct a well and test pump it for yield to the extent necessary to determine whether water is available at the applicant's proposed rate of withdrawal from the proposed source. A written registration from the department is required before any yield test in which more than 25,000 gallons will be withdrawn in a period of 24 hours or less (see 567—subrule 51.6(5)).

(3) Controlled aquifer test with supervision. An applicant shall be required to conduct a controlled aquifer test with supervision by a certified well contractor, licensed professional engineer or other designee of the department as a condition of obtaining a water permit if the department finds an aquifer test necessary to determine the effects which the proposed withdrawal has on other water uses. The applicant may be required to construct, develop, and maintain adequate observation wells for use in an aquifer test and for subsequent water level measurements or water quality monitoring. An applicant shall be responsible for obtaining a registration for an aquifer test as provided in 567—subrule 51.6(5).

b. Cooperation in obtaining information about surrounding wells. An applicant who requests a permit authorizing withdrawals of groundwater from a well or reservoir may be required to assist the department in conducting an inventory of nearby wells within a designated radius of the proposed site. The need for an inventory and the appropriate radius will be determined after considering the known characteristics of the aquifer which the applicant proposes as a source of water and the rate and amount of the proposed withdrawals. The department shall provide a map specifying the area within which an inventory is proposed and forms specifying the information to be gathered in the inventory. The department shall also provide to the applicant a description of regulated uses within the inventory area. The applicant shall make a good faith effort to assist the department in obtaining available information from public records to identify landowners and occupants and from drilling contractors or pump installers identified by a landowner or occupant responding to the inventory.

50.6(2) *Application for an irrigation permit.* An applicant who proposes to irrigate crops on land which includes soils more erodible than Capability Subclass IIe as defined by the U.S.D.A. Natural Resources Conservation Service (NRCS), or slopes greater than 6 percent where a modern NRCS Soil Survey is not available, shall submit a soil conservation plan prepared with the assistance of the NRCS for the land in which crop irrigation is proposed. The plan shall be accompanied by the applicant's written explanation of how operation of the proposed irrigation system will be compatible with the conservation plan.

50.6(3) *Application for permit to dewater a rock quarry.* Iowa Code section 455B.268 and 567—Chapter 51 require that a permit be obtained before diverting water or material from the surface directly into any underground watercourse or basin. When the department investigates an application for a permit to pump water for dewatering of a quarry excavated in carbonate rock, the department

shall consider the potential for pollution of an underground watercourse or basin from drainage of surface water into the quarry. If available information, including topographic and subsurface geological information, supports a finding that drainage of surface water into the quarry would constitute a violation of the permit requirement in Iowa Code section 455B.268 and might cause pollution of an underground watercourse or basin if not controlled, then the department shall require that the applicant either request a permit to authorize a drainage of surface water into the quarry, or construct and maintain a means of controlling surface water which would otherwise drain into the quarry. Examples of suitable methods of controlling surface drainage are low berms or artificial drainage ways constructed as needed to reduce runoff of surface water from adjacent land into the quarry.

50.6(4) *Application for permit to divert water into an aquifer not related to the use of an agricultural drainage well.* An applicant for a permit to divert water or any other material from the surface into an aquifer not related to the use of an agricultural drainage well shall submit information showing that the requested diversion will not alter the quality of the aquifer.

50.6(5) *Application for uses that were nonregulated prior to July 1, 1985.* Rescinded IAB 6/7/06, effective 7/12/06.

50.6(6) *Applications for a permit to withdraw water from a protected water source.* An applicant for a permit to withdraw water from a protected water source designated in rule 567—53.7(455B) may be required to provide specific information to support the application as required by rule 567—53.5(455B) or rule 567—53.7(455B).

50.6(7) *Application for permit to divert water into an aquifer related to the use of an agricultural drainage well.* An applicant for a permit to divert water or any other material into an aquifer by means of an agricultural drainage well shall submit the following information. The locations of the features as listed below shall be shown on a map drawn to scale submitted with the application.

a. Location of the agricultural drainage well to at least the nearest quarter-quarter section, township and range.

b. Diameter and depth of the agricultural drainage well, if known.

c. Description and ownership of the lands which are drained by the agricultural drainage well and the associated drainage system.

d. Location of tiles which drain to the agricultural drainage well, if known, and the location of any existing surface water intakes.

e. The location and description of any earthen storage structures, confinement feeding operations, or open feedlots within the agricultural drainage well area.

f. Information regarding any known connections between the agricultural drainage well or its drainage system and wastewater disposal or storage systems such as septic tanks and the location of such connections.

g. The nature and extent of any agreements between the well owner and adjacent landowners who have lands which are drained by the agricultural drainage well and associated tile drainage system.

h. Any available information regarding the economic and physical feasibility of closing the agricultural drainage well.

[**ARC 4426C**, IAB 5/8/19, effective 6/12/19]

567—50.7(17A,455B) Review of complete applications.

50.7(1) *Order of processing.* In general, complete applications including all requested supporting information shall be reviewed in the order that complete information is received. However, when there are a large number of pending applications, which precludes the department from promptly processing all applications, the department may expedite review of a particular application out of order if the completed application and supporting documents were submitted at the earliest practicable time and any of the following conditions exist:

a. Relatively little staff review time (generally less than four hours) is required and delay will cause the applicant hardship;

b. The applicant can demonstrate that a delay in the permit will result in a substantial cost increase of a large project;

c. Prompt review of the permit would result in earlier completion of a project that conveys a significant public benefit;

d. The need for a permit is the result of an unforeseen emergency or catastrophic event; or

e. A permit is needed to complete a project that will abate or prevent an imminent threat to the public health and welfare.

50.7(2) *Summary report of application review.* Before an initial decision is issued on an application, personnel assigned to review an application shall prepare a summary report which shall state whether the withdrawal, diversion, or use of water as described in the complete application conforms to relevant criteria. The report shall identify the information used to determine the potential for a proposed use of water to adversely affect other water users. For an application to withdraw groundwater, the report shall describe the effects on water levels anticipated to occur from the proposed use; indicate if verified well interference has been found; and provide options for resolving any verified well interference in accordance with 567—Chapter 54.

50.7(3) *Public notice of recommendation to issue permit.*

a. *New permits and modifications of permits.*

Prior to the issuance of a permit to withdraw, divert or inject water, the department shall publish a notice of recommendation to grant a permit. The notice shall summarize the application and the recommendations in the summary report. The notice shall allow 20 days to request a copy of the summary report and submit comments on the report. The department may extend the comment period upon request for good cause. The notice may be published in a newspaper circulated in the locality of the proposed water source, or the department may use other methods of publishing the notice to ensure adequate notice to the affected public. The notice shall be sent to any person who has requested a copy of the notice concerning the particular water use under consideration.

b. *Permit renewals.* The notice provisions of paragraph *"a"* of this subrule shall apply to requests for permit renewals except that the department need not publish notice of recommendation to grant a renewal permit which does not involve modification of permit conditions.

50.7(4) *Notice to the applicant that proposed withdrawal, diversion or use of water does not conform to criteria.* If the application review discloses that the proposed withdrawal, diversion or use of water violates one or more criteria and the application should therefore be disapproved, or approved only subject to special conditions to which the applicant has not agreed, the department shall notify the applicant and, when practical, suggest appropriate project modifications. The department shall offer the applicant an opportunity to submit comments before an initial decision is made.

50.7(5) *Applications for uses that were nonregulated prior to July 1, 1985.* Rescinded IAB 6/7/06, effective 7/12/06.

[**ARC 5052C**, IAB 6/17/20, effective 7/22/20]

567—50.8(17A,455B) Initial decision by the department.

50.8(1) *Form of decision.* The initial decision on an application shall be a permit or disapproval issued by the department. Each permit shall include appropriate standard and special conditions consistent with Iowa Code sections 455B.261 to 455B.274 and 455B.281 and 567—Chapters 52 to 54. The decision may incorporate by reference and attachment the summary report described in 50.7(2). Each decision shall include the following:

a. Determinations as to whether the project satisfies all relevant criteria not addressed in an attached summary report.

b. An explanation of the purpose for imposing each special condition.

c. Explanation of consideration given to all comments submitted pursuant to 50.7(3) and 50.7(4) unless the comments are adequately addressed in the attached summary report.

50.8(2) *Notice of initial decision.* Copies of the initial decision shall be mailed to the applicant, any person who commented pursuant to 50.7(3), and any other person who has requested a copy of the decision. The decision shall be accompanied by a certification of the date of mailing. An initial decision becomes the final decision of the department unless a timely notice of appeal is filed in accordance

with 567—50.9(17A,455B). The final decision may be filed with the appropriate county recorder to give constructive notice to future landowners of any conditions or requirements imposed by the final decision.

567—50.9(17A,455B) Appeal of initial decision. Any person aggrieved by an initial decision issued under 567—50.8(17A,455B) may file a notice of appeal with the director. The notice of appeal must be filed within 30 days following the certified date of mailing of the decision unless the appellant shows good cause for failure to receive actual notice and file within the allowed time. The form of the notice of appeal and appeal procedures are governed by 567—Chapter 7. The department shall mail a copy of the notice of appeal to each person who commented on the application. If the appeal is from denial of a permit and a notice of recommendation to grant a permit was not published, the department shall publish the notice of commencement of a contested case and provide an opportunity for interested people to seek intervention in the contested case.

These rules are intended to implement Iowa Code sections 17A.3, 455B.105, 455B.171, 455B.262, 455B.264 to 455B.274, 455B.278, and 455B.281 and chapter 460.

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[1] At its meeting held 2/9/98, the Administrative Rules Review Committee delayed 50.2, eight definitions, 50.3(1), 50.4, 50.6(4), 50.6(7), 50.7(2), 50.7(4) and 50.8(2) until adjournment of the 1998 Session of the General Assembly.

CHAPTER 51
WATER PERMIT OR REGISTRATION—WHEN REQUIRED

[Prior subject matter INRC rule 3.1]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—51.1(455B) Scope of chapter. This chapter contains thresholds which explain when a water permit or registration is required for withdrawal, diversion or storage of water.

567—51.2(455B) Storage (surface). A permit shall be required for the storage of 18 acre-feet or more of water in permanent storage. No such storage permit shall be granted by the department prior to issuance of a flood plain permit, if applicable, approving the plans and specifications for the impounding structure. No water storage permit from the department shall be required for waste stabilization lagoons, waste storage basins, or similar structures which are used solely for wastewater treatment or disposal. A storage permit is required for a stormwater retention basin of at least 18 acre-feet. A permit authorizing withdrawals of water from an artificial reservoir formed by an officially designated grade stabilization structure which was constructed with federal, state, or local cost-sharing funds shall not be granted unless the person applying for such a permit provides written approval for such withdrawals from the soil and water conservation district in which the structure is located.

567—51.3(455B) Diversion from surface into aquifer. A permit is required for diversion of water or any other material from the surface directly into any aquifer, including diversion by means of an agricultural drainage well. Diversion by tile or ditch into a sinkhole or quarry excavated in carbonate rock is presumed to be a diversion from the surface directly into an aquifer in the absence of convincing evidence to the contrary.

567—51.4(455B) Drain tile lines. Water in drain tile lines shall be considered surface water.

567—51.5(455B) Cooling/heating systems. A permit for the withdrawal of groundwater for use as a heat exchange media in a heating/cooling system may be granted, allowing such groundwater to be discharged into sanitary or storm sewers (when the use is complete). However, a permittee that has such a system shall make plan and design provisions to the permittee's system to allow the groundwater to be returned directly (i.e., reinjected) to the aquifer from which it was originally pumped. The department reserves the right to order such direct return as part of its water conservation plan responsibility as described in subrule 567—52.9(3) (chiefly incorporating mandated emergency conservation measures), and its priority allocation plan responsibility as described in 567—subrule 52.10(3).

567—51.6(455B) Miscellaneous uses. Unless otherwise provided herein, a permit shall be required for the use of more than 25,000 gallons of water per day for any purpose.

51.6(1) Reserved

51.6(2) *Drainage at construction sites.* A permittee may obtain permit coverage through registration as described in 51.6(5) for the withdrawal of water to lower the water table as necessary at a construction site.

51.6(3) *Test pumping.* The department may authorize by registration, as described in 51.6(5), test pumping of sources of water to determine adequacy of the source and effects of such withdrawals. The department may require the applicant to submit the results to the department. No such registration for test pumping shall be for a period of more than one year. A registration must be obtained from the department for any pumping test in which more than 25,000 gallons of water will be withdrawn in a period of 24 hours or less.

51.6(4) *Rural water districts.* A permit shall be required for withdrawals of water by any rural water district having its own source of water, and such a withdrawal shall be classified as a use by a community public water supply.

51.6(5) *Permit registration for minor, nonrecurring uses.* Any use of water which is a minor, nonrecurring use, including but not limited to highway construction and maintenance, charging of

lagoons, drilling wells, and hydrostatic testing of pipelines, shall require permit coverage that may be obtained through registration. The permit applicant may register minor, nonrecurring water use by submitting Form 20 (542-3112). Such registration shall be for up to one year. After an investigation of any withdrawal allegedly causing material damage, the department shall require prompt, appropriate action for the alleviation of damages. Where agreement cannot be reached on the action necessary for the alleviation of damages, withdrawal of water shall cease immediately upon notification by the department and an application for a permit shall be submitted.

51.6(6) *Research contracts.* The withdrawal of water for research purposes by the Iowa geological survey through its agents, employees, or contractees may be authorized by registration under 51.6(5) and may be subject to conditions set by the department.

[**ARC 4426C**, IAB 5/8/19, effective 6/12/19]

567—51.7(455B) Excavation and processing of rock and gravel products. A water permit is required for withdrawal of more than 25,000 gallons of surface water or groundwater in one day for dewatering, washing, pugging, or use of a hydraulic dredge in connection with removal or processing of rock or gravel products. This permit requirement is subject to the following exceptions:

1. A permit is not required for operation of a hydraulic dredge which returns all water used as a transport medium directly back into the pit from which it is withdrawn by the dredge;
2. A permit is not required for withdrawal of water from a gravel pit or rock quarry sump pit for material washing if the wash water is discharged directly back into the pit from which it is withdrawn.

567—51.8(159) Agricultural drainage wells. All agricultural drainage wells must be registered by the owner with the department by September 30, 1988, on the form provided by the department. Registration of an agricultural drainage well is not considered a permit as required under rule 51.3(455B) or subrule 51.6(5).

These rules are intended to implement Iowa Code sections 455B.262, 455B.264 to 455B.274, and 455B.278 and chapter 460.

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[1] See Delays, IAB 6/28/78, p.194.

[2] Effective date of 51.2 [NRC 3.1(4)] delayed 70 days by the Administrative Rules Review Committee; published IAC 6/23/82. Effective date of 51.3 [NRC 3.1(4)] delayed by the Administrative Rules Review Committee 45 days after convening of the next General Assembly pursuant to §17A.8(9); published IAC 8/18/82.

[3] At its meeting held 2/9/98, the Administrative Rules Review Committee delayed 51.3 until the adjournment of the 1998 Session of the General Assembly.

CHAPTER 52
CRITERIA AND CONDITIONS FOR AUTHORIZING WITHDRAWAL, DIVERSION AND STORAGE OF WATER

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—52.1(455B) Scope of chapter. This chapter contains criteria for issuance of water permits, permit conditions, and conditions under which the department may modify, cancel, or suspend permits. This chapter includes special criteria applicable to particular types of water uses such as irrigation and criteria applicable to particular types of sources of water such as surface waters and groundwater sources.

567—52.2(455B) Conditions on permitted water uses. This rule includes permit restrictions which apply to various types of permitted water uses. A permitted use may be subject to additional restrictions related to its potential effects on surface or groundwater. Requirements and restrictions which relate to particular types of water sources are found in rules 567—52.3(455B), 567—52.4(455B), 567—52.6(455B), 567—53.6(455B) and 567—53.7(455B). Procedures for determining conditions imposed due to well interference are found in rule 567—54.7(455B).

52.2(1) *Irrigation permits.*

a. Authorized irrigation season. Permits shall authorize irrigation of any general crop from April 1 to September 30 and any specialty crop from April 1 to October 31 unless the department finds that a different period is justified.

b. Authorized annual amount. Permits shall authorize withdrawals equivalent to 1 acre-foot per acre for a general crop and 2 acre-feet per acre for a specialty crop unless the department finds that a different amount is justified. Factors to be considered in determining whether a different amount is justified include soil types and potential water availability during drought events. Notwithstanding the general criteria in this paragraph, permits for irrigation of general crops from the alluvial aquifers of the Missouri and Mississippi Rivers shall authorize withdrawals of up to 1.5 acre-feet per acre if requested by the applicant unless the department finds that a different amount is justified.

c. Conservation plan for erosion control. When 567—subrule 50.6(2) requires that an applicant for an irrigation permit submit a soil conservation plan, any permit granted to the applicant shall make authorization of irrigation contingent upon compliance with the soil conservation plan.

d. Irrigation scheduling. The department may require that irrigation of a general crop be scheduled according to a method recommended by the department to minimize the potential for waste of water or by an equivalent method selected by the permittee and approved by the department.

e. Irrigation system check valve. Each irrigation permit shall require the permittee to install an adequate check valve and conduct frequent inspections for the proper functioning of the check valve to prevent back-siphoning of contaminants into the water source before a fertilizer, pesticide, herbicide, or other additive is introduced into the irrigation system.

52.2(2) The amount of water authorized for industrial use or power generation use shall be consistent with industrywide usage for the same or similar purposes and types of facilities and shall provide for growth where need is demonstrated by the applicant.

52.2(3) The amount of water authorized for use by a community public water supply shall not exceed 200 gallons per day per capita except additional water may be provided for growth and industrial use where need is demonstrated by the applicant.

52.2(4) *Recreational and aesthetic permits.*

a. Authorized amount. The amount of water authorized for recreational and aesthetic uses shall be determined on a case-by-case basis.

b. Watering system backflow-prevention valve. Each permit authorizing the use of water for turf or landscape plantings shall require the permittee to install an adequate check valve and conduct frequent inspections for the proper functioning of the check valve to prevent back-siphoning of contaminants into the water source before a fertilizer, pesticide, herbicide or other additive is introduced into the irrigation system.

This rule is intended to implement Iowa Code section 455B.265.

567—52.3(455B) Conditions on withdrawals from streams.

52.3(1) *Streams draining less than 50 square miles.* Withdrawals of water from streams draining less than 50 square miles shall be subject to the following conditions:

a. Two hundred gallon per minute (200 gpm) restriction. New withdrawals of water for consumptive uses shall not be in excess of 200 gallons per minute (200 gpm) on an aggregate basis. However, the department may authorize withdrawals in excess of 200 gallons per minute (200 gpm) for storage purposes during high stream flows, taking into account other permitted withdrawals on the stream reach.

b. Protected flow restriction. Except as provided in 52.3(1)*"c,"* withdrawals for consumptive uses, with the exception of community public water supplies, shall cease when the stream flow is below the protected flow designated in rule 567—52.8(455B). When the flow of a stream, or portion thereof designated by the department, is below a flow equal to the protected flow plus the summation of all permitted consumptive withdrawals by permittees whose permits provide for maintenance of a protected flow in such stream or portion thereof, the department may, subject to the provisions of 52.3(1)*"c,"* order temporary cessation or rotation of all consumptive withdrawals, with the exception of community public water supplies, to ensure that the protected flow is preserved.

c. Replacement water exemption. Paragraphs 52.3(1)*"a"* and *"b"* shall not apply to withdrawals for consumptive uses from a stream if the permittee discharges replacement water into such stream at rates sufficient to offset the consumptive withdrawals and the department approves the method and location of discharge.

d. Exemption until July 1, 1991, for certain users. Rescinded IAB 6/7/06, effective 7/12/06.

52.3(2) *Streams draining 50 or more square miles.* Withdrawals of water from streams draining 50 or more square miles shall be subject to the following conditions:

a. Protected flow restriction. Except as provided in 52.3(2)*"b,"* withdrawals for consumptive uses, with the exception of community public water supplies, shall cease when the stream flow is below the protected flow designated in rule 567—52.8(455B). When the flow of a stream, or portion thereof designated by the department, is below a flow equal to the protected flow plus the summation of all permitted consumptive withdrawals by permittees whose permits provide for maintenance of a protected flow in said stream or portion thereof, the department may, subject to the provisions of 52.3(2)*"b,"* order temporary cessation or rotation of all consumptive withdrawals, with the exception of community public water supplies, to ensure that the protected flow is preserved.

b. Replacement water exemption. Paragraph 52.3(2)*"a"* shall not apply to withdrawals for consumptive uses from a stream if the permittee discharges replacement water into such stream or tributary thereto at rates sufficient to offset the consumptive withdrawals and the department approves the method and location of discharge.

c. Exemption until January 1, 1989, for certain water uses. Rescinded IAB 6/7/06, effective 7/12/06.

d. Exemption after December 31, 1988, for certain electric generating facility cooling needs. Rescinded IAB 6/7/06, effective 7/12/06.

e. Exemption until July 1, 1991, for certain users. Rescinded IAB 6/7/06, effective 7/12/06.

567—52.4(455B) Conditions on withdrawals from groundwater sources.

52.4(1) *Withdrawals from unconfined aquifers adjacent to streams draining less than 50 square miles.* Withdrawals of water from unconfined aquifers adjacent to streams draining less than 50 square miles shall be subject to the following conditions:

a. Two hundred gallon per minute (200 gpm) restriction. New withdrawals for a consumptive use at any location within ¼ mile (1320 feet) of a stream shall not be in excess of 200 gallons per minute (200 gpm), except when the applicant can conclusively demonstrate by conducting appropriate tests that withdrawals in excess of 200 gallons per minute (200 gpm) will not reduce the flow of the stream. However, the department may authorize withdrawals in excess of 200 gallons per minute (200 gpm) for storage purposes during high stream flows.

b. Protected flow restriction. Except as provided in 52.4(1)*"c"* and 52.4(1)*"e,"*, withdrawals for consumptive uses, with the exception of community public water supplies, at any point within 1/8 mile (660 feet) of a stream shall be considered withdrawals from the stream and shall cease when the stream is below the protected flow designated in rule 567—52.8(455B), unless the applicant or permittee can conclusively demonstrate by conducting appropriate tests that the withdrawal will not reduce the flow of the stream.

c. Border stream-interior stream confluence restriction. Withdrawals for consumptive uses, with the exception of community public water supplies, from the alluvial aquifers below the floodplains of streams bordering the state at any point within 1/8 mile (660 feet) of any interior stream shall cease when the flow of such interior stream is at or below the seven-day, one-in-ten year (7Q10) low flow, except as provided in 52.4(1)*"d."*

d. Other conditions. Notwithstanding 52.4(1)*"a"* to 52.4(1)*"c,"* other conditions may be imposed that are necessary to ensure adequate protection of water supplies for ordinary household, livestock, and domestic uses, for fish and wildlife, for recreational use, for the preservation and enhancement of aesthetic values, and for other uses of a public nature.

e. Replacement water exemption. Paragraphs 52.4(1)*"a"* to 52.4(1)*"c"* shall not apply to withdrawals for consumptive uses from an unconfined aquifer if the permittee discharges replacement water into such stream or tributary thereto at rates sufficient to offset the consumptive withdrawals and the department approves the method and location of discharge.

f. Exemption until July 1, 1991, for certain users. Rescinded IAB 6/7/06, effective 7/12/06.

52.4(2) *Withdrawals from unconfined aquifers adjacent to streams draining 50 or more square miles.* Withdrawals of water from unconfined aquifers adjacent to streams draining 50 or more square miles shall be subject to the following conditions:

a. Protected flow restriction. Withdrawals for consumptive uses, with the exception of community public water supplies, at any point within 1/8 mile (660 feet) of a stream shall be considered withdrawals from the stream and shall cease when the stream is below the protected flow designated in rule 567—52.8(455B), except as provided in 52.4(2)*"c"* to 52.4(2)*"f."*

b. Seven-day, one-in-ten-year low flow restriction. Withdrawals for consumptive uses, with the exception of community public water supplies, at any point located between 1/8 mile (660 feet) and ¼ mile (1320 feet) of a stream, other than a stream bordering the state, shall cease when the stream flow is at or below the seven-day, one-in-ten-year low flow (7Q10), except as provided in 52.4(2)*"c"* to 52.4(2)*"f."*

c. Border stream-interior stream confluence restriction. Withdrawals for consumptive uses, with the exception of community public water supplies, from the alluvial aquifers below the floodplains of streams bordering the state at any point within 1/8 mile (660 feet) of any interior stream shall cease when the flow of such interior stream is at or below the seven-day, one-in-ten-year (7Q10) low flow, except as provided in 52.4(2)*"d."*

d. Other conditions. Notwithstanding 52.4(2)*"a"* to 52.4(2)*"c,"* other conditions may be imposed if they are necessary to ensure adequate protection of water supplies for ordinary household, livestock, and domestic uses, for fish and wildlife, for recreational use, for the preservation and the enhancement of aesthetic values, and for other uses of a public nature.

e. Replacement water exemption. Paragraphs 52.4(2)*"a"* to 52.4(2)*"c"* shall not apply to withdrawals for consumptive uses from an unconfined aquifer, if the permittee discharges replacement water into such stream or tributary thereto at rates sufficient to offset the consumptive withdrawals and the department approves the method and location of discharge.

f. Exemptions from low flow restrictions. The restrictions of 52.4(2)*"a"* to 52.4(2)*"d"* may be waived if the applicant or permittee can conclusively demonstrate by conducting tests to demonstrate that the withdrawal will not reduce the flow of the adjacent stream. The plan for testing must be approved by the department prior to the applicant's or permittee's conducting the tests.

g. Exemption until July 1, 1991, for certain users. Rescinded IAB 6/7/06, effective 7/12/06.

52.4(3) *Withdrawals from the Cambrian-Ordovician (Jordan) aquifer.* Withdrawals of water from the Cambrian-Ordovician (Jordan) aquifer, including the St. Peter sandstone formation, the Prairie du Chien group and the Jordan sandstone formation, shall be subject to the following conditions:

a. Two-hundred-gallon-per-minute restriction on irrigation, recreational, or aesthetic uses. New withdrawals of water for irrigation, recreational, or aesthetic uses shall not be in excess of 200 gallons per minute. Existing permits for irrigation, recreational and aesthetic uses that authorize withdrawal rates in excess of 200 gallons per minute may be modified or rescinded by the department if, as determined by the department, any well in the vicinity experiences loss of water due to pumping or if the pumping water level is reduced to or below the levels described in paragraphs *"f"* and *"g"* of this subrule.

b. Two-thousand-gallon-per-minute restriction on industrial or power generation uses. New withdrawals of water for industrial or power generation uses at one plant location shall not exceed 2,000 gallons per minute. Existing permits for industrial or power generation use that authorize withdrawal rates in excess of 2,000 gallons per minute may be modified or rescinded by the department if any well in the vicinity experiences loss of water due to pumping or if the pumping water level is reduced to or below the levels described in paragraphs *"f"* and *"g"* of this subrule.

c. Limited cooling and geothermal use. No once-through (single pass with disposal to storm sewer or equivalent) cooling water or geothermal usage is allowed. Withdrawals for geothermal purposes are prohibited unless 100 percent of the withdrawn water is reinjected into the aquifer in accordance with the requirements of the department.

d. Jordan aquifer high-capacity permits and wells. Water use permits for the Jordan aquifer shall be issued on a five-year permit cycle. The water use permit for wells expected to pump over 25,000 gallons per day from the Jordan aquifer must be obtained from the department before any water well construction permit is issued. After the water use permit has been obtained, the county may issue a Cambrian-Ordovician (Jordan) aquifer water well construction permit for any nonpublic water supply system unless that well is located in one of the protected-source areas listed in 567—subrules 53.7(2) and 53.7(3). The department may issue a Cambrian-Ordovician (Jordan) aquifer water well construction permit for a public water supply system or a well located in the protected source areas listed in 567—subrules 53.7(2) and 53.7(3). All driller's logs for water use wells completed in the Jordan aquifer shall be submitted to the department and the Iowa Geological Survey.

e. Tier 1 Jordan wells. A Jordan water use well is classified as Tier 1 when pumping water levels have not reached Tier 2 or Tier 3 levels described in paragraphs *"f"* and *"g"* of this subrule. Permittees with Tier 1 Jordan wells shall follow standard water use reporting procedures for the Jordan aquifer pursuant to rule 567—52.6(455B).

f. Tier 2 Jordan wells. A Jordan well is classified as Tier 2 when the pumping water level measured at the well declines over 300 feet below the 1978 Horick and Steinhilber potentiometric surface or the pumping water level declines over 50 percent from the 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer, whichever is more conservative. Permittees with Tier 2 wells shall comply with paragraph *"h"* of this subrule.

g. Tier 3 Jordan wells. A Jordan well is classified as Tier 3 when the pumping water level measured at the well declines over 400 feet below the 1978 Horick and Steinhilber potentiometric surface or the pumping water level declines over 75 percent from the 1978 Horick and Steinhilber potentiometric surface and the top of the Jordan aquifer, whichever is more conservative. Permittees with Tier 3 wells shall comply with paragraph *"i"* of this subrule.

h. Site-specific water use reduction plan for Tier 2 Jordan wells. Permittees with Jordan wells that have reached the Tier 2 level pursuant to paragraph *"f"* of this subrule shall develop a water use reduction plan and submit the plan to the department. The plan must be reviewed and approved by the department. The water use reduction plan shall set a defined usage percent reduction target that will minimize Jordan aquifer withdrawals and prevent the decline of the water level from reaching the Tier 3 category pursuant to paragraph *"g"* of this subrule. Guidance for writing and implementing water use reduction plans is available in paragraph *"k"* of this subrule. If the water use reduction plan is not implemented, the department may reduce the permitted water use allocation, pursue enforcement of the permit, or rescind the permit.

i. Enhanced site-specific water use reduction plan and predictive model for Tier 3 Jordan wells. Permittees with Jordan wells that have reached the Tier 3 level pursuant to paragraph *"g"* of this subrule shall develop an aggressive water use reduction plan using an approved predictive model that will lead to recovery of the pumping water level to elevations above Tier 3 levels. The plan and model predictions shall be reviewed and approved by the department. If water levels continue to decline beyond the Tier 3 level, the department may reduce the permitted water use allocation, pursue enforcement of the permit including aspects of the water use reduction plan, or rescind the permit.

j. Variances. Variances from the restrictions imposed by these rules will be considered by the department through the procedures found in rule 567—50.9(455B) and in 561—Chapter 10.

k. Resources for developing water use reduction plans. The resources suggested by and available from the department as guidance for developing water use reduction plans are listed in paragraph 52.9(3)*"d."*

52.4(4) *Withdrawals from the Dakota Sandstone formation of the Cretaceous system.* The department may issue permits authorizing withdrawals of water from the Dakota Sandstone formation of the Cretaceous system for all beneficial uses under the following conditions:

a. Inventory of nearby wells by applicant. An applicant who requests authorization for withdrawals of water at a maximum rate in excess of 200 gallons per minute shall conduct and submit an inventory of nearby wells as described in 567—paragraph 50.6(1)*"b."*

b. Observation wells. In addition to the requirement of 52.6(3) for construction of an access port to allow measurement of water levels in each production well, an applicant or permittee may also be required to construct, maintain, and monitor observation wells as a condition of obtaining or keeping a water permit if the department finds observation wells necessary to monitor the effects of the proposed or authorized withdrawals of water. Observation wells must be properly constructed and responsive to water level fluctuations in the aquifer. Plans for and monitoring of the observation wells must be approved by the department.

c. Prohibition of excessive water level declines. If the department determines that withdrawals of water from the Dakota Sandstone formation of the Cretaceous system within a designated geographical area are causing water level declines which constitute a significant threat to the public interest in the availability of water for sustained beneficial use of the aquifer, renewals of permits shall be denied, and permits shall be modified or canceled in accordance with procedures in Iowa Code section 455B.271, as necessary to protect the aquifer for sustained use.

d. Priorities in renewal, modification and cancellation of permits. If permit renewals must be denied or if permits must be modified or canceled to prevent or abate water level declines which constitute a significant threat to the public interest in the availability of water for sustained beneficial use of the aquifer, withdrawals of water for community public water supplies shall have priority over withdrawals of water for other regulated uses. The priority list for water use can be found in 52.10(3).

This rule is intended to implement Iowa Code sections 455B.261, 455B.264, 455B.266, 455B.271 and 455B.272.

[**ARC 2053C**, IAB 7/8/15, effective 8/12/15; **ARC 4426C**, IAB 5/8/19, effective 6/12/19]

567—52.5(455B) Duration of permits for withdrawal or diversion of water.

52.5(1) *General.* A permit granted shall remain as an appurtenance of the land described in the permit through the date specified in the permit and any extension of the permit or until an earlier date when the permit or its extension is canceled under 567—52.7(455B). Upon application for a permit prior to the termination date specified in the permit, a permit may be renewed by the department.

52.5(2) *Permits for withdrawal or diversion of surface water.* Permits for withdrawal or diversion of surface water shall be issued for ten years.

52.5(3) *Permits for withdrawal of groundwater.* Permits for withdrawal of groundwater shall be issued for a maximum period of ten years and may be granted for less than ten years if geological data on the capacity of the aquifer and the rate of its recharge are indeterminate.

This rule is intended to implement Iowa Code section 455B.265.

567—52.6(455B) Monitoring, recording and reporting of water use and effects on water source.

52.6(1) *Water use reports.* Each permittee shall submit to the department, at least annually, as prescribed by the department, reports of water used, diverted, or stored and any other information deemed necessary by the department.

52.6(2) Reserved.

52.6(3) *Requirement of access port for measurement of water levels in a regulated well.* All new water permits which authorize withdrawals from wells shall require that each authorized production well be equipped with an access port having a minimum diameter of ¾ inch. The access port must be located to allow insertion of a steel tape or electric probe into the well casing for measurement of water levels.

52.6(4) *Aquifer tests and observation wells.* A permittee may be required to conduct a controlled aquifer test as a condition of keeping a water permit if the department finds an aquifer test to be necessary to determine the effects which the authorized withdrawals have on other water uses. A controlled aquifer test, authorized by the department and supervised by a certified well contractor, licensed professional engineer or other designee of the department, may be required for an administrative resolution of a well interference conflict pursuant to 567—Chapter 54. The permittee may be required to construct, develop, and maintain adequate observation wells for use in an aquifer test and for subsequent water level measurements or water quality monitoring.

This rule is intended to implement Iowa Code sections 455B.261, 455B.264, 455B.266, 455B.268(1) and 455B.281.

[**ARC 4426C**, IAB 5/8/19, effective 6/12/19]

567—52.7(455B) Modification, cancellation, and emergency suspension of permits.

52.7(1) *General.* Except as provided in subrule 52.7(2), after at least 30 days' written notice mailed to the permittee's last-known address by certified mail and an opportunity for the permittee to be heard in an evidentiary hearing conducted according to the contested case provisions of Iowa Code chapter 17A, the department may modify or cancel a water permit or any condition of a permit, notwithstanding any other rule, for any of the following:

a. *Breach of permit condition or law.* A condition of the permit has been breached or the law pertaining to the permit has been violated by the permittee or permittee's agent, tenant, or consultant.

b. *Nonuse.* The permittee has failed for three consecutive years to use the water, and the permittee has not demonstrated adequate plans to use water within a reasonable time. Nonuse due to adequate rainfall shall not be a justification for cancellation of a permit. However, authorization to withdraw water from a proposed well may be canceled after notice to the permittee if the permittee has failed to construct the proposed well within three years after issuance of the permit.

c. *Public health and safety.* Modification or cancellation is necessary to protect the public health and safety, to protect the public interests in lands and waters, or to prevent any manner of substantial injury to persons or property.

d. *Addition of conservation provisions.* Modification to include conservation provisions is deemed necessary by the department.

e. *Allocated amount.* For three consecutive years, annual water use has exceeded the amount of water allocated in the permit.

52.7(2) *Emergency suspension or restriction.* Notwithstanding any other rule or permit conditions, if the department finds that it is imperatively necessary in an emergency to protect from imminent danger or substantial injury the public health, welfare or safety, the public or private interest in lands or water, or to implement the priority allocation system pursuant to rule 567—52.10(455B), and these findings are incorporated into a written emergency order to the permittee, then the department may immediately suspend or restrict operations under a permit and require the permittee to take measures necessary to prevent or remedy the injury. The emergency order shall state an effective date appropriate to the situation which invoked the suspension or restriction and shall be immediately effective on that date unless stayed, modified, or vacated at a hearing before the commission or by the court. The emergency order shall

remain in effect until a date specified in the order, unless the order is revoked or the expiration date modified, due to a change in the situation giving rise to the order or a decision following appeal.

This rule is intended to implement Iowa Code sections 455B.271, 455B.272 and 17A.3.

567—52.8(455B) Designated protected flows of streams.

52.8(1) *Purpose.* The protected flow is designed to protect and maintain adequate water supplies for ordinary household and livestock use; for fish and wildlife use; for recreational use; for in-stream wasteload assimilation and pollution control; for beneficial water use needs in the watershed; for preservation of aesthetic values; and for other uses of a public nature.

52.8(2) *Protected flow basis.* The protected flow is based in part on statistical information contained in "Low-Flow Characteristics of Iowa Streams," (INRC Bulletin No. 9 (1958)), "Low-Flow Characteristics of Iowa Streams through 1966," (INRC Bulletin No. 10 (1970)), "Annual and Seasonal Low-Flow Characteristics of Iowa Streams," (INRC Bulletin No. 13 (1976)), and "Statistical Summaries of Selected Iowa Streamflow Data Through September 1996, U.S. Geological Survey Open-File Report 98-176 (1998)."

52.8(3) *Protected flow levels.*

a. *At stream gaging stations.* The protected flow, expressed in cubic feet per second (cfs) at points on a stream with an official U.S. Geological Survey stream flow gage are listed in the table below.

The Protected Flow at U.S.G.S.
Stream Gaging Locations

River or Stream	Gage Location	Protected Low Flow (CFS)
Beaver Creek	New Hartford	18
Big Creek	Mount Pleasant	2
Black Hawk Creek	Hudson	4.5
Boone River	Webster City	24
Boyer River	Logan	41
Cedar River	Conesville	1240
Cedar River	Cedar Rapids	937
Cedar River	Waterloo	710
Cedar River	Janesville	185
Cedar River	Charles City	100
Chariton River	Rathbun	2.9
Des Moines River	Keosauqua	350
Des Moines River	Ottumwa	300
Des Moines River	Tracy	300
Des Moines River	Des Moines (14th St.)	300
Des Moines River	Saylorville	200
Des Moines River	Stratford	310
Des Moines River	Fort Dodge	220
East Fork Des Moines River	Dakota City	42
East Nishnabotna River	Red Oak	37
East Nishnabotna River	Atlantic	18
Floyd River	James	22
Iowa River	Wapello	1390
Iowa River	Lone Tree	150

River or Stream	Gage Location	Protected Low Flow (CFS)
Iowa River	Iowa City	150
Iowa River	Marengo	204
Iowa River	Marshalltown	104
Iowa River	Rowan	21
Little Cedar River	Ionia	28
Little Sioux River	Turin	200
Little Sioux River	Correctionville	106
Little Sioux River	Linn Grove	42
Maple River	Mapleton	50
Maquoketa River	Maquoketa	372
Middle Raccoon River	Panora	20
Middle River	Indianola	14.6
Monona-Harrison Ditch	Turin	27
Nishnabotna	Hamburg	128
Nodaway	Clarinda	15
North Raccoon River	Jefferson	82
North Raccoon River	Sac City	14
North River	Norwalk	5.6
North Skunk River	Sigourney	35
Raccoon River	Van Meter	190
Rock River	Rock Valley	26
Shell Rock River	Shell Rock	147
Skunk River	Augusta	287
Soldier River	Pisgah	20
South Raccoon River	Redfield	58
South River	Ackworth	4.1
South Skunk River	Oskaloosa	94
South Skunk River	Ames (below Squaw Creek)	23
South Skunk River	Ames	4.8
Thompson River	Davis City	13
Turkey River	Garber	210
Upper Iowa River	Decorah	80
Walnut Creek	Hartwick	2
Wapsipinicon River	DeWitt	150
Wapsipinicon River	Independence	17
West Fork Cedar River	Finchford	66
West Fork Ditch	Hornick	12
West Nishnabotna River	Randolph	67
West Nishnabotna River	Hancock	49
White Breast Creek	Dallas	3.2
Winnebago River	Mason City	39

b. *At stream locations other than gaging stations.* The protected flow for points on a stream, other than at a U.S. Geological Survey gaging station, shall be established, as the need arises, by comparison of available stream flow data and basin characteristics.

This rule is intended to implement Iowa Code sections 455B.261, 455B.262 and 455B.267.

567—52.9(455B) Water conservation.

52.9(1) *General.* The purpose of water conservation requirements is to preserve the availability of water which is withdrawn for use, as opposed to protected flow provisions in rules 567—52.3(455B), 567—52.4(455B), and 567—52.8(455B) which preserve in stream flows.

Each permit granted after July 1, 1986, including any permit granted to a community public water supply, will include conditions requiring routine (day-to-day) conservation practices and requiring emergency conservation practices after notification by the department. Existing permits may be modified to include conservation conditions pursuant to 52.7(1)*"d,"* if deemed necessary by the department.

Only general provisions for routine conservation will be included in a permit, unless water is to be withdrawn from a protected water source designated in 567—Chapter 53 which has specific requirements for routine conservation. Permit conditions requiring routine conservation are primarily intended to raise awareness of water usage, develop a preparedness for periods of water shortages, and minimize waste of water.

General conditions involving emergency conservation will be included in all permits. Specific emergency conservation conditions may be included in a water use permit pursuant to subrule 52.9(2). If specific emergency conservation permit conditions are required, they will be based on a water conservation plan developed by the permittee or applicant, in accordance with subrule 52.9(3), and approved by the department.

The purpose of emergency conservation is to minimize consumptive use of water from a source experiencing a temporary shortage. Emergency conservation restrictions will be imposed only when water shortages are imminent or actually exist, in accordance with rule 567—52.10(455B). Long-term water shortages may be dealt with in the protected source rules, 567—Chapter 53.

52.9(2) *Applicability of emergency conservation.* Specific emergency conservation requirements may be made a condition of a water withdrawal permit if the proposed or permitted withdrawal could result in a significant consumptive use of water from a source which is likely to experience a short-term shortage.

Specific emergency conservation requirements will not normally be included in a water use permit under any of the following conditions:

a. The proposed or existing permitted water use involves a consumptive use of less than 25,000 gallons per day from any water source during periods of substantial water shortage.

b. The proposed or permitted use is subject to protected stream flow conditions pursuant to rules 567—52.3(455B), 567—52.4(455B), and 567—52.8(455B).

c. The water source for the proposed or permitted use is from a surface water impoundment or purchased storage owned by the applicant or permittee.

d. The proposed or permitted use is unable to conserve water without substantially disrupting or ceasing an essential activity which requires water, such as operating a steam electric generating plant, watering livestock, or operating a commercial laundry.

e. The proposed or permitted withdrawal is from a source of water which is not likely to experience a substantial short-term water shortage including, but not limited to, the Missouri and Mississippi Rivers and adjacent alluvial aquifers, the Jordan Sandstone Aquifer, and the Iowa Great Lakes.

f. The source of water is or will be utilized by only the permitted or proposed water user and withdrawal from the source for the permitted or proposed use has no potential for affecting other water uses.

52.9(3) *Water conservation plans.* Unless specific emergency conservation permit conditions are not required in accordance with subrule 52.9(2), the applicant or permittee shall submit a water conservation plan with an application for a new water use permit or renewal of an existing permit. The department

may also require a water conservation plan to be submitted by any existing permittee after a minimum of 90 days' notice. If an applicant is in doubt as to whether or not the application requires a water conservation plan, the department should be contacted and provided with a description of the proposed source of water, intended use, and desired amount and rate of withdrawal. The department will then make a determination of whether or not a conservation plan is necessary. If a water conservation plan is required with an application for permit renewal, the department will notify the permittee at least 120 days prior to expiration of the permit.

Water conservation plans shall describe the measures to be used to achieve water conservation and estimate water savings from each measure. Water conservation plans must contain the following information, as applicable, to be approved by the department.

a. General provisions. The following information shall be included in all water conservation plans:

(1) A description of each source of water withdrawal (i.e., well or surface water intake) including the location, well depth, pumping rate, and date of installation.

(2) A description of wastewater discharge including the location and discharge frequency.

(3) Monthly withdrawal amounts from each source for the past five years.

(4) Monthly total water withdrawal amount for the past five years.

(5) Monthly total wastewater discharge amount for the past five years.

(6) A quarterly breakdown, by the water use categories in subrule 52.10(3), of total water use and estimated consumptive water use over the past five years.

(7) A description of any previous water shortage problems, including the cause, frequency, other affected parties, and how they were resolved.

(8) Identification of nearby water supplies which are potentially affected by or could potentially affect the proposed or permitted withdrawal.

(9) A means of identifying impending water shortage problems (e.g., water level in wells or a reservoir decline to a certain level or stream flows fall to a certain rate).

b. Routine conservation provisions. Consideration of routine conservation is encouraged although it is not normally required in a water conservation plan. Documented water savings from routine conservation measures will be credited towards emergency conservation requirements. Suggested routine conservation measures include:

(1) Use of water-saving plumbing devices or required use of these devices in building codes.

(2) Scheduling irrigation to minimize peak water use.

(3) Use of efficient irrigation techniques.

(4) Implementing programs to minimize lost water, such as distribution system leaks.

(5) Use of metered water billing by public water supplies.

(6) Utilizing best commercially available technology to optimize efficiency of water use.

(7) Implementing recycling and reuse practices.

(8) Developing alternative water sources which are not susceptible or are less susceptible to shortages.

(9) Increasing rates charged for water or eliminating reduced rates for large users.

c. Emergency conservation provisions. Water conservation plans shall contain emergency conservation provisions in accordance with the following criteria.

(1) General. The consumptive nature of a water use, as described in subrule 52.9(2) and determined from information required in 52.9(3)*"a,"* shall be reduced by at least 50 percent over similar periods of normal use. This criterion does not apply to irrigation use. If this requirement cannot be met, justification for nonattainment shall be provided which must include documentation that an activity involving water use is essential and demonstration of use of best commercially available technology. The department may then grant variances on a case-by-case basis.

Measures which will be credited for emergency conservation include, but are not limited to, the following: documented water savings resulting from routine water conservation measures; shutdown, postponement, or curtailment of nonessential activities involving water use; switching to nonaffected sources for water supply; mitigation of consumptive uses by direct discharge of stored water or

water from a nonaffected source to the affected water source; acquisition and retirement of existing consumptive uses from the affected water source (credit for retirement of existing consumptive uses will be given only for the amount authorized during periods when emergency conservation is required); and imposing surcharges on water use during periods of shortage.

(2) Public water supplies. At a minimum, emergency water conservation plans for public water supplies must include provisions for restricting outside, consumptive water use.

(3) Irrigation water use. Emergency water conservation plans for irrigation water uses shall limit irrigation water use to the equivalent of one inch per irrigated acre per week for general crops and specialty crops, unless the water conservation plan contains other mitigating provisions such as those listed in 52.9(3)*"c"*(1) above.

Water conservation plans shall also address irrigation scheduling. Irrigation scheduling should attempt to provide approximately equal water use on each day of an irrigation cycle. Irrigation scheduling may be done in cooperation with other nearby irrigators who utilize the same water source.

d. Resources for water conservation and water use reduction planning.

(1) The following resources are suggested by and available from the department as guidance for the development of water conservation plans and water use reduction plans:

1. "Water Wise—Efficiency Planning and Water Conservation Plan Workbook for Water and Wastewater Utilities," Iowa Association of Municipal Utilities, 2013 (available online through the department's website).

2. "Water Conservation Programs—A Planning Manual," Manual of Water Supply Practices M52, American Water Works Association, 2006.

3. "Handbook of Water Use and Conservation," Amy Vickers, Waterplow Press, Amherst, Massachusetts, 2001.

(2) Water conservation plans and water use reduction plans shall comply with the standards of the American Water Works Association or a reasonable equivalent as determined by the department.

This rule is intended to implement Iowa Code sections 455B.262 and 455B.265.

[**ARC 2053C**, IAB 7/8/15, effective 8/12/15]

567—52.10(455B) Priority allocation restrictions.

52.10(1) *General.* After any event described in subrule 52.10(2) has occurred, the department will investigate and, if appropriate, may restrict water use according to the priority allocation plan as described in subrule 52.10(3). Prior to imposing the priority allocation plan, the department will normally require emergency conservation measures to be taken by existing permittees. The department will not normally require emergency conservation until a shortage of water is imminent and will not normally impose the priority allocation plan until an actual impairment of water usage exists.

The department will notify existing permittees of any emergency restriction or suspension of water use by written order pursuant to subrule 52.7(2). A permittee will be required to maintain daily records of water withdrawal and wastewater discharge, if any, while the emergency order is in effect. These records shall be available for inspection by the department to verify compliance with the order.

Suspension or restriction of water usage applicable to otherwise nonregulated water users shall be by emergency order of the director which the department shall cause to be published in local newspapers of general circulation and broadcast by local media. The emergency order shall state an effective date of the suspension or restriction and shall be immediately effective on that date unless stayed, modified or vacated at a hearing before the commission or by a court.

The department will lift the suspension or restriction of water usage, as deemed appropriate, when evidence of sustained, improved conditions is available.

The department will not impose a suspension of water or a further restriction, other than emergency conservation, on the uses of water provided in paragraphs 52.10(3)*"g"* through *"i"* or on uses of water pursuant to a contract with the state as provided in Iowa Code subsections 455B.263(5) and 455B.263(6) unless the governor has issued a proclamation, as described in paragraph 52.10(2)*"b."* Notwithstanding such proclamation, in the case of water use under a contract with the state pursuant to

Iowa Code subsections 455B.263(5) and 455B.263(6) and in effect prior to March 5, 1985, restriction or suspension measures will be limited to emergency conservation.

52.10(2) *Triggering events.* The department may implement the priority allocation plan following the occurrence of any of the following:

a. Receipt of a petition by a governmental subdivision or 25 persons that the priority allocation plan be implemented due to a substantial local water shortage adversely affecting their water supply.

b. Issuance by the governor of a proclamation of a disaster emergency due to a drought or other event affecting water resources of the state.

c. Determination by the department in conjunction with the homeland security and emergency management division of the Iowa department of public defense of a local crisis which affects availability of water.

d. Receipt of information from a state or federal natural resource, research or climatological agency (including the National Drought Monitor) indicating that a drought of local or state magnitude is imminent. As a general guideline, emergency conservation or priority allocation restrictions will not be imposed on withdrawals from a surface stream or adjacent alluvial aquifer when stream flow is above the seven-day, one-in-ten-year low-flow level.

52.10(3) *Priority allocation plan.* Notwithstanding a person's possession of a permit or the person's use of water being a nonregulated use, the department may suspend or restrict usage of water by category of use on a local or statewide basis in the following order:

a. Water conveyed across state boundaries.

b. Water used primarily for recreational or aesthetic purposes.

c. Uses of water for the irrigation of any general crop.

d. Uses of water for the irrigation of any specialty crop.

e. Uses of water for manufacturing or other industrial processes.

f. Uses of water for generation of electrical power for public consumption.

g. Uses of water for livestock production.

h. Uses of water for human consumption and sanitation supplied by rural water districts, municipal water systems, or other public water supplies.

i. Uses of water for human consumption and sanitation supplied by a private water supply.

This rule is intended to implement Iowa Code section 455B.266.

567—52.11(455B) Plugging of abandoned wells. When authorization for withdrawals of water from a well expires without renewal, the permittee shall be responsible for plugging the well in accordance with Iowa Code section 455B.190, 567—Chapter 39, and Iowa Geological Survey Public Information Circular #1, "Well Plugging Procedures," or by an alternate method approved by the department for prevention of groundwater pollution. Form 542-1226 (Abandoned Water Well Plugging Record) must be completed and submitted as specified on the form. However, the department shall grant a variance from the requirement that the well be plugged if the permittee demonstrates an intent to maintain the well as a source of water for a nonregulated use or if the department determines that the well should be maintained as an observation well.

This rule is intended to implement Iowa Code sections 455B.262 to 455B.279(2).

567—52.12 to **52.19** Reserved.

567—52.20(455B) Water storage permits.

52.20(1) *Beneficial use and protected flow criteria.* A permit for storage of impounded water shall be based on the following findings:

a. The proposed storage is for a specified beneficial use such as human or livestock water supply, recreation, aesthetic value, erosion control, or low-flow augmentation.

b. The impounding structure can be operated in a manner which will not adversely affect any applicable protected flow in the impounded stream.

c. The construction, operation, and maintenance of the impounding structure has been approved by the department.

52.20(2) *Duration of permit.* A permit for storage of water impounded by a dam other than a major structure may be granted for the life of the structure. A permit for storage of water impounded by a major structure may be granted for any period not exceeding ten years.

52.20(3) *Conditions of approval for storage of water impounded by a major structure.* A permit authorizing storage of water impounded by a major structure as defined in 567—Chapter 70 shall include the following conditions:

a. Storage of water shall not commence until construction of the dam as approved by the department is completed and accepted by the department pursuant to 567—paragraph 74.21(1)*"c."* Until construction of the dam is accepted the gate on the low level or dewatering outlet shall remain open.

b. The permittee shall notify the department of any proposed change in the ownership of any part of the dam, or of any change in the identity of the person responsible for its construction, operation, and maintenance. For dams built under easement where the property owner does not have primary responsibility for construction, operation, and maintenance, notice of proposed change in ownership is not required if the identity of the responsible person does not change.

c. The permittee shall permit inspections of the dam in accordance with 567—Chapter 74.

52.20(4) *Criteria for renewal of water storage permits.* In addition to considering the criteria in subrule 52.9(1), the department shall review its most recent dam safety inspection report as part of the review of an application for renewal of a water storage permit and shall consider the following additional factors:

a. The physical condition of the dam and appurtenant structures as related to safety of the dam.

b. The permittee's record of compliance with the conditions of the expiring storage permit and the approval order which authorized construction, use and maintenance of the dam.

c. Changed circumstances including upstream or downstream development which may affect the hazard classification of the dam or its ability to function as intended.

52.20(5) *Conditions of cancellation or suspension of water storage permits.* When a water storage permit is canceled or suspended pursuant to Iowa Code section 455B.271, the gate on the low level or dewatering outlet shall be opened and the impoundment drained in accordance with the procedures in 567—Chapter 74 and the impoundment shall remain drained unless storage of water is again authorized. Additional measures including breaching of the dam may be required if necessary to reduce risk of damage associated with dam failure.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264, 455B.265, 455B.267, 455B.270, 455B.271, 455B.274 and 455B.278.

567—52.21(455B) Permits to divert water to an agricultural drainage well.

52.21(1) *Approval criteria.* An application for a permit to divert water or other material to an aquifer by means of an agricultural drainage well shall not be approved if the agricultural drainage well is located within a designated agricultural drainage well area or the drainage well is to be constructed after February 18, 1998. An initial permit for the diversion of water or any material to an aquifer by means of an agricultural drainage well shall be based on a finding that the following criteria are satisfied. Renewal of such a permit shall be made only upon a finding that such owners, lessees, easement holders, or option holders are in compliance with the conditions of the initial permit or any permit issued thereafter and that the agricultural drainage well meets applicable approval criteria, including paragraph 52.21(1)*"c."*

a. The application for the permit has been submitted by or on behalf of all owners, lessees, easement holders, or option holders of all lands which are drained by the agricultural drainage well.

b. There is reasonable assurance that the applicant(s) can minimize the contamination potential to the aquifer through closure of surface water intakes, elimination of any septic system connections, and other appropriate management practices including nutrient and pesticide management as required under subrule 52.21(2).

c. There are no economically and physically viable alternatives to the use of the agricultural drainage well. The department will consult with the division of soil conservation, department of agriculture and land stewardship, and other parties with drainage expertise as necessary to determine if viable alternatives exist. In determining whether a viable alternative exists, the department will consider all relevant factors, including the following:

(1) The impact that closure of the ADW would have on lands drained by the agricultural drainage well if an alternative drainage system is not provided.

(2) The cost and feasibility of providing an alternative outlet. Alternative drainage systems constructed under the provisions of the alternative drainage system assistance program administered by the division of soil conservation and water quality will be considered as a viable alternative to the use of the agricultural drainage well.

(3) The availability of public assistance for the construction of an alternate outlet or for compensation for loss of productivity on lands drained by the agricultural drainage well.

(4) The results of the engineering study provided for under 52.21(2)*"l."*

52.21(2) *Approval conditions.* Permits granted for the diversion of water or any material to an aquifer by means of an agricultural drainage well shall be subject to the following conditions as appropriate.

a. Surface water intakes. All surface water intakes shall be removed by December 31, 2001. Additional tile lines may be added to compensate for removal of surface water intakes provided the replacement tile does not increase the size of the agricultural drainage well area. Replacement tiles shall generally conform with the Natural Resources Conservation Services Tile Intake Replacement Interim Standard 980.

b. Cisterns. Cisterns shall be sealed or otherwise modified as necessary by December 31, 2001, to prevent direct entry of surface water. Compliance with the Natural Resources Conservation Services Wellhead Protection Interim Standard 981 will be considered as complying with this condition. Alternatives to the interim standard may be allowed with department approval.

c. Access/ventilation. The agricultural drainage well or its cistern shall be provided with a locked cover to prevent unauthorized access. If the agricultural drainage well and the related drainage system is ventilated, ventilation shall be accomplished in a manner that will not allow surface water to enter the agricultural drainage well.

d. Repair and maintenance. The agricultural drainage well and the associated drainage system may be repaired and maintained as needed to maintain drainage efficiency. The drainage well and associated tile drainage system shall be maintained in a condition so as to prevent surface water which has not filtered through the soil profile from entering the drainage well.

e. Modifications of drainage well. The agricultural drainage well shall not be modified without department approval. The related drainage system may be modified without department approval providing the modifications do not enlarge the agricultural drainage well area. Construction of new surface water intakes is not allowed.

f. Closure. If the permittee discontinues use of the agricultural drainage well, the department shall be notified and closure shall be made in accordance with 567—Chapter 39 or by an alternative method approved by the department. The permit will be revoked upon submission of proof that the drainage well was properly closed.

g. Modification or cancellation of permit. As provided in 567—52.7(455B), the department may modify or cancel the permit or require the permittee to take other actions to protect the public health and safety, to protect the public interest in lands and waters, or to prevent any manner of substantial injury to persons or property.

h. Waste systems. Effluent from wastewater treatment or storage systems, including on-site wastewater treatment and disposal systems such as septic systems, shall not be allowed to directly enter the agricultural drainage well or associated tile drainage system. Runoff controls consistent with Chapter 65 requirements and guidance may be required for feedlots that discharge across lands drained by an agricultural drainage well to control manure nitrogen and to eliminate the potential for direct entry of animal wastes into an agricultural drainage well or its drainage system.

i. Nitrogen management. The application of nitrogen from all sources, including manure, legumes, and commercial fertilizers, on lands within an agricultural drainage well drainage area shall not exceed the nitrogen use levels necessary to obtain optimum crop yields for the crop being grown.

j. Application of liquid animal wastes. Application of liquid animal waste to lands drained by the agricultural drainage well shall be done in a manner that will not result in a discharge of the waste to the drainage well or associated drainage system.

k. Application of pesticides. The application of pesticides on lands within the agricultural drainage well area shall be in accordance with the provisions of Iowa Code chapter 206 and rules adopted pursuant to chapter 206.

l. Alternatives to the use of the agricultural drainage well. Prior to reissuance of a permit for the continued use of an agricultural drainage well, the permittee(s) shall conduct an engineering study of the physical and economic feasibility of alternatives to the continued use of the agricultural drainage well. The study shall comply with the provisions of Iowa Code chapter 542B regarding certification by a licensed professional engineer. The results of the study shall be submitted to the department at least one year prior to a request to renew a permit.

52.21(3) *Closure of existing agricultural drainage wells.*

a. Agricultural drainage wells within a designated agricultural drainage well area. A permit shall not be granted for the diversion of water or other material into an aquifer by means of an agricultural drainage well if the drainage well is located within a designated agricultural drainage well area. All existing agricultural drainage wells within a designated agricultural drainage well area shall be closed by December 31, 1999. Closure shall be in accordance with 567—Chapter 39, Requirements for properly plugging abandoned wells, or by an alternative method approved by the department. Cisterns shall be filled in or removed and filled in with earth or other suitable material and any tile lines shall be removed for a distance of 10 feet around the wellhead or, alternatively, be replaced with nonperforated pipe. The owner of the land on which the agricultural drainage well is located shall provide the department with notice that the well has been closed in accordance with the requirements of this paragraph. Agricultural drainage wells that have been properly closed will no longer be considered an agricultural drainage well by the department.

b. Other agricultural drainage wells. Existing agricultural drainage wells that have not been authorized by permit by December 31, 1999, shall be closed by that date unless the department has granted a waiver to the closure requirements. The closure procedures shall be as specified in 52.21(3)*"a."*

This rule is intended to implement Iowa Code Supplement chapter 455I.

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Filed 5/17/06, Notice 3/15/06—published 6/7/06, effective 7/12/06]

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[Filed ARC 4426C (Notice ARC 4277C, IAB 2/13/19), IAB 5/8/19, effective 6/12/19]

[1] At its meeting held February 9, 1998, the Administrative Rules Review Committee delayed 52.5 and 52.21 until the adjournment of the 1998 Session of the General Assembly.

CHAPTER 53
PROTECTED WATER SOURCES — PURPOSES — DESIGNATION PROCEDURES — INFORMATION IN WITHDRAWAL APPLICATIONS — LIMITATIONS — LIST OF PROTECTED SOURCES

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—53.1(455B) Scope of chapter. This chapter describes the purpose and procedures for designating specific surface water and groundwater sources as protected sources. This includes the special information that may be required of applicants for permits to withdraw water from such sources and conditions that may be applied to approved permits. Those protected sources so designated by rule are also listed.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

567—53.2(455B) Designation of protected sources. The department, after consultation with the Iowa geological survey (IGS) and other authorities, may designate a surface water or groundwater source within a defined geographical area as a protected source.

Notwithstanding rules 567—53.3(455B) to 567—53.7(455B), the department may impose permit conditions on a case-by-case basis as it determines necessary to protect water resources of the state.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

[**ARC 4426C**, IAB 5/8/19, effective 6/12/19]

567—53.3(455B) Purposes of designating a protected source. The general purpose of designating a specific water source as a protected source is to ensure long-term availability in terms of quantity and quality to preserve public health and welfare. Specific purposes include but are not limited to the following:

53.3(1) To preserve the availability of the protected source for sustained beneficial use.

53.3(2) To prevent or minimize the movement of groundwater contaminants.

53.3(3) To maintain the surface water quality within a specific stream segment in order to meet state or federal standards, to preserve protected flows, or to maintain its availability for other beneficial use.

53.3(4) To preserve the protected flows in a stream which is hydraulically connected to a protected aquifier.

This rule is intended to implement Iowa Code section 455B.262.

567—53.4(455B) Designation procedure. The procedure for designation of a protected source shall be a rule-making proceeding to amend the list of protected sources in rule 567—53.7(455B). In addition to the requirements of rule 561—5.1(17A), as adopted by reference in 567—Chapter 5, an interested person who petitions the department to designate a protected water source may also be required to provide further supporting information including, but not limited to:

53.4(1) Facts and arguments demonstrating that existing rules and the opportunity for public participation in the application review and decision-making procedures of rules 567—50.7(17A,455B) to 567—50.9(17A,455B) are inadequate to ensure the long-term availability of the source and to preserve the public health and welfare.

53.4(2) Predictive geohydrological and chemical analyses of the groundwater source if the basis of the petition is to prevent or minimize the movement of known or suspected contaminants.

53.4(3) Facts and arguments demonstrating the effect that additional withdrawals from a stream or stream segment proposed for designation would have on downstream discharges, surrounding alluvial systems, natural biological systems, and potential changes in the frequency at which the protected stream discharge levels are reached.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

567—53.5(455B) Information requirements for applications to withdraw water from protected sources. An applicant proposing to withdraw water from a protected source, as listed in rule 567—53.7(455B), may be required to submit information necessary for the department to determine the effects resulting from such withdrawal.

53.5(1) *Withdrawals from protected groundwater sources.* Applicants for permits may be required to provide that information detailed in rule 567—50.7(17A,455B) and additional predictive geohydrological and chemical analyses of the groundwater source. Where there is potential for a known contaminant to migrate, predictive analyses may also be requested to show potential movement and effects of the withdrawal on the piezometric head. Monitoring may be required in a permit authorizing withdrawals from a protected groundwater source.

53.5(2) *Withdrawals from protected surface water sources.* Applicants for permits may be required to demonstrate the effect of proposed withdrawals on downstream discharges, surrounding alluvial systems, natural biological systems, and potential changes in the frequency at which protected stream discharge levels are reached for any stream or stream reaches listed in rule 567—53.7(455B).

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

567—53.6(455B) Conditions in permits for withdrawals of water from a protected source. The designation of a protected water source in rule 567—53.7(455B) may include listing of special conditions on issuance of permits for withdrawals of water from the designated source. The designation may also include guidelines for imposition of special limitations on withdrawals authorized by permits which were in force on the effective date of the protected source designation. However, such guidelines may be enforced only in accordance with the procedures in rule 567—52.7(455B) for modification, cancellation and emergency suspension of permits, or after a permittee has had an opportunity to contest the imposition of proposed special limitations in permit renewal proceedings. When a group of permits is potentially affected by guidelines in rule 567—53.7(455B), hearings under rule 567—52.7(455B) may be consolidated.

53.6(1) *Withdrawals from streams or associated alluvium that are protected sources.* The department may apply special conditions on all permits for withdrawals from streams and associated alluvial systems that are protected water sources as listed in rule 567—53.7(455B). Such conditions may include cessation of withdrawals at a stream discharge rate to be determined by the department which may be in excess of the level required by 567—subrule 52.8(3). These restrictions may apply to both consumptive and nonconsumptive withdrawals.

53.6(2) *Withdrawals from groundwater sources that are protected sources.* The department may apply special conditions on all permits for withdrawals from groundwater systems that are protected water sources as listed in rule 567—53.7(455B). Such conditions may include immediate cessation of withdrawals if declines in piezometric levels or movement of known contaminants in the source are detected. These restrictions may apply to both consumptive and nonconsumptive withdrawals.

567—53.7(455B) List of protected water sources. The following list identifies water sources designated as protected sources under this chapter. Each listing includes the name of the surface water or groundwater source designated, the geographical areas affected, the specific purposes for designating the source, and special limitations imposed or recommended to achieve the purpose of the protected source designation. The listing may also include any special monitoring requirements and may specify a date by which the department must review the designation of the protected source.

53.7(1) *Ralston Site, Linn County.* The area within a one-mile radius of a point which is 600 feet south of the midpoint of the northern edge of Section 2, Township 83 North, Range 7 West in Linn County is a protected water source. Any new application for a permit to withdraw groundwater or to increase an existing permitted withdrawal of groundwater from within the protected water source area will be restricted or denied, if necessary to preserve public health and welfare or to minimize movement of groundwater contaminants from the Ralston Site. The Ralston Site is identified in the Registry of Hazardous Waste or Hazardous Substance Disposal Sites pursuant to Iowa Code section 455B.426.

Withdrawal of groundwater from within the protected water source area may also be restricted or denied from what would otherwise be nonregulated wells, if necessary to preserve public health and welfare or to minimize movement of groundwater contaminants from the Ralston Site. The Linn County health department will refer any application for a construction permit for a private well within the protected water source area to the department's water supply section that will determine whether the proposed well will be allowed.

53.7(2) *Cambrian-Ordovician (Jordan) aquifer in Johnson and Linn Counties.*

a. Geographical area. The protected water source area includes portions of Johnson and Linn Counties. The actual geographical boundaries of the area are defined in subparagraph 53.7(2)*"a"*(3).

(1) New or modified water use permits. Any new application for a permit to withdraw groundwater or to increase an existing permitted withdrawal of groundwater from the Cambrian-Ordovician (Jordan) aquifer within the protected water source area will be restricted or denied if necessary to preserve public health and welfare.

(2) Withdrawal of groundwater. Withdrawal of groundwater from within the protected water source area may also be restricted or denied from water supply wells constructed in the Cambrian-Ordovician (Jordan) aquifer, public or private, and the construction of all new water supply wells in the Cambrian-Ordovician (Jordan) aquifer shall be restricted or denied, if necessary, to preserve public health and welfare or to minimize adverse effects to the "available" head (i.e., the original pressure head above the top of the aquifer). The Johnson County and Linn County health departments are not authorized to issue a construction permit for a private well drilled into or through the Cambrian-Ordovician (Jordan) aquifer within the protected water source area without the approval of the department. The department's water supply engineering section will determine whether the proposed well can be constructed and may require that the well meet public water well standards.

(3) Map of protected water source area. The department shall maintain a map of the protected water source area.

1. The entire following described area within Johnson County and within Linn County is defined as a protected water source.

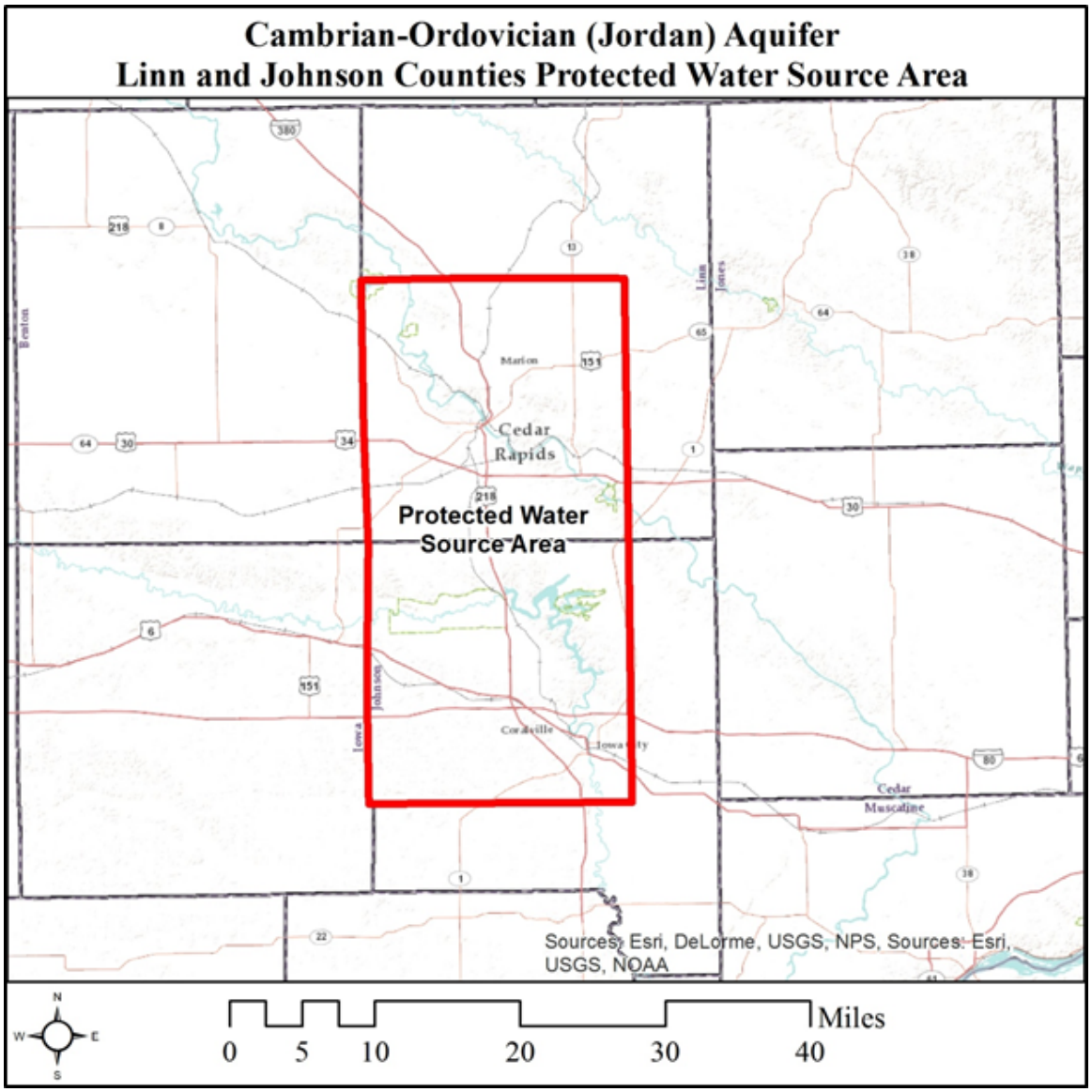
Johnson County

- All areas of Township 79 North, Range 6 West.
- All areas of Township 79 North, Range 7 West.
- All areas of Township 79 North, Range 8 West.
- All areas of Township 80 North, Range 6 West.
- All areas of Township 80 North, Range 7 West.
- All areas of Township 80 North, Range 8 West.
- All areas of Township 81 North, Range 6 West.
- All areas of Township 81 North, Range 7 West.
- All areas of Township 81 North, Range 8 West.

Linn County

- All areas of Township 82 North, Range 6 West.
- All areas of Township 82 North, Range 7 West.
- All areas of Township 82 North, Range 8 West.
- All areas of Township 83 North, Range 6 West.
- All areas of Township 83 North, Range 7 West.
- All areas of Township 83 North, Range 8 West.
- All areas of Township 84 North, Range 6 West.
- All areas of Township 84 North, Range 7 West.
- All areas of Township 84 North, Range 8 West.

2. Map of the described protected water source area in Linn and Johnson Counties.



b. Reserved.

53.7(3) *Cambrian-Ordovician (Jordan) aquifer in Webster County.*

a. *Geographical area.* The protected water source area includes portions of Webster County. The actual geographical boundaries of the area are defined in subparagraph 53.7(3)*"a"*(3).

(1) New or modified water use permits. Any new application for a permit to withdraw groundwater or to increase an existing permitted withdrawal of groundwater from the Cambrian-Ordovician (Jordan) aquifer within the protected water source area will be restricted or denied if necessary to preserve public health and welfare.

(2) Withdrawal of groundwater. Withdrawal of groundwater from within the protected water source area may also be restricted or denied from water supply wells constructed in the Cambrian-Ordovician (Jordan) aquifer, public or private, and the construction of all new water supply wells in the Cambrian-Ordovician (Jordan) aquifer shall be restricted or denied, if necessary, to preserve public health and welfare or to minimize adverse effects to the "available" head (i.e., the original pressure head above the top of the aquifer). The Webster County health department is not authorized to issue a construction permit for a private well drilled into or through the Cambrian-Ordovician (Jordan) aquifer within the protected water source area without the approval of the department. The department's

water supply engineering section will determine whether the proposed well can be constructed and may require that the well meet public water well standards.

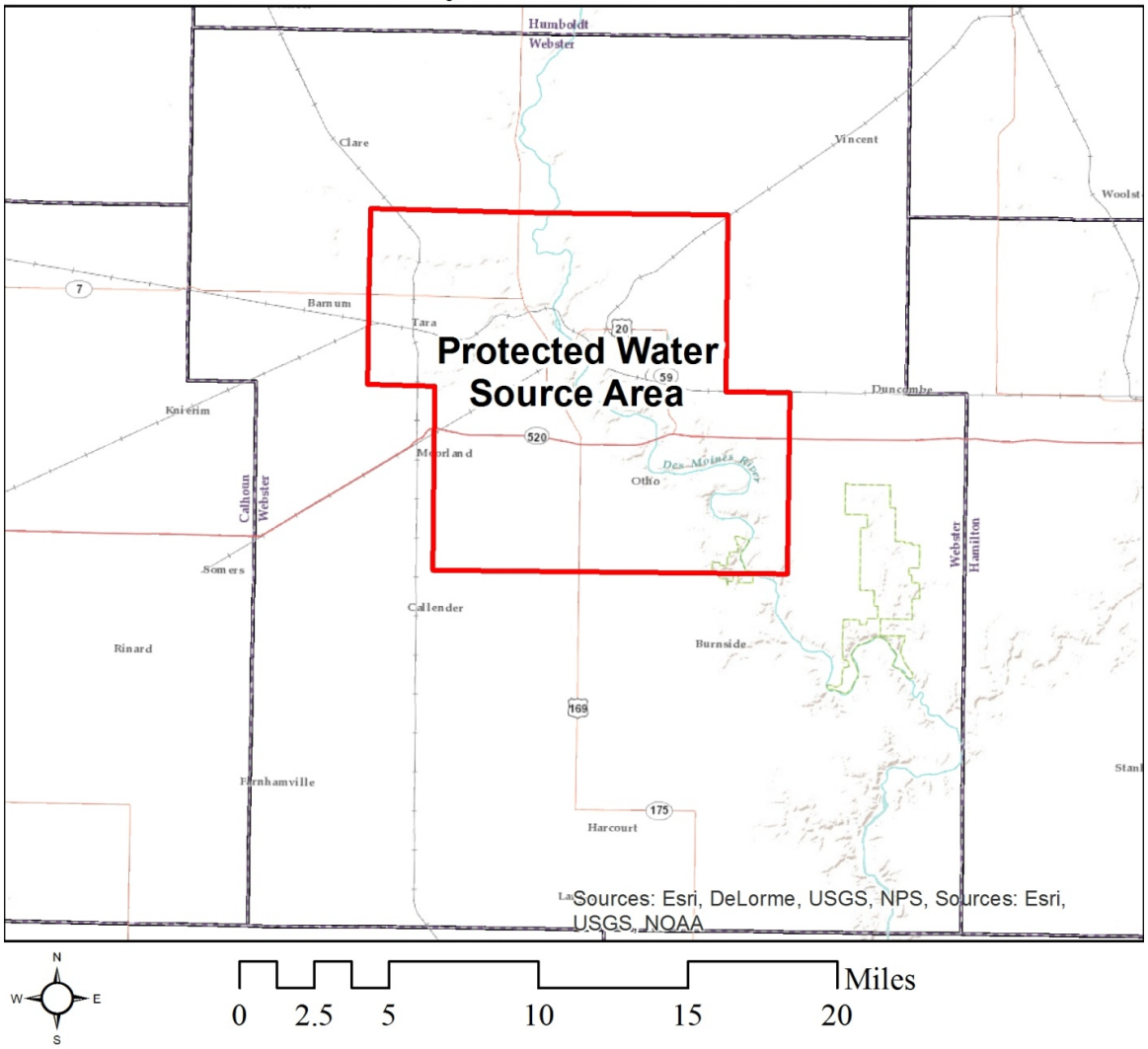
(3) Map of protected water source. The department shall maintain a map of the protected water source area.

1. The entire following described area within Webster County is defined as a protected water source.

- All areas of Township 88 North, Range 28 West.
- All areas of Township 88 North, Range 29 West.
- All areas of Township 89 North, Range 28 West.
- All areas of Township 89 North, Range 29 West.

2. Map of the described protected water source area in Webster County.

Cambrian-Ordovician (Jordan) Aquifer
Webster County Protected Water Source Area



b. Reserved.

NOTE: When protected sources are designated they will be listed as part of this rule.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264 through 455B.274 and 455B.278.

[**ARC 2053C**, IAB 7/8/15, effective 8/12/15; **ARC 4426C**, IAB 5/8/19, effective 6/12/19]

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CHAPTER 54
CRITERIA AND CONDITIONS FOR PERMIT RESTRICTIONS OR COMPENSATION BY PERMITTED USERS TO NONREGULATED USERS DUE TO WELL INTERFERENCE

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—54.1(455B) Scope of chapter. This chapter provides an administrative means for resolving well interference conflicts in situations where an existing or proposed permitted use causes or will cause well interference in a nonregulated well. While administrative resolution is available, informal negotiations between affected parties must first be attempted and are encouraged throughout the procedure. This chapter applies only to situations in which an adequate groundwater supply is available from the utilized aquifer, but withdrawal for a permitted use causes or will cause such a water level decline in a nonregulated well that it does not provide a sufficient water supply. Situations with inadequate groundwater supply in the utilized aquifer will be managed according to Iowa Code section 455B.266 regarding priority allocation. Resolution of well interference conflicts is predicated on the nonregulated well providing a sufficient water supply prior to well interference. These rules do not apply to situations in which the permitted use existed prior to construction of the nonregulated well, unless a significant change in the permitted use occurs.

567—54.2(455B) Requirements for informal negotiations. The complainant and permittee or applicant must attempt to negotiate an informal settlement prior to the department becoming involved in the verification and settlement procedures described in rules 54.6(455B) and 54.7(455B). If good faith negotiations fail, a letter stating the reasons for the failure to achieve a settlement and signed by all parties to the complaint or identifying those parties who refuse to sign shall be sent to the department. Verbal notification will be accepted if followed by written confirmation.

Guidelines for informal negotiations are provided in Bulletin No. 23. Settlements which result from informal negotiations may be registered with the department for consideration in subsequent conflicts.

567—54.3(455B) Failure to cooperate. If any party refuses to cooperate, fails to provide the required information, or fails to meet the specified deadlines, the complaint may be dismissed, a permanent permit modification or cancellation order may be issued pursuant to 567—subrule 52.7(1) or an application may be conditioned or denied.

567—54.4(455B) Well interference by proposed withdrawals. If the department, using supporting data provided by the applicant pursuant to rule 567—50.6(455B), determines that a proposed withdrawal will cause verified well interference in a nonregulated well(s), the applicant will be given options for resolving the imminent conflict(s) in accordance with 567—subrule 50.7(2). If the applicant selects an option involving compensation to the nonregulated well owner(s), the applicant and nonregulated well owner(s) must attempt to negotiate an informal settlement in accordance with rule 54.2(455B). If informal negotiations fail, administrative resolution of a well interference conflict will be taken pursuant to rule 54.7(455B). The applicant will remain liable for future well interference which is proven to be greater than the amount resolved in the original settlement and for other well interference which was not previously verified.

567—54.5(455B) Well interference by existing permitted uses. If a complaint is made to the department by the owner of a nonregulated well regarding suspected well interference, the following procedures will be followed.

54.5(1) *Initial notification of complaint.* The complainant shall provide the department with the following information:

a. Name, address, and telephone number.

b. Description of the nonregulated well, including: location, depth, construction data and other pertinent information, as available.

c. Description of the problem.

d. Suspected cause of well interference.

54.5(2) *Initial response by the department.* The department will provide the complainant with a description of procedures, guidelines for resolving well interference complaints and information from department files on permitted uses in the area. The department will also notify any permitted user who is suspected of causing well interference of a possible well interference complaint.

54.5(3) *Well inspection.* It is the responsibility of the complainant to have the affected well inspected by a certified well contractor, to have the contractor complete Form 122: Water Well Inspection Report, and to submit the report to the department. Costs for a well inspection are eligible for compensation if well interference is subsequently verified.

54.5(4) *Corrective work prior to a settlement.* The complainant may proceed with corrective measures prior to a settlement and remain eligible for compensation if well interference is subsequently verified. However there will be no assurance of compensation. To be eligible for compensation, conditions prior to the corrective work must be documented on Form 122: Water Well Inspection Report.

The department and suspect permittee(s) should be notified and given opportunity to inspect the nonregulated well and consider alternative means for resolving the possible conflict prior to proceeding with the corrective work. If not, and well interference is subsequently verified but a reasonable settlement other than compensation is available, no compensation will be awarded.

Determination of apparent well interference, verified well interference and compensation, if any, will proceed in accordance with subrule 54.5(5) and rules 54.6(455B) and 54.7(455B).

54.5(5) *Determination of apparent well interference.* The department will determine that the complaint appears valid if all of the following criteria are met:

a. The well inspection found no mechanical or structural reason for well failure.

b. A permitted use can be identified as an apparent cause of well interference.

c. The nonregulated well was in use when the permitted use began or the suspect permitted use changed significantly while the nonregulated well was still active.

d. The suspect permittee and complainant withdraw water from the same aquifer or sources likely to be in close hydraulic connection.

e. The suspect permittee was withdrawing water during the period when well interference was claimed.

f. Well interference is reasonably possible with known conditions (i.e., pumping rates, separation distances, aquifer properties and relative water levels in the wells).

g. Other obvious causes of water level decline are not apparent.

The department may identify permitted uses, in addition to those identified by the complainant, as apparent causes of well interference and will so notify the complainant and each suspect permittee. The department or a suspect permittee may identify other nonregulated wells which may also be affected by well interference caused by the suspected permittee(s), and the department will so notify the suspect permittee(s) and each potential complainant who has been so identified.

If the department determines that apparent well interference exists, the department will immediately notify the complainant and suspect permittee(s) of the situation, procedures, and required informal negotiations. If the department determines that apparent well interference does not exist, the complaint will be dismissed and the complainant and each suspect permittee will be so notified. A dismissal may be appealed by the complainant as provided in rule 54.10(455B).

54.5(6) *Emergency withdrawal suspension or restrictions.* If the complainant's well is not able to deliver a sufficient water supply due to apparent well interference, the department may immediately suspend or restrict withdrawal by the suspect permittee(s) pursuant to 567—subrule 52.7(2). Restrictions may include, but are not limited to, scheduling withdrawals or reducing withdrawal rates. If approved by the department, the permittee(s) may elect to provide a temporary water supply to the complainant or take other appropriate measures as an alternative to withdrawal suspension or restrictions. A temporary water supply must meet the needs of the intended use in terms of both quantity and quality.

567—54.6(455B) Verification of well interference.

54.6(1) *Test pumping.* Test pumping of the complainant's and permittee's wells may be required for verification of well interference. A permittee may perform test pumping to verify well interference even if it is not required by the department. Test pumping shall be authorized by the department and supervised by a certified well contractor, registered professional engineer or other designee of the department. The test pumping shall be performed within 30 days of notification by the department to the permittee and the complainant that test pumping is to be conducted. The permittee and complainant shall each be responsible for all costs associated with test pumping their own wells, although the complainant's costs may be eligible for compensation.

The complainant shall provide access to the nonregulated well for water level measurements during test pumping by the permittee. The permittee may be required to provide the complainant with a temporary water supply during test pumping by the permittee. Test pumping shall be performed in accordance with procedures specified in Bulletin No. 23.

54.6(2) *Determination of verified well interference.* The department will evaluate the occurrence of well interference based on data from the test pumping or other available hydrologic information and notify the affected parties of the results. If the test pumping was not performed under critical conditions (e.g., pumping rate less than maximum permitted rate, pumping duration less than critical duration, recharge more than minimum, etc.), the department will adjust test pumping results accordingly and qualify estimations in reporting the test pumping results.

The results of this evaluation will be used by the department to determine if well interference is verified in accordance with guidelines in Bulletin No. 23. In general, well interference will be verified if it causes the water in a nonregulated well to drop to a level below the pump suction, or it is shown to significantly diminish well performance.

If well interference is verified, settlement procedures according to rule 54.7(455B) will be followed. If well interference is not verified, the complaint will be dismissed and any emergency order will be removed. The department will notify the complainant and permittee of its decision regarding the complaint and either party may appeal pursuant to rule 54.10(455B).

567—54.7(455B) Settlement procedures.

54.7(1) *Settlement options.* At the same time as notification prescribed in subrule 54.6(2) or upon notice to the applicant of verified well interference according to 567—subrule 50.7(2), the department will also advise the permittee or applicant of available settlement options including:

a. Permanent permit modifications (i.e., reduced pumping rate or scheduled pumping).

b. Compensation to the complainant (see subrule 54.7(3) and guidelines in Bulletin No. 23).

In situations in which verified well interference has occurred due to an existing permitted use, the permittee shall notify the department of the selected option within 30 days of notification.

54.7(2) *Compensation offer requirements.* If the compensation option is selected, the applicant or permittee shall submit a notarized offer to the complainant and the department. This offer shall be submitted by a permittee within 30 days of the notification prescribed in subrules 54.6(2) and 54.7(1). An offer must include the following:

a. Written comments by a certified well contractor or licensed professional engineer detailing well improvements needed in order to provide the complainant with a sufficient water supply.

b. Itemized costs of the improvements by a certified well contractor with a breakdown of costs eligible for compensation (see subrule 54.7(3) and guidelines in Bulletin No. 23).

c. A water quality analysis of the existing well water, if a new well is proposed. The analysis shall include, at minimum, determination of nitrate, bacteria, iron and hardness.

d. A statement of what is being offered to the complainant and terms of the offer (timing, who will do the work, cash or completed work settlement, etc.).

54.7(3) *General criteria for cost liability.* The nonregulated well owner's cost for well inspection and test pumping are eligible for compensation. All costs for remedial work necessary to resolve a verified well interference problem are eligible for compensation, except as noted below. (Technical Bulletin No. 23 includes additional details on cost liability.)

a. When the existing well does not comply with applicable well construction standards (567—Chapter 49), costs which are required to bring the well "up to standards" are not eligible for compensation.

b. Costs for work requested by the nonregulated well owner which result in upgrading the nonregulated water supply are not eligible for compensation.

c. Costs for legal fees are not eligible for compensation.

d. Operation and maintenance costs of the water supply system are not eligible for compensation.

e. Costs of the well rejuvenation, unless the well still fails to provide a sufficient water supply after well rejuvenation requested by the permittee is completed, are not eligible for compensation.

f. Costs due to temporary loss of water for such things as hauling water and going to a laundromat are not eligible for compensation, unless the permittee refuses to comply with an emergency order by the department.

54.7(4) *Complainant's response to the offer.* The complainant shall respond in writing to the department within 15 days of receipt of the offer. The response shall indicate acceptance or rejection of the offer. If the offer is rejected, the complainant shall submit a counteroffer with the response. The counteroffer shall contain supporting information including an itemized cost estimate of needed improvements by a certified well contractor or licensed professional engineer, if appropriate.

54.7(5) *Department review of offer and counteroffer.* The department will review the offer and counteroffer and determine if the offer is reasonable in accordance with criteria given in Bulletin No. 23. If the offer is determined to be reasonable but is rejected by the complainant, the complainant will be given 15 days to reconsider the offer after which the complaint will be dismissed and any suspension or restrictions on withdrawals by the permittee will be removed or, in the case of an application, the permit process will be continued. A dismissal may be appealed by the complainant as provided in rule 54.10(455B).

If the offer is not found to be reasonable, the permittee will be given one opportunity to revise the offer in accordance with determinations of the department. If a revised offer is not received within 15 days or the revised offer is determined by the department not to be reasonable, the department will determine the amount of compensation or withdrawal restrictions to resolve the well interference. This determination will be enforced through the imposition of permit conditions, or permit revocation or denial. In the case of an existing permit the department will modify or revoke the permit as provided in 567—subrule 52.7(1). For a pending permit application the department will render an initial decision pursuant to rule 567—50.8(455B) which denies the application or subjects the permit to appropriate conditions.

567—54.8(455B) Recurring complaints. If a complainant accepts compensation from a permittee for settlement of a well interference conflict, any future complaint by the complainant against the same permittee will not be considered unless: a significant change in the permitted withdrawal occurs; the permittee utilized simplified test pumping procedures or other less than optimal verification methods, as described in Bulletin No. 23; or the permittee provided compensation to resolve less than the estimated worst-case well interference. A complainant who accepts compensation from an applicant is still eligible for compensation if subsequent well interference is proven to be greater than that resolved in the original settlement.

If a previous complaint was dismissed or settled without compensation, a new complaint must include justification for reconsideration. Justification may include a significant change in withdrawals by the suspect permittee or water level measurements from the complainant's well which indicate more well interference than found in the previous complaint. A physical change to withdrawal facilities may be considered a significant change to a permitted use (e.g., moving the withdrawal location, installing a new well, or installing a higher-capacity pump).

A complaint which was dismissed due to failure to cooperate, as provided in rule 54.3(455B), will be reconsidered when the required cooperation is demonstrated. However, it will be treated as a new complaint.

567—54.9(455B) Variances. Variance to these rules may be granted by the department provided just cause can be demonstrated. Requests for variances and supporting information shall be submitted in writing to the department.

567—54.10(455B) Appeal procedures. Determinations of the department under subrules 54.5(5), 54.6(2) and 54.7(4) may be appealed by following the procedure in 567—subrule 7.5(1).

These rules are intended to implement Iowa Code sections 455B.171 and 455B.281.

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[Filed emergency 11/14/86—published 12/3/86, effective 12/3/86]
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[Filed 5/17/06, Notice 3/15/06—published 6/7/06, effective 7/12/06]

CHAPTER 55
AQUIFER STORAGE AND RECOVERY: CRITERIA AND CONDITIONS FOR AUTHORIZING STORAGE, RECOVERY, AND USE OF WATER

567—55.1(455B) Statutory authority. The authority for the department of natural resources to permit persons to inject, store, and recover treated water for potable use is given by Iowa Code sections 455B.261, 455B.265 and 455B.269. This permit requirement applies to any aquifer storage and recovery (ASR) system, including projects involving border streams. The person or water system seeking an aquifer storage and recovery permit must review the criteria for ASR permits and contact the department if a permit is required.

567—55.2 Reserved.

567—55.3(455B) Purpose. The aquifer storage and recovery rules are intended to describe aquifer storage and recovery, including defining the affected area within the aquifer, creating a permit program with technical criteria for evaluating ASR projects, and incorporating technical additions for the practice of treated water recovery. Legal rights and obligations affecting ASR permit holders are defined.

567—55.4(455B) Definitions. The following definitions shall apply to this chapter:

"Aquifer storage and recovery (ASR)" means the injection and storage of treated water in an aquifer through a permitted well during times when treated water is available and withdrawal of the treated water from the same aquifer through the same well during times when treated water is needed.

"Contiguous" means directly adjacent or touching along all or part of one side of a legally defined piece of property. Tracts of land involved in the same water supply and separated only by separators such as roads, railroads, or bike trails are deemed contiguous tracts.

"Displacement zone" means the three-dimensional area of dispersion into which treated water is injected for storage, subject to later recovery.

"Drawdown" means the decrease in water level at a pumping well due to the action of the pump.

"Limited registration" means a one-year written authorization for a nonrecurring use of water for the purpose of forecasting and testing the ASR well system, to include cyclic test pumping as necessary.

"Mechanical integrity" means any structural or material defect in the ASR well or well casing or appurtenances which will prevent or materially impair the injection or pumping of water (to and from) within an aquifer or contribute to aquifer contamination or impairment.

"Permit" means a written authorization issued to a permittee by the department for the storage of treated water in an existing aquifer or the subsequent withdrawal of treated water from an existing aquifer. The permit specifies the quantity, duration, location, and instantaneous rate of this storage or withdrawal.

"Permittee" means a water supply system which obtains a permit from the department authorizing the injection of and possession by storage of treated water in an aquifer, withdrawal of this water at a later date, and the actual beneficial use of the water.

"Receiving aquifer" means the aquifer into which treated water is injected under terms of an ASR permit.

"Recovered water" means water which is recovered from storage within the displacement zone under terms of an ASR permit.

"Stored water" means injected treated potable water which is stored in a receiving aquifer within the displacement zone under terms of an ASR permit.

"Treated water" for the purposes of this chapter means water which has been physically, chemically, or biologically treated to meet national primary and secondary drinking water standards and is fit for human consumption as defined in 567—Chapters 40 to 43, Iowa Administrative Code.

"Zone of influence" means a circular area surrounding a pumping water well where the water table has been measurably lowered due to the action of the pump.

567—55.5(455B) Application processing.

55.5(1) *Application.*

a. Initial application for approval of an aquifer storage and recovery (ASR) project. A permit shall be required for the storage of all treated water in an aquifer for later recovery for potable uses. New permit applications (a request for a new permit, as distinguished from modification or renewal of an existing permit) shall be made on a form obtained from the department. An application form must be submitted by or on behalf of the water supply system owner, lessee, easement holder, or option holder of the area where the water is to be stored and recovered from an aquifer. An application must be accompanied by a map portraying:

(1) The points of injection and withdrawal,

(2) The immediate vicinity (topography) of the receiving aquifer,

(3) Any production, test or other observation wells within the aquifer, and

(4) The area of water storage.

The application must also include a description of the land where wells are located and water will be injected, withdrawn and used, oriented as to quarter section, section, township, and range. One application will be adequate for all uses on contiguous tracts of land. A water supply construction permit issued pursuant to 567—Chapter 43 will also be required for all injection/recovery wells.

b. Limited registration. The department's response to an initial application will be to issue a limited registration to initiate an ASR pretesting program pursuant to paragraph 55.6(1)*"a"*; only after approval of and completion of an ASR pretesting program with appropriate public notification pursuant to subrule 55.5(3) and proper evaluation of the test results will the department issue an ASR permit.

c. A request for modification or renewal of a permit shall be made in a similar manner. This application does not need to reiterate map and location information as previously submitted to the department (unless the information has changed). The limited registration requirement for aquifer pretesting does not apply to modified or renewed ASR permit requests (unless required by the department).

55.5(2) *Application fee.* Rescinded IAB 4/8/09, effective 5/13/09.

55.5(3) *Published notice—applicant limited registration.* The department will issue a limited registration allowing the applicant to conduct test pumping of an ASR site pursuant to paragraph 55.6(1)*"a."* The applicant shall first publish notice of intent to test the injection and water pumpage/recovery equipment prior to receiving the limited registration. Publication shall be in a form and manner acceptable to the department, in the newspaper of largest circulation in the county where the ASR project is located, and proof of publication shall be submitted to the department. The department will then issue the limited registration, and the applicant shall notify contiguous landowners by U.S. mail of the receipt of the limited registration and the intent to test an ASR site.

55.5(4) *Published notice—departmental intent to issue a final ASR permit.* Before issuance of a final ASR permit, the department shall publish notice of proposed decision to issue an ASR permit or deny the ASR application. Publication shall be in the newspaper of largest circulation in the county where the ASR project is located. This publication shall summarize the department's findings on whether the application conforms to relevant criteria as outlined in subrule 55.6(1). An engineering or hydrogeological summary report prepared by department staff may be attached to the published summary of findings. Copies of the proposed decision shall be mailed to the applicant, any person who commented, and any other person who requests a copy of the decision. The decision shall be accompanied by a certification of the date of mailing. A proposed decision becomes the final decision of the department unless a timely notice of appeal is filed in accordance with 55.5(6).

55.5(5) *Form of department decision.* The decision on an application shall be a permit or denial letter issued by the department. Each permit shall include appropriate standard and special conditions consistent with Iowa Code sections 455B.261 to 455B.274 and 455B.281 and 567—Chapters 52 to 55. The decision may incorporate by reference and attachment the summary report described in 55.5(4). Each decision shall include the following:

a. Determinations as to whether the project satisfies all relevant criteria not addressed in an attached summary report.

b. An explanation of the purpose for imposing each special condition.

c. An explanation of consideration given to all comments submitted pursuant to 55.5(3) and 55.5(4) unless the comments are adequately addressed in the attached summary report.

55.5(6) *Appeal of department decision.* Any person aggrieved by an initial ASR permit decision may appeal the action. The person must submit a request for appeal in writing to the director within 30 days of the date of issuance of the final decision made by the department. A decision by the director on an appeal may be further appealed to the environmental protection commission (EPC). The form of appeal and appeal procedures are governed by 567—Chapter 7. The department shall mail a copy of the notice of appeal to each person who commented on the application.

55.5(7) *ASR permit public hearing.* Reserved.

[**ARC 7694B**, IAB 4/8/09, effective 5/13/09]

567—55.6(455B) Aquifer storage and recovery technical evaluation criteria.

55.6(1) *Requirements.* Injections into aquifers for the purpose of treated water storage and subsequent withdrawals from the receiving aquifers intended for potable uses shall be subject to the following requirements:

a. *Aquifer pretesting.* Procurement of a limited registration for aquifer pretesting as outlined in subrule 55.5(1). The limited registration shall be for the period of one year and may be renewed for two additional one-year periods, for a total cumulative registration time not to exceed three years at the discretion of the department should the project require more than one year to be completed. The limited registration shall allow initial aquifer testing for determining the feasibility of aquifer storage and recovery, including placement of pumping and storage/extraction equipment. The testing approach shall be designed to provide information as needed to evaluate the ultimate capacity anticipated for the ASR project and provide assurance that the ASR site shall not restrict other uses of the aquifer. The testing program shall include injection rates and schedules, water storage volumes, recovery rates and schedule, and a final testing report.

b. *Engineering report.* An engineering evaluation of the technical feasibility of the proposed water injection and the probable percentage of recovery of treated water when pumped for recovery shall be submitted to the department. The engineering report shall include preliminary information from conceptual evaluations and aquifer pretesting such as:

(1) Injection rates and schedules,

(2) Water storage volumes,

(3) The length of time the injected water will be stored,

(4) The projected recovery rate,

(5) Water quality data necessary to demonstrate the percentage of recovered water and that the water meets national drinking water standards,

(6) Water level monitoring data including the location of observation wells, if any,

(7) A plan detailing what to do with the recovered water if the intended use is not possible, and

(8) A final testing protocol.

If the report can demonstrate by field test results or by a conceptual or mathematical hydrogeologic modeling that the injection, storage, and subsequent recovery will not adversely affect nearby users, the ASR project may be permitted after review by the department. A displacement zone containing the stored volume of water will not be allowed if it adversely affects another user's zone of influence. If the department finds through hydrogeologic modeling or during pretesting that the proposed displacement zone may impact the zone of influence of another user's existing well, additional testing will be required. The department may require the applicant to construct observation wells between the ASR site and nearby wells and may designate project-specific monitoring and reporting requirements at the observation wells.

c. *Hydrogeologic evaluation.* Hydrogeologic investigation of the site to evaluate potential quantitative and qualitative impacts to the aquifer, including changes to localized aquifer geochemistry, shall be part of the engineering report. Preliminary hydrogeologic information shall include:

(1) The local geology,

(2) A hydrogeologic flow model of the areal flow patterns,

(3) A description of the aquifer targeted for storage,

(4) Estimated flow direction and rate of movement,

(5) Both permitted and private wells within the area affected by ASR wells, including best estimates of respective zones of influence,

(6) Basis for estimating the displacement zone,

(7) Anticipated changes to the receiving aquifer geochemistry due to the proposed ASR testing and use, and

(8) Potable water quantity recovery estimates.

d. Protection of nearby existing water uses. The aquifer storage and recovery permit applicant shall demonstrate that the ASR site shall not restrict other uses of the aquifer by nearby water use permittees. An ASR applicant shall conduct and submit an inventory of nearby wells. The department, after considering the rate and amount of the ASR injections and withdrawals and the characteristics of the aquifer, will determine the extent of the inventory and the appropriate radius from the proposed ASR site. The department shall provide a map specifying the area in which the inventory is needed and forms specifying information to be gathered. The ASR permit applicant shall make a good-faith effort in obtaining available information from public records to identify nearby landowners and occupants and from drilling contractors identified by a landowner or occupant who responds to the inventory. The ASR applicant shall immediately notify the department of all objections raised by nearby landowners or other on-site problems such as the structural integrity of the injection equipment. Well interference conflicts arising from the proposed ASR site/project shall be resolved as outlined in 567—Chapter 54 or as otherwise specified by the department. Water recovery from an ASR site will not be permitted to any user other than the ASR permittee.

e. MCL exceedance limitation. No permit shall allow injected water to contain contaminants in excess of the maximum contaminant levels (MCLs) established by the department in 567—Chapters 40 to 43. Chemicals associated with disinfection of the water may be injected into the aquifer up to the standards established under 567—Chapters 40 to 43 or as otherwise specified by the department.

f. Reporting and record keeping. The permittee shall maintain a monthly record of injection and recovery, including the total number of hours of injection and recovery and the total metered quantity injected and recovered. The records must be submitted to the department annually. Project records including water quality testing records must be kept by the applicant for a period of five years. Water quality monitoring shall be at the frequency required by 567—Chapters 40 to 43 and as identified in the water system's public water supply operation permit. The applicant shall keep project records for a period of three years after termination of an ASR project and closure of the recovery wells.

g. Follow-up analysis by permittee. Reserved.

h. Vacating a permit for failure to construct and nonuse. The department may vacate the permit if the applicant fails to construct injection and water pumpage/recovery and ancillary equipment within three years of issuance of the permit (or subsequent permit modifications or renewals). The permit may also be vacated if the applicant does not use the storage system within three years of acquisition of the permit. A site abandonment plan including the physical removal of injection and water recovery equipment and the abandonment of all injection/recovery and observation wells pursuant to 567—Chapter 39 will be required of the applicant if the permit is vacated. A permittee whose permit is vacated may request a formal review of the action. The permittee must submit a request for review in writing to the director within 30 days of the date of notification of the final decision made by the department. A decision by the director in a formal review case may be further appealed to the environmental protection commission (EPC).

i. Mechanical integrity. Other conditions that are necessary to ensure adequate protection of water supplies may be imposed for mechanical integrity checks of the injection and treated water recovery well.

j. Revocation. The department may revoke or modify a permit to prevent or mitigate injury to other water users or otherwise protect aquifer water quality. The department may, based upon valid scientific data, further restrict certain chemicals in the injection source water if the department finds the constituents will interfere with or pose a threat to the maintenance of the water resources of the state for present or future beneficial uses.

k. Nonpotable uses. Reserved.

55.6(2) *Duration of permit, conditions of permit, and applicant property rights.* Permits for aquifer storage and recovery shall be issued for 20 years.

a. Conditions of permit. The permit will specify the maximum allowable injection rate at each well, the maximum allowable annual quantitative storage volume, and the maximum allowable instantaneous water withdrawal rate at each well.

b. Property of permittee. The department shall not authorize withdrawals of treated water from an aquifer storage and recovery site by anyone other than the permittee during the period of the permit and each subsequent renewal permit. Treated water injected into a receiving aquifer (and thereby comprising the "displacement zone") as part of an ASR permit is the property of the permittee. Treated water which is recovered from storage within a displacement zone under terms of a permit shall be referred to as "recovered water" and shall be the property of the permittee. If a permit is revoked or otherwise surrendered, the ownership of the injected water within the aquifer (the water considered as "property") reverts to the state of Iowa.

c. Restrictions on other wells within displacement zone. Existing wells within the displacement zone shall be plugged pursuant to 567—Chapter 39. No new private water wells, injection/withdrawal wells, observation wells, or public water supply wells shall be permitted by any governmental entity within the ASR displacement zone while the ASR permit is in effect. An ASR permit shall be filed with the appropriate county recorder to give constructive notice to present and future landowners of all conditions or requirements imposed by the final decision on an ASR application, including the well prohibition condition.

These rules are intended to implement Iowa Code sections 455B.261, 455B.265 and 455B.269.

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CHAPTERS 56 to 59
Reserved

TITLE IV
WASTEWATER TREATMENT AND DISPOSAL

CHAPTER 60
SCOPE OF TITLE—DEFINITIONS—FORMS—RULES OF PRACTICE

[Prior to 7/1/83, see DEQ Chs 15 and 24]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—60.1(455B,17A) Scope of title. The department has jurisdiction over the surface water and groundwater of the state to prevent, abate and control water pollution by establishing standards for water quality and for direct or indirect discharges of wastewater to waters of the state and by regulating potential sources of water pollution through a system of general rules or specific permits. The construction and operation of any wastewater disposal system and the discharge of any pollutant to a water of the state require a specific permit from the department, unless exempted by the department.

This chapter provides general definitions applicable in this title and rules of practice, including forms, applicable to the public in the department's administration of the subject matter of this title.

Chapter 61 contains the water quality standards of the state, including classification of surface waters. Chapter 62 contains the standards or methods for establishing standards relevant to the discharge of pollutants to waters of the state. Chapter 63 identifies monitoring, analytical and reporting requirements pertaining to permits for the operation of wastewater disposal systems. Chapter 64 contains the standards and procedures for obtaining construction, operation and NPDES permits for wastewater disposal systems other than those associated with animal feeding operations. Chapter 65 specifies minimum waste control requirements and permit requirements for animal feeding operations. Chapter 66 specifies restrictions on pesticide application to waters. Chapter 67 contains standards for the land application of sewage sludge. Chapter 68 contains standards and licensing requirements applicable to commercial septic tank cleaners. Chapter 69 specifies guidelines for private sewage disposal systems.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—60.2(455B) Definitions. The following definitions apply to this title, unless otherwise specified in the particular chapter of this title:

"Act" means the Federal Water Pollution Control Act as amended through July 1, 2007, 33 U.S.C. §1251 et seq.

"Acute toxicity" means that level of pollutants which would rapidly induce a severe and unacceptable impact on organisms.

"Application for a construction permit" means the engineering report, plans and specifications and other data deemed necessary by the department for the construction of a proposed wastewater disposal system or part thereof.

"Application for an operation permit" means a written application for an operation or NPDES permit made on forms provided by the department.

"Approved pretreatment program" means a program administered by a publicly owned treatment works that meets the criteria established in 40 CFR Part 403 and which has been approved by the director.

"Aquatic pesticide" means any pesticide, as defined in Iowa Code section 206.2, that is labeled for application to surface water.

"ASTM" means "Annual Book of Standards, Part 31, Water." The publication is available from the American Society for Testing and Materials, 1916 Race St., Philadelphia, Pennsylvania 19103.

"Average dry weather flow" or *"ADW"* means the daily average flow when the groundwater is at or near normal and runoff is not occurring.

"Average wet weather flow" or *"AWW"* means the daily average flow for the wettest 30 consecutive days for mechanical plants or for the wettest 180 consecutive days for controlled discharge lagoons.

"Best management practice (BMP)" means a practice or combination of practices that is determined, after problem assessment, examination of alternative practices, and appropriate public participation, to be the most effective, practicable (including technological, economic and institutional

considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals.

"Biochemical oxygen demand (five-day)" means the amount of oxygen consumed in the biological processes that break down organic matter in water by aerobic biochemical action in five days at 20°C.

"Bypass" means the diversion of waste streams from any portion of a treatment facility or collection system. A bypass does not include internal operational waste stream diversions that are part of the design of the treatment facility, maintenance diversions where redundancy is provided, diversions of wastewater from one point in a collection system to another point in a collection system, or wastewater backups into buildings that are caused in the building lateral or private sewer line.

"Carbonaceous biochemical oxygen demand (five-day)" means the amount of oxygen consumed in the biological processes that break down carbonaceous organic matter in water by aerobic biochemical action in five days at 20°C.

"CFR" or *"Code of Federal Regulations"* means the federal administrative rules adopted by the United States in effect as of January 1, 2015. The amendment of the date contained in this definition shall constitute the amendment of all CFR references contained in 567—Chapters 60 to 69, Title IV, unless a date of adoption is set forth in a specific rule.

"Chronic toxicity" means that level of pollutants which would, over long durations or recurring exposure, cause a continuous, adverse or unacceptable response in organisms.

"Combined sewer overflow" means the discharge from a combined sewer system at a point prior to the treatment works.

"Combined sewer system" means a wastewater collection system owned by a municipality which conveys sanitary wastewater (domestic, commercial, and industrial) and storm water through a single pipe system to the treatment plant.

"Construction permit" means a written approval from the director to construct a wastewater disposal system or part thereof in accordance with the plans and specifications approved by the department.

"Continuing planning process (CPP)" means the continuing planning process, including any revision thereto, required by Sections 208 and 303(e) of the Act (33 U.S.C. §§1288 and 1313(e)) for state water pollution control agencies. The continuing planning process is a time-phased process by which the department, working cooperatively with designated areawide planning agencies:

a. Develops a water quality management decision-making process involving elected officials of state and local units of government and representatives of state and local executive departments that conduct activities related to water quality management.

b. Establishes an intergovernmental process (such as coordinated and cooperative programs with the state conservation commission in aquatic life and recreation matters, and the soil conservation division, department of agriculture and land stewardship in nonpoint pollution control matters) which provides for water quality management decisions to be made on an areawide or local basis and for the incorporation of such decisions into a comprehensive and cohesive statewide program. Through this process, state regulatory programs and activities will be incorporated into the areawide water quality management decision process.

c. Develops a broad-based public participation (such as utilization of such mechanisms as basin advisory committees composed of local elected officials, representatives of areawide planning agencies, the public at large, and conservancy district committees) aimed at both informing and involving the public in the water quality management program.

d. Prepares and implements water quality management plans, which identify water quality goals and established state water quality standards, defines specific programs, priorities and targets for preventing and controlling water pollution in individual approved planning areas and establishes policies which guide decision making over at least a 20-year span of time (in increments of 5 years).

e. Based on the results of the statewide (state and areawide) planning process, develops the state strategy to be updated annually, which sets the state's major objectives, approach, and priorities for preventing and controlling pollution over a five-year period.

f. Translates the state strategy into the annual state program plan (required under Section 106 of the federal Act), which establishes the program objectives, identifies the resources committed for the state

program each year, and provides a mechanism for reporting progress toward achievement of program objectives.

g. Periodically reviews and revises water quality standards as required under Section 303(c) of the federal Act.

"Crossover point" means that location in a river or stream in which the flow shifts from being principally along one bank to the opposite bank. This crossover point usually occurs within two curves or an S-shaped curve of a water course.

"Culture water" means reconstituted water or other acceptable water used for culturing test organisms.

"Deep well" means a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Diluted effluent sample" means a sample of effluent diluted with culture water at the same ratio as the dry weather design flow to the applicable receiving stream flow contained in the zone of initial dilution as allowed in 567—subrule 61.2(4), regulatory mixing zones, including paragraphs *"b,""c"* and *"d."*

"Dilution ratio" means, for a specific wastewater discharger, the ratio of the seven-day, ten-year low stream flow to the effluent design flow, e.g., a dilution ratio of 2:1 has two parts stream flow to one part effluent flow.

"Discharge of a pollutant" means any addition of any pollutant or combination of pollutants to navigable waters or waters of the state from any point source. "Discharge of a pollutant" includes additions of pollutants into navigable waters or waters of the state from surface runoff which is collected or channeled by human activity; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. "Discharge of a pollutant" does not include an addition of pollutants by any indirect discharger.

"Disposal system" means a system for disposing of sewage, industrial waste, or other wastes, or for the use or disposal of sewage sludge. "Disposal system" includes sewer systems, treatment works, point sources, dispersal systems, and any systems designed for the usage or disposal of sewage sludge.

"Effluent toxicity test" means a test to determine the toxicity of a chemical or chemicals contained in a wastewater discharge on living organisms in a static 48-hour exposure under laboratory conditions.

"Excessive infiltration/inflow (I/I)" as referred to in the discussion of secondary treatment is the quantity of I/I which is more economical to remove from the sewer system than to transport and treat at a wastewater facility. Within the cost-effectiveness analysis performed to determine excessive I/I, the transportation and treatment costs will be based on the percent removal requirements specified in the appropriate subrule, 567—subrule 62.3(1) or 62.3(3).

"Fecal coliform" means the portion of the coliform group which is present in the gut or the feces of warm-blooded animals. It includes organisms which are capable of producing gas from lactose broth in a suitable culture medium within 24 hours at 44.5 + / - 0.2°C.

"FR" means the Federal Register, published daily by the Office of the Federal Register, National Archives and Record Service, General Services Administration, Washington, D.C. 20408 and distributed by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

"General permit" means an NPDES permit issued to a class of facilities which could be conditioned and described by a single permit.

"Human health criteria" means that level of pollution which, in the case of noncarcinogens, prevents adverse health effects in humans, and in the case of carcinogens, represents a level of incremental cancer risk of 1 in 100,000. The numerical criteria are based on the human consumption of an average of 6.5 grams of fish and shellfish per day by a 70-kilogram individual for a life span of 70 years.

"Indirect discharger" means a non-domestic discharger introducing pollutants to a publicly owned treatment works.

"Industrial waste" means any liquid, gaseous, radioactive, or solid waste substance resulting from any process of industry, manufacturing, trade, or business, or from the development of any natural resource.

"Interference" means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

1. Inhibits or disrupts a POTW, its treatment process or operations, or its sludge processes, use or disposal; and
2. Is a cause of a violation of any requirement of a POTW NPDES permit including an increase in the magnitude or duration of a violation or the prevention of sewage sludge use or disposal.

"Intermittent watercourses" means watercourses which contain flow associated with rainfall/runoff events and which periodically go dry even in pooled areas.

"Local public works department" means a city or county public works department, a board of trustees of a city utility organized pursuant to Iowa Code chapter 388, or a sanitary sewer district organized pursuant to Iowa Code chapter 358.

"Losing streams" means streams which lose 30 percent or more of their flow during the seven-day, ten-year low stream flow periods to cracks and crevices of rock formations, sand and gravel deposits, or sinkholes in the streambed.

"Low permeability" means a soil layer of well-sorted, fine grain-sized sediments or of rock that under normal hydrostatic pressures would not be significantly permeable. Low permeability soils may include homogeneous clays below the zone of weathering, mudstone, claystone, shale, and some glacial till.

"Major," for municipalities, means a facility having an average wet weather design flow of 1.0 million gallons per day (MGD) or greater. For industries "major" means a facility which is designated by EPA as being a major industry based on the EPA point rating system.

"Major permit amendment" or *"major modification"* means a permit modification that is not a minor permit amendment as defined in this rule.

"Maximum wet weather flow" or *"MWW"* means the total maximum flow received during any 24-hour period when the groundwater is high and runoff is occurring.

"Milligrams per liter (mg/l)" means milligrams of solute per liter of solution (equivalent to parts per million-assuming unit density). A microgram (ug) is 1/1000 of a milligram.

"Minimum flow" means that established stream flow in lieu of the seven-day, ten-year low stream flow to which the provisions of 567—Chapter 61 apply.

"Minor" means all remaining municipal and industrial facilities which have wastewater discharge flows and which are not designated as major facilities.

"Minor permit amendment" or *"minor modification"* means a permit modification made with the consent of the permittee that occurs as a result of any of the following:

1. Correction of a typographical error;
2. Modification of the monitoring and reporting requirements in the permit to include more frequent monitoring or reporting;
3. Revision of an interim date in a compliance schedule, provided that the new date is not more than 120 days after the date specified in the permit and does not interfere with the attainment of the final compliance date;
4. Change in facility name or ownership;
5. Deletion of a point source outfall that does not result in the discharge of pollutants from other outfalls; or
6. Incorporation of an approved local pretreatment program.

"Mixing zone" means a delineated portion of a stream or river in which wastewater discharges will be allowed to combine and disperse into the water body. The chronic criteria of 567—subrule 61.3(3) will apply at the boundary of this zone.

"Mortality" means, for the purpose of the 48-hour acute toxicity test, death, immobilization, or serious incapacitation of the test organisms.

"Navigable water" means a water of the United States as defined in 40 CFR Part 122.2.

"Nephelometric" means the nephelometric method of determining turbidity as stated in Standard Methods, pp. 132-134.

"New discharger" means any building, structure, facility, or installation:

1. From which there is or may be a "discharge of pollutants";
2. That did not commence the "discharge of pollutants" at a particular "site" prior to August 13, 1979;
3. Which is not a "new source"; and
4. Which has never received a finally effective NPDES permit for discharges at that "site."

This definition includes an "indirect discharger" which commences discharging into "waters of the United States" after August 13, 1979. It also includes any existing mobile point source (other than an offshore or coastal oil and gas exploratory drilling rig or a coastal oil and gas developmental drilling rig) such as a seafood processing rig, seafood processing vessel, or aggregate plant that begins discharging at a "site" for which it does not have a permit; and any offshore or coastal mobile oil and gas exploratory drilling rig or coastal mobile oil and gas developmental drilling rig that commences the discharge of pollutants after August 13, 1979, at a "site" under EPA's permitting jurisdiction for which it is not covered by an individual or general permit and which is located in an area determined by the Regional Administrator in the issuance of a final permit to be an area of biological concern. In determining whether an area is an area of biological concern, the Regional Administrator shall consider the factors specified in 40 CFR 125.122(a)(1) through (10).

An offshore or coastal mobile exploratory drilling rig or coastal mobile developmental drilling rig will be considered a "new discharger" only for the duration of its discharge in an area of biological concern.

"New source" means any building, structure, facility or installation from which there is or may be a discharge of pollutants to a navigable water, the construction of which commenced after the promulgation of standards of performance under Section 306 of the Act which are applicable to such source, provided that:

1. The building, structure, facility or installation is constructed at a site at which no other source is located; the building, structure, facility or installation totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or the production or wastewater generating processes of the building, structure, facility or installation are substantially independent of an existing source at the same site. In determining whether these are substantially independent, factors, such as the extent to which the new facility is integrated with the existing plant and the extent to which the new facility is engaged in the same general type of activity as the existing source, should be considered.

2. Construction on a site at which an existing source is located results in a modification rather than a new source if the construction does not create a new building, structure, facility or installation meeting the criteria of paragraph "1" but otherwise alters, replaces, or adds to existing process or production equipment.

3. Construction of a new source as defined pursuant to this rule has commenced if the owner or operator has:

- Begun, or caused to begin, as part of a continuous on-site construction program, any placement, assembly, or installation of facilities or equipment; or significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or
- Entered into a binding contractual obligation for the purchase of facilities or equipment which is intended to be used in the operation of the new source within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under this definition.

"Nonpoint source" means a source of pollutants that is not a point source.

"NPDES permit" means an operation permit, issued after the department has obtained approval of its National Pollutant Discharge Elimination System (NPDES) program from the administrator, that authorizes the discharge of any pollutant into a navigable water.

"Operation permit" means a written permit by the director authorizing the operation of a wastewater disposal system or part thereof or discharge source and, if applicable, the discharge of wastes from the disposal system or part thereof or discharge source to waters of the state. An NPDES permit will constitute the operation permit in cases where there is a discharge to a water of the United States and an NPDES permit is required by the Act.

"Other waste" means heat, garbage, municipal refuse, lime, sand, ashes, offal, oil, tar, chemicals, and all other wastes which are not sewage or industrial waste.

"Pass through" means a discharge which, alone or in conjunction with a discharge or discharges entering the treatment facility from other sources, exits a POTW or semipublic sewage disposal system in quantities or concentrations which cause a violation of any requirement of the treatment facility's NPDES permit including an increase in the magnitude or duration of a violation.

"Pathogen" means any microorganism or virus that can cause disease.

"Permit rationale" means a document that sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing a draft operation or NPDES permit.

"Pesticide" shall have the definition as stated in Iowa Code section 206.2.

"pH" means the hydrogen ion activity of a solution expressed as the logarithm of the reciprocal of the hydrogen ion activity in moles per liter at 25°C. pH is a measure of the relative acidity or alkalinity of the solution. The range extends from 0 to 14; 7 being neutral, 0 to 7 being acidic, and 7 to 14 being alkaline.

"Point source" means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural storm water discharges and return flows from irrigated agriculture.

"Pollutant" means sewage, industrial waste, or other waste.

"Population equivalent" means the calculated number of people who would contribute an equivalent amount of biochemical oxygen demand (BOD) per day as the system in question, assuming that each person contributes 0.167 pounds of five-day, 20 degrees Celsius, BOD per day.

"Positive toxicity test result" means a statistical significant difference of mortality rate between the control and the diluted effluent test.

"POTW" or *"publicly owned treatment works"* means any device or system used in the treatment of municipal sewage or industrial wastes of a liquid nature which is owned by a municipal corporation or other public body created by or under Iowa law and having jurisdiction over disposal of sewage, industrial wastes or other wastes, or a designated and approved management agency under Section 208 of the Act.

"Pretreatment" means the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration may be obtained by physical, chemical, or biological processes, by process changes, or by other means, except as prohibited in 40 CFR 403.6(d).

"Pretreatment requirements" means any substantive or procedural requirement related to pretreatment, other than a national pretreatment standard, imposed on an industrial user.

"Pretreatment standard" or *"national pretreatment standard"* means any regulation containing pollutant discharge limits promulgated by EPA in accordance with Section 307(b) and (c) of the Act, which applies to industrial users. "Pretreatment standard" includes prohibitive discharge limits established pursuant to 40 CFR 403.5.

"Primary contact" means any recreational or other water use in which there is direct human contact with the water involving considerable risk of ingestion of water or contact with sensitive body organs such as the eyes, ears and nose, in quantities sufficient to pose a significant health hazard.

"Private sewage disposal system" means a system which provides for the treatment or disposal of domestic sewage from four or fewer dwelling units or the equivalent of less than 16 individuals on

a continuing basis. This includes domestic waste, whether residential or nonresidential, but does not include industrial waste of any flow rate.

"Qualified volunteer" means a person or group of people acting on their own behalf, and not for a government agency or under contract with the department, to produce water quality monitoring data in accordance with a department-approved volunteer monitoring plan. Qualified volunteers must have the training and experience to ensure quality assurance and quality control for the data being produced, or be under the direct supervision of a person having such qualifications. A person or persons identified as participants in a department-approved volunteer monitoring plan will be considered qualified volunteers.

"Records of operation" means department of natural resources report forms or such other report forms, letters or documents which may be acceptable to the department that are designed to indicate specific physical, chemical, or biological values for wastewater during a stated period of time.

"Regional administrator" means the regional administrator of the United States Environmental Protection Agency, Region VII, 901 N. 5th Street, Kansas City, Kansas 66101.

"Secondary contact" means any recreational or other water use in which contact with the water is either incidental or accidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, commercial and recreational boating and any limited contact incidental to shoreline activity. This would include users who do not swim or float in the water body while on a boating activity.

"Semipublic sewage disposal system" means a system for the treatment or disposal of domestic sewage which is not a private sewage disposal system and which is not owned by a city, a sanitary sewer district, or a designated and approved management agency under Section 208 of the Act (33 U.S.C. 1288).

"Seven-day average" means the arithmetic mean of pollutant parameter values for samples collected in a period of seven consecutive days.

"Seven-day, ten-year low stream flow" means the lowest average stream flow which would statistically occur for seven consecutive days once every ten years.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. "Severe property damage" does not mean economic loss caused by delays in production.

"Sewage" means the water-carried waste products from residences, public buildings, institutions, or other buildings, including the bodily discharges from human beings or animals together with such groundwater infiltration and surface water as may be present.

"Sewage from vessels" means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes that are discharged from vessels and regulated under Section 312 of the Act.

"Shallow well" means a well located and constructed in such manner that there is not a continuous 5-foot layer of low permeability soil or rock between the aquifer from which the water supply is drawn and a point 25 feet below the normal ground surface.

"Significant industrial user" means an industrial user of a POTW that meets any one of the following conditions:

1. Discharges an average of 25,000 gallons per day or more of process wastewater excluding sanitary, noncontact cooling and boiler blowdown wastewater;

2. Contributes a process waste stream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW;

3. Is subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N; or

4. Is designated by the department as a significant industrial user on the basis that the contributing industry, either singly or in combination with other contributing industries, has a reasonable potential for adversely affecting the operation of or effluent quality from the POTW or for violating any pretreatment standards or requirements.

Upon a finding that an industrial user meeting the criteria in paragraph "1" or "2" of this definition has no reasonable potential for adversely affecting the operation of the POTW or for violating any pretreatment standard or requirement, the department may, at any time on its own initiative or in response to a request received from an industrial user or POTW, determine that an industrial user is not a significant industrial user.

"Significantly more stringent limitation" relates to secondary treatment $CBOD_5$ and SS limitations necessary to meet the percent removal requirements of at least 5 mg/l more stringent than the otherwise applicable concentration-based limitations (i.e., less than 20 mg/l in the case of $CBOD_5$), or the percent removal limitations in 567—subrules 62.3(1) and 62.3(3), if such limits would, by themselves, force significant construction or other significant capital expenditure.

"Sinkhole" means any depression caused by the dissolution or collapse of subterranean materials in a carbonate formation or in gypsum or rock salt deposits through which water may be drained or lost to the local groundwater system. Such depressions may or may not be open to the surface at times. Intermittently, sinkholes may hold water forming a pond.

"Small municipal separate storm sewer system" means all separate storm sewer systems that are owned or operated by the United States, the state of Iowa or a city, town, county, district, association or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or a designated and approved management agency under Section 208 of the Clean Water Act that discharges to waters of the United States or of the state of Iowa, and that have a population of less than 100,000 as determined by the 1990 census. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas such as individual buildings.

"Storm water" means storm water runoff, snow melt runoff and surface runoff and drainage. (NOTE: Agricultural storm water runoff is excluded by federal regulation 40 CFR 122.3(e).)

"Storm water discharge associated with industrial activity" means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR Part 122. For the categories of industries identified in paragraphs "1" to "10" of this definition, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 CFR Part 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water.

For the categories of industries identified in paragraphs "1" to "9" and "11," the term includes only storm water discharges from all the areas (except access roads and rail lines) that are listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. To qualify for this exclusion, a storm-resistant shelter is not required for: drums, barrels, tanks and similar containers that are tightly sealed with bands or otherwise secured and have no taps or valves, are not deteriorated and do not leak; adequately maintained vehicles used in material handling; and final products other than products that would be mobilized in storm water discharge. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial

facilities that are federally, state, or municipally owned or operated) that meet the description of the facilities listed in paragraphs "1" to "11" of this definition include those facilities designated under 40 CFR 122.26(a)(1)(v). The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this definition:

1. Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N (except facilities with toxic pollutant effluent standards which are exempted under paragraph "11" of this definition);

2. Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283 and 285), 29, 311, 32 (except 323), 33, 3441, 373;

3. Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(1)) because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas of non-coal mining operations which have been released from applicable state or federal reclamation requirements after December 17, 1990, and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with, or that has come into contact with, any overburden, raw material, intermediate products, finished products, by-products or waste products located on the site of such operations; (inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator; inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials, nor sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim);

4. Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;

5. Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this definition) including those that are subject to regulation under Subtitle D of RCRA;

6. Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards, including, but not limited to, those classified as Standard Industrial Classifications 5015 and 5093;

7. Steam electric power generating facilities, including coal handling sites;

8. Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-4225), 43, 44, 45 and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under paragraphs "1" to "7" or "9" or "11" of this definition are associated with industrial activity;

9. Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR Part 403. Not included are farmlands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with 40 CFR Part 503;

10. Construction activity including clearing, grading and excavation activities except operations that result in the disturbance of less than 5 acres of total land area which is not part of a larger common plan of development or sale. Effective March 10, 2003, construction activity including clearing, grading and excavation activities except operations that result in the disturbance of less than 1 acre of total land area which is not part of a larger common plan of development or sale;

11. Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-4225 (and which are not otherwise included within paragraphs "2" to "10").

"Storm water discharge associated with small construction activity" means the discharge of storm water from:

1. Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than 1 acre and less than 5 acres. Small construction activity also includes the disturbance of less than 1 acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb an area equal to or greater than 1 acre and less than 5 acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

2. Any other construction activity designated by the director based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

"Storm water point sources" means point sources that serve to collect, channel, direct, and convey storm water and which are subject to Section 402(p) of the federal Clean Water Act and 40 CFR Parts 122, 123, and 124.

"Temperature" means a measure of the heat content of water.

"Thirty-day average" means the arithmetic mean of pollutant parameter values of samples collected in a period of 30 consecutive days.

"Toxicity reduction evaluation (TRE) program" means a step-wise process, similar to that found in EPA Document/600/2-88/062, which combines effluent toxicity tests and analysis of the chemical characteristics of the effluent to determine the cause of the effluent toxicity or the treatment methods which will reduce the effluent toxicity, or both.

"Turbidity" is a measure of the optical property of the particles of mud, clay, silt, finely divided organic matter, or microscopic organisms suspended in water that interfere with light transmission, causing the light to be scattered and absorbed rather than transmitted through the water in straight lines.

"Uncontrolled sanitary landfill" means a landfill or open dump, whether in operation or closed, that does not meet the requirements for runon or runoff controls established pursuant to subtitle D of the Solid Waste Disposal Act.

"Valid effluent toxicity test" means the mortality in the control test is not greater than 10 percent and all test conditions contained in 567—subrule 63.4(2)*"b"* "Standard Operating Procedure: Effluent Toxicity Testing, Iowa Department of Natural Resources" are met.

"Water contact recreational canoeing" means the type of activities associated with canoeing outings in which primary contact with the water does occur. This would include users who swim or float in the water body while on a canoeing outing.

"Water of the state" means any stream, lake, pond, marsh, watercourse, waterway, well, spring, reservoir, aquifer, irrigation system, drainage system, and any other body or accumulation of water, surface or underground, natural or artificial, public or private, which are contained within, flow through or border upon the state or any portion thereof.

"Zone of initial dilution" means a delineated portion of a mixing zone in which wastewater discharges will be allowed to rapidly combine and begin dispersing into the water body. The acute criteria of 567—subrule 61.3(3) will apply at the boundary of this zone.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09 (See Delay note at end of chapter); **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—60.3(455B,17A) Forms. The following forms shall be used to apply for departmental approvals and to report on activities related to the wastewater programs of the department. Electronic forms may be obtained from the appropriate regional field office. Paper forms may be obtained from the Web site of the department or by contacting the appropriate regional field office. Properly completed application forms and all attachments shall be submitted in accordance with the instructions. Reporting forms shall be submitted to the appropriate field office.

60.3(1) *Construction permit application forms.*

a. Schedules 28 — "A" to "S"

"A" — General Information 542-3129

"B" — Collection System 542-3095

"C" — Lateral Sewer System 542-3096
"D" — Trunk and Interceptor Sewer 542-3097
"E" — Pump Station 542-3098
"F" — Treatment Project Site Selection 542-3099
"G" — Treatment Project Design Data 542-3106
"H1" — Schematic Flow Diagram 542-3101
"H2" — Treatment Process Removal Efficiency 542-3102
"H3" — Mechanical Plant Reliability 542-3239
"I" — Screening, Grit Removal and Flow Measurement 542-3089
"J" — Septic Tank System 542-3090
"K1" — Controlled Discharge Pond 542-3091
"K2" — Aerated Pond 542-3092
"K3" — Anaerobic Lagoon 542-3093
"L" — Settling Tanks 542-3094
"M" — Fixed Film Reactor—Stationary Media 542-3081
"N" — Rotating Biological Contactor 542-3082
"O" — Aeration Tanks or Basins 542-3083
"P" — Gas Chlorination 542-3084
"Q" — Sludge Dewatering and Disposal 542-3085
"R1" — Sludge Dewatering and Disposal 542-3086
"R2A" — Low Rate Land Application of Sludge (Part I) 542-3087
"R2B" — Low Rate Land Application of Sludge (Part II) 542-3088
"S" — Land Application of Wastewater (To be developed)

b. Form 29 — Sewage Treatment Agreement 542-3219

60.3(2) *Operation and NPDES permit application forms.*

a. Form 30 — public or private domestic sewer systems (municipal and semipublic facilities) 542-3220.

(1) Part A — basic information for all applicants.
(2) Part B — expanded effluent testing data.
(3) Part C — toxicity testing data.
(4) Part D — industrial user discharges and RCRA/CERCLA wastes.
(5) Part E — combined sewer systems.
(6) Part F — certification.

b. Form 31 — treatment agreement 542-3221.

c. Form 34 — open feedlots 542-4001.

d. Form 1 — general information for industrial, manufacturing or commercial systems 542-1376.

e. Form 2 — facilities which do not discharge process wastewater—industrial, manufacturing or commercial systems 542-1377.

f. Form 3 — facilities which discharge process wastewater existing sources—industrial, manufacturing, and commercial systems 542-1378.

g. Form 4 — facilities which discharge process wastewater—new sources—industrial, manufacturing or commercial systems 542-1379.

h. EPA Form 2F — application for NPDES individual permit to discharge storm water discharge associated with industrial activity 542-1380.

i. Form 5 — Certification for Industrial Facilities and Operation Permits 542-1382.

j. Form 6 — Operation Permit Application 542-1390.

k. NPDES Permit Application Supplement 542-1383.

l. Notice of Intent for Coverage Under Storm Water NPDES General Permit No. 1 "Storm Water Discharge Associated with Industrial Activity" or General Permit No. 2 "Storm Water Discharge Associated with Industrial Activity for Construction Activities" or General Permit No. 3 "Storm Water Discharge Associated with Industrial Activity from Asphalt Plants, Concrete Batch Plants, Rock Crushing Plants and Construction Sand and Gravel Facilities" 542-1415.

m. Notice of Intent for Coverage Under NPDES General Permit No. 4 "Discharge from Private Sewage Treatment and Disposal Systems" 542-1541.

n. Notice of Intent for Coverage Under NPDES General Permit No. 5 "Discharge from Mining and Processing Facilities" 542-4006.

o. Notice of Discontinuation From Coverage Under General Permit No. 5 542-8038.

p. Information Required to Accompany Application for the Municipal Separate Storm Sewer System (MS4) Permit 542-8039.

q. NPDES Application Fee Invoice for Open Feedlots and Designated Confinement Feeding Operations 542-1240.

r. NPDES Application Fee Invoice 542-1251.

s. NPDES Application Fee Invoice for a New Discharger 542-1253.

t. Storm Water Discharge — NPDES General Permit #1 Notice of Discontinuation 542-8814.

u. Storm Water Discharge — NPDES General Permit #2 Notice of Discontinuation 542-8815.

v. Storm Water Discharge — NPDES General Permit #3 Notice of Discontinuation 542-8816.

w. Public Notice of Storm Water Discharge 542-8117.

x. Notice of Intent for Coverage Under NPDES General Permit No. 7, "Pesticide General Permit (PGP) for Point Source Discharges to Waters of the United States From the Application of Pesticides."

y. Notice of Discontinuation From Coverage Under General Permit No. 7.

60.3(3) *Wastewater records of operation and other report forms.*

a. Individual operation and NPDES permit, discharge monitoring report forms as given to the permittee by the department.

b. General Permit No. 5, "Discharge from Mining and Processing Facilities," Annual Monitoring Report 542-8035.

c. General Permit No. 6, "Iowa DNR Water Well Construction and Services Wastewater Discharge Field Office Notification Form," 542-0018.

d. General Permit No. 7, "Pesticide General Permit (PGP) for Point Source Discharges to Waters of the United States From the Application of Pesticides," Annual Monitoring Report.

e. "Acute Whole Effluent Toxicity Testing Report Form," 542-1381.

f. Other forms as provided by the department, including electronic forms.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 9365B**, IAB 2/9/11, effective 3/30/11; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—60.4(455B,17A) Application procedures and requirements generally. The following procedures and requirements pertain to applications for wastewater permits. More specific and substantive requirements may be found in 567—Chapters 61 to 65.

60.4(1) *Construction permit applications.*

a. *General.* All applications for a construction permit pursuant to 567—64.2(455B) shall be made in accordance with the instructions for completion of application for wastewater construction permit. The instructions specify the requirements for federal grant and nongrant projects. In addition to the required engineering documents and data the appropriate application schedules (Form 28, "A" to "S") and Sewage Treatment Agreement Form 29 as applicable shall be submitted. The applicant will be promptly notified if the application is incomplete or improperly filled out, and an application will not be reviewed until such time as a complete and proper submission is made. A wastewater construction permit will be denied when the application does not meet all requirements for issuance of a construction permit. For a system with permits conditioned by limitations on additional loads under 567—subrule 64.2(10), paragraphs *"a," "b"* or *"f,"* subsequent construction permit applications must be accompanied by an accounting of connections and additional loading since the time the initial conditioned permit was issued.

b. *Sewer systems.* If Schedule B, "Collection System," of the construction permit application does not provide sufficient information on which to make a determination to grant or deny a sewer system construction permit under this subrule, additional information, such as the following, may be requested and evaluated:

(1) Sources of extraneous flows,

(2) Population trends and density in area to be served,
(3) Quality and strength of wastes from industrial contributors,
(4) Existing water used data,
(5) Historical and experience data,
(6) Location, capacity, and condition of existing sewer system and stormwater drainage courses,
(7) Probability of annexation or development of adjacent areas,
(8) Service agreements with adjacent communities,
(9) Existence and effectiveness of industrial waste ordinance,
(10) Drainage area limits,
(11) Bypasses and combined sewers,
(12) Municipal sewer map.

c. *Site surveys.* For new or expanded wastewater treatment facilities, an application for a site survey must be submitted, by the applicant's engineer, generally in advance of a full application for construction permit. The applicant should allow 60 days from the date of application for preliminary approvals. The following minimum information must be submitted:

(1) A preliminary engineering report or a cover letter which contains a brief description of the proposed treatment process and assurance that the project is in conformance with the long-range planning of the area.
(2) Completed Schedule A — General Information
(3) Completed Schedule F — Treatment Project Site Selection
(4) Completed Schedule G — Treatment Project Design Data

If the application is incomplete it will be returned to the engineer for completion. When the application is complete it will be reviewed and if the data submitted indicates on its face that the site would be unsuitable for its intended purpose, a letter of rejection will be sent to the applicant and the engineer. Clarifications and additional data may be requested of the applicant and the engineer. When the application is complete and indicates on its face that the site may be suitable, a site survey will be conducted by department staff.

d. *Modification.* Persons seeking a modification to plans and specifications after having been issued a construction permit shall submit an addendum to plans and specifications, a change order, or revised plans and specifications, along with the reasons for the proposed changes, to the department. A supplemental written permit or approval will be issued when the changes submitted by the applicant meet department requirements. Construction shall not proceed until such changes have been approved.

e. *Fees.* Required fees shall be submitted with all applications for a construction permit as noted in 567—64.16(455B).

60.4(2) *Operation and NPDES permit applications.*

a. *General.* A person required to obtain or renew a wastewater operation permit or an Iowa NPDES permit pursuant to 567—Chapter 64, 567—Chapter 65, or 567—Chapter 69 must complete the appropriate application form as identified in subrule 60.3(2).

(1) Complete applications. A permit application is complete and approvable when all necessary questions on the application forms have been completed and the application is signed pursuant to 567—subrule 64.3(8), and when all applicable portions of the application, including the application fee and required attachments, have been submitted. The director may require the submission of additional information deemed necessary to evaluate the application. The due date for a renewal application is 180 days prior to the expiration date of the current permit, as noted in 567—64.8(455B). For a POTW, permission to submit an application at a later date may be granted by the director. The due date for a new application is 180 days prior to the date the operation is scheduled to begin, unless a shorter period is approved by the director.

(2) Incomplete applications. Incomplete applications may be returned to the applicant for completion. Authorization to discharge will be suspended if a complete application is not submitted to the department before the expiration date of the current permit. In the case of new applications, no discharge will be allowed until an NPDES or operation permit is issued. In the case of existing discharges, if a permit application is incomplete or has not been submitted, the department shall notify

the permittee of a violation of this rule and may proceed administratively on the violation or may request that the commission refer the matter to the attorney general for legal action.

(3) Other information. If a permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application, the permittee shall promptly submit such facts or information.

b. Amendments. A permittee seeking an amendment to its operation permit shall make a written request in the form of a detailed letter to the department which shall include the nature of and the reasons supporting the requested amendment. A variance or amendment to the terms and conditions of a general permit shall not be granted. If a variance or amendment to a general permit is desired, the applicant must apply for an individual permit following the procedures in 567—paragraph 64.3(4)*"a."*

(1) Schedules of compliance. Requests to amend a permit schedule of compliance shall be made at least 30 days prior to the next scheduled compliance date which the permittee contends it is unable to meet. The request shall include any proposed changes in the existing schedule of compliance, and any supporting documentation for the time extension. An extension may be granted by the department for cause. Cause may include unusually adverse weather conditions, equipment shortages, labor strikes, federal grant regulation requirements, or any other extenuating circumstances beyond the control of the requesting party. Cause does not include economic hardship, profit reduction, or failure to proceed in a timely manner.

(2) Interim effluent limitations. A request to amend interim effluent limitations in an existing permit shall include the proposed amendments to existing effluent limitations and any documentation in support of the proposed limitations. The department will evaluate the request based upon the capability of the disposal system to meet interim effluent limitations, taking into account the contributions to treatment capability which can be made by good operation and maintenance of the disposal system and by minor alterations which can be made to the system to improve its capability. The department may deny a request where the inability of the disposal system to meet interim effluent limitations is due to increased waste loadings on the system over those loadings upon which the interim limitations were based.

(3) Monitoring requirements. An amendment request for a change in the minimum monitoring requirements in an existing permit is considered a variance request. A request for a variance shall include a letter and the Petition for Waiver or Variance form (542-1258). This form can be obtained from the NPDES section as noted in 60.3(455B). The requesting permittee must provide monitoring results which are frequent enough to reflect variations in actual wastewater characteristics over a period of time and are consistent in results from sample to sample. The department will evaluate the request based upon whether or not less frequent sample results accurately reflect actual wastewater characteristics and whether operational control can be maintained.

Upon receipt of a request, the department may grant, modify, or deny the request. If the request is denied, the department may notify the permittee of any violation of its permit and may proceed administratively on the violation or may request that the commission refer the matter to the attorney general for legal action.

c. Fees. Required fees shall be submitted with all permit applications as noted in 567—64.16(455B).

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

These rules are intended to implement Iowa Code section 17A.3(1)*"b"* and chapter 455B, division III, part 1.

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[1] April 15, 2009, effective date of Item 2 of ARC 7625B delayed 70 days by the Administrative Rules Review Committee at its meeting held April 8, 2009; at its meeting held April 28, 2009, the Committee voted to lift the delay, effective April 29, 2009.

CHAPTER 61
WATER QUALITY STANDARDS

[Prior to 7/1/83, DEQ Ch 16]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

WATER QUALITY STANDARDS

567—61.1 Rescinded, effective August 31, 1977.

567—61.2(455B) General considerations.

61.2(1) *Policy statement.* It shall be the policy of the commission to protect and enhance the quality of all the waters of the state. In the furtherance of this policy it will attempt to prevent and abate the pollution of all waters to the fullest extent possible consistent with statutory and technological limitations. This policy shall apply to all point and nonpoint sources of pollution.

These water quality standards establish selected criteria for certain present and future designated uses of the surface waters of the state. The standards establish the areas where these uses are to be protected and provide minimum criteria for waterways having nondesignated uses as well. Many surface waters are designated for more than one use. In these cases the more stringent criteria shall govern for each parameter.

Certain of the criteria are in narrative form without numeric limitations. In applying such narrative standards, decisions will be based on the U.S. Environmental Protection Agency's methodology described in "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses," (1985) and on the rationale contained in "Quality Criteria for Water," published by the U.S. Environmental Protection Agency (1977), as updated by supplemental Section 304 (of the Act) Ambient Water Quality Criteria documents. To provide human health criteria for parameters not having numerical values listed in 61.3(3) Table 1, the required criteria will be based on the rationale contained in these EPA criteria documents. The human health criterion considered will be the value associated with the consumption of fish flesh and a risk factor of 10^{-5} for carcinogenic parameters. For noncarcinogenic parameters, the recommended EPA criterion will be selected. For Class C water, the EPA criteria for fish and water consumption will be selected using the same considerations for carcinogenic and noncarcinogenic parameters as noted above.

All methods of sample collection, preservation, and analysis used in applying any of the rules in these standards shall be in accord with those prescribed in 567—Chapter 63.

61.2(2) *Antidegradation policy.* It is the policy of the state of Iowa that:

a. Tier 1 protection. Existing surface water uses and the level of water quality necessary to protect the existing uses will be maintained and protected.

b. Tier 2 protection. Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the department finds, after full satisfaction of the intergovernmental coordination and public participation provisions, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the department shall ensure water quality adequate to protect existing uses fully. Further, the department shall ensure the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control before allowing any lowering of water quality.

c. Tier 2½ protection—outstanding Iowa waters. Where high quality waters constitute an outstanding state resource, such as waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

d. Tier 3 protection—outstanding national resource waters. Where high quality waters constitute an outstanding national resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected. Any proposed activity that would result in a permanent new or expanded source of pollutants in an outstanding national resource water is prohibited.

e. Rescinded IAB 8/31/16, effective 8/12/16.

f. All unapproved facility plans for new or expanded construction permits, except for construction permits issued for nondischarging facilities, shall undergo an antidegradation review if degradation is likely in the receiving water or downstream waters following February 17, 2010.

g. This policy shall be applied in conjunction with water quality certification review pursuant to Section 401 of the Act. In the event that activities are specifically exempted from flood plain development permits or any other permits issued by this department in 567—Chapters 70, 71, and 72, the activity will be considered consistent with this policy. Other activities not otherwise exempted will be subject to 567—Chapters 70, 71, and 72 and this policy. United States Army Corps of Engineers (Corps) nationwide permits 3, 4, 5, 6, 7, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50, 51, and 52 as well as Corps regional permits 7, 27, 33, and 34 as revised through July 16, 2014, are certified pursuant to Section 401 of the Clean Water Act subject to the following Corps regional conditions and the state water quality conditions:

(1) Side slopes of a newly constructed channel will be no steeper than 2:1 and planted to permanent, perennial, native vegetation if not armored.

(2) Nationwide permits with mitigation may require recording of the nationwide permit and pertinent drawings with the registrar of deeds or other appropriate official charged with the responsibility for maintaining records of title to, or interest in, real property and may also require the permittee to provide proof of that recording to the Corps.

(3) Mitigation shall be scheduled prior to, or concurrent with, the discharge of dredged or fill material into waters of the United States.

(4) For newly constructed channels through areas that are unvegetated, native grass filter strips, or a riparian buffer with native trees or shrubs a minimum of 35 feet wide from the top of the bank must be planted along both sides of the new channel. A survival rate of 80 percent of desirable species shall be achieved within three years of establishment of the buffer strip.

(5) For single-family residences authorized under nationwide permit 29, the permanent loss of waters of the United States (including jurisdictional wetlands) must not exceed 1/4 acre.

(6) For nationwide permit 46, the discharge of dredged or fill material into ditches that would sever the jurisdiction of an upstream water of the United States from a downstream water of the United States is not allowed.

(7) For projects that impact an outstanding national resource water, outstanding Iowa water, fens, bogs, seeps, or sedge meadows, an individual Section 401 Water Quality Certification will be required (Iowa Section 401 Water Quality Certification condition).

(8) For nationwide permits when the Corps' district engineer has issued a waiver to allow the permittee to exceed the limits of the nationwide permit, an individual Section 401 Water Quality Certification will be required (Iowa Section 401 Water Quality Certification condition).

(9) Heavy equipment shall not be used or operated within the stream channel. If in-stream work is unavoidable, it shall be performed in such a manner as to minimize the duration of the disturbance, turbidity increases, substrate disturbance, bank disturbance, and disturbance to riparian vegetation. This condition does not further restrict otherwise authorized drainage ditch maintenance activities (Iowa Section 401 Water Quality Certification condition).

Written verification by the Corps or 401 certification by the state is required for activities covered by these permits as required by the nationwide permits or the Corps, and the activities are allowed subject to the terms and conditions of the nationwide and regional permits. The department will maintain and periodically update a guidance document listing special waters of concern. This document will be provided to the Corps for use in determining whether preconstruction notices should be provided to the department and other interested parties prior to taking action on applications for projects that would normally be covered by a nationwide or regional permit and not require a preconstruction notice under nationwide permit conditions.

61.2(3) *Minimum treatment required.* All wastes discharged to the waters of the state must be of such quality that the discharge will not cause the narrative or numeric criteria limitations to be exceeded. Where the receiving waters provide sufficient assimilative capacity that the water quality standards are

not the limiting factor, all point source wastes shall receive treatment in compliance with minimum effluent standards as adopted in rules by the department.

There are numerous parameters of water quality associated with nonpoint source runoff which are of significance to the designated water uses specified in the general and specific designations in 567—61.3(455B), but which are not delineated. It shall be the intent of these standards that the limits on such nonpoint source related parameters when adopted shall be those that can be achieved by best management practices as defined in the course of the continuing planning process from time to time. Existing water quality and nonpoint source runoff control technology will be evaluated in the course of the Iowa continuing planning process, and best management practices and limitations on specific water quality parameters will be reviewed and revised from time to time to ensure that the designated water uses and water quality enhancement goals are met.

61.2(4) *Regulatory mixing zones.* Mixing zones are recognized as being necessary for the initial assimilation of point source discharges which have received the required degree of treatment or control. Mixing zones shall not be used for, or considered as, a substitute for minimum treatment technology required by subrule 61.2(3). The objective of establishing mixing zones is to provide a means of control over the placement and emission of point source discharges so as to minimize environmental impacts. Waters within a mixing zone shall meet the general water quality criteria of subrule 61.3(2). Waters at and beyond mixing zone boundaries shall meet all applicable standards and the chronic and human health criteria of subrule 61.3(3), Tables 1 and 3, for that particular water body or segment. A zone of initial dilution may be established within the mixing zone beyond which the applicable standards and the acute criteria of subrule 61.3(3) will be met. For waters designated under subrule 61.3(5), any parameter not included in Tables 1, 2 and 3 of subrule 61.3(3), the chronic and human health criteria, and the acute criterion calculated following subrule 61.2(1), will be met at the mixing zone and zone of initial dilution boundaries, respectively.

a. Due to extreme variations in wastewater and receiving water characteristics, spatial dimensions of mixing zones shall be defined on a site-specific basis. These rules are not intended to define each individual mixing zone, but will set maximum limits which will satisfy most biological, chemical, physical and radiological considerations in defining a particular mixing zone. Additional details are noted in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020, for considering unusual site-specific features such as side channels and sand bars which may influence a mixing zone. Applications for operation permits under 567—subrule 64.3(1) may be required to provide specific information related to the mixing zone characteristics below their outfall so that mixing zone boundaries can be determined.

b. For parameters included in Table 1 only (which does not include ammonia nitrogen), the dimensions of the mixing zone and the zone of initial dilution will be calculated using a mathematical model presented in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020, or from instream studies of the mixing characteristics during low flow. In addition, the most restrictive of the following factors will be met:

(1) The stream flow in the mixing zone may not exceed the most restrictive of the following:

1. Twenty-five percent of the design low stream flows noted in subrule 61.2(5) for interior streams and rivers, and the Big Sioux and Des Moines Rivers.

2. Ten percent of the design low stream flows noted in subrule 61.2(5) for the Mississippi and Missouri Rivers.

3. The stream flow contained in the mixing zone at the most restrictive of the applicable mixing zone length criteria, noted below.

(2) The length of the mixing zone below the point of discharge shall be set by the most restrictive of the following:

1. The distance to the juncture of two perennial streams.

2. The distance to a public water supply intake.

3. The distance to the upstream limits of an established recreational area, such as public beaches, and state, county and local parks.

4. The distance to the middle of a crossover point in a stream where the main current flows from one bank across to the opposite bank.

5. The distance to another mixing zone.

6. Not to exceed a distance of 2000 feet.

7. The location where the mixing zone contained the percentages of stream flow noted in 61.2(4)*"b"*(1).

(3) The width of the mixing zone is calculated as the portion of the stream containing the allowed mixing zone stream flow. The mixing zone width will be measured perpendicular to the basic direction of stream flow at the downstream boundary of the mixing zone. This measurement will only consider the distance of continuous water surface.

(4) The width and length of the zone of initial dilution may not exceed 10 percent of the width and length of the mixing zone.

c. The stream flow used in determining wasteload allocations to ensure compliance with the maximum contaminant level (MCL), chronic and human health criteria of Table 1 will be that value contained at the boundary of the allowed mixing zone. This stream flow may not exceed the following percentages of the design low stream flow as measured at the point of discharge:

(1) Twenty-five percent for interior streams and rivers, and the Big Sioux and Des Moines Rivers.

(2) Ten percent for the Mississippi and Missouri Rivers.

The stream flow in the zone of initial dilution used in determining effluent limits to ensure compliance with the acute criteria of Table 1 may not exceed 10 percent of the calculated flow associated with the mixing zone.

d. For toxic parameters noted in Table 1, the following exceptions apply to the mixing zone requirements:

(1) No mixing zone or zone of initial dilution will be allowed for waters designated as lakes or wetlands.

(2) No zone of initial dilution will be allowed in waters designated as cold water.

(3) The use of a diffuser device to promote rapid mixing of an effluent in a receiving stream will be considered on a case-by-case basis with its usage as a means for dischargers to comply with an acute numerical criterion.

(4) A discharger to interior streams and rivers, the Big Sioux and Des Moines Rivers, and the Mississippi or Missouri Rivers may provide to the department, for consideration, instream data which technically supports the allowance of an increased percentage of the stream flow contained in the mixing zone due to rapid and complete mixing. Any allowed increase in mixing zone flow would still be governed by the mixing zone length restrictions. The submission of data should follow the guidance provided in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020.

e. For ammonia criteria noted in Table 3, the dimensions of the mixing zone and the zone of initial dilution will be calculated using a mathematical model presented in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020, or from instream studies of the mixing characteristics during low flow. In addition, the most restrictive of the following factors will be met:

(1) The stream flow in the mixing zone may not exceed the most restrictive of the following:

1. One hundred percent of the design low stream flows noted in subrule 61.2(5) for locations where the dilution ratio is less than or equal to 2:1.

2. Fifty percent of the design low stream flows noted in subrule 61.2(5) for locations where the dilution ratio is greater than 2:1, but less than or equal to 5:1.

3. Twenty-five percent of the design low stream flows noted in subrule 61.2(5) for locations where the dilution ratio is greater than 5:1.

4. The stream flow contained in the mixing zone at the most restrictive of the applicable mixing zone length criteria, noted below.

(2) The length of the mixing zone below the point of discharge shall be set by the most restrictive of the following:

1. The distance to the juncture of two perennial streams.

2. The distance to a public water supply intake.

3. The distance to the upstream limits of an established recreational area, such as public beaches, and state, county, and local parks.

4. The distance to the middle of a crossover point in a stream where the main current flows from one bank across to the opposite bank.

5. The distance to another mixing zone.

6. Not to exceed a distance of 2000 feet.

7. The location where the mixing zone contained the percentages of stream flow noted in 61.2(4)*"e"*(1).

(3) The width of the mixing zone is calculated as the portion of the stream containing the allowed mixing zone stream flow. The mixing zone width will be measured perpendicular to the basic direction of stream flow at the downstream boundary of the mixing zone. This measurement will only consider the distance of continuous water surface.

(4) The width and length of the zone of initial dilution may not exceed 10 percent of the width and length of the mixing zone.

f. For ammonia criteria noted in Table 3, the stream flow used in determining wasteload allocations to ensure compliance with the chronic criteria of Table 3 will be that value contained at the boundary of the allowed mixing zone. This stream flow may not exceed the percentages of the design low stream flow noted in 61.2(4)*"e"*(1) as measured at the point of discharge.

The pH and temperature values at the boundary of the mixing zone used to select the chronic ammonia criteria of Table 3 will be from one of the following sources. The source of the pH and temperature data will follow the sequence listed below, if applicable data exists from the source.

(1) Specific pH and temperature data provided by the applicant gathered at their mixing zone boundary. Procedures for obtaining this data are noted in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020.

(2) Regional background pH and temperature data provided by the applicant gathered along the receiving stream and representative of the background conditions at the outfall. Procedures for obtaining this data are noted in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020.

(3) The statewide median background values as determined by the department.

The stream flow in the zone of initial dilution used in determining effluent limits to ensure compliance with the acute criteria of Table 3 may not exceed 5 percent of the calculated flow associated with the mixing zone for facilities with a dilution ratio of less than or equal to 2:1, and not exceed 10 percent of the calculated flow associated with the mixing zone for facilities with a dilution ratio of greater than 2:1. The pH and temperature values at the boundary of the zone of initial dilution used to select the acute ammonia criteria of Table 3 will be from one of the following sources and follow the sequence listed below, if applicable data exists from the source.

1. Specific effluent pH and temperature data if the dilution ratio is less than or equal to 2:1.

2. If the dilution ratio is greater than 2:1, the logarithmic average pH of the effluent and the regional or statewide pH provided in 61.2(4)*"f"* will be used. In addition, the flow proportioned average temperature of the effluent and the regional or statewide temperature provided in 61.2(4)*"f"* will be used. The procedures for calculating these data are noted in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020.

g. For ammonia criteria noted in Table 3, the following exceptions apply to the mixing zone requirements.

(1) No mixing zone or zone of initial dilution will be allowed for waters designated as lakes or wetlands.

(2) No zone of initial dilution will be allowed in waters designated as cold water.

(3) The use of a diffuser device to promote rapid mixing of an effluent in a receiving stream will be considered on a case-by-case basis with its usage as a means for dischargers to comply with an acute numerical criterion.

(4) A discharger to interior streams and rivers, the Big Sioux and Des Moines Rivers, and the Mississippi and Missouri Rivers may provide to the department, for consideration, instream data which

technically supports the allowance of an increased percentage of the stream flow contained in the mixing zone due to rapid and complete mixing. Any allowed increase in mixing zone flow would still be governed by the mixing zone length restrictions. The submission of data should follow the guidance provided in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020.

h. Temperature changes within mixing zones established for heat dissipation will not exceed the temperature criteria in 61.3(3)*"b"*(5).

i. The appropriateness of establishing a mixing zone where a substance discharged is bioaccumulative, persistent, carcinogenic, mutagenic, or teratogenic will be carefully evaluated. In such cases, effects such as potential groundwater contamination, sediment deposition, fish attraction, bioaccumulation in aquatic life, bioconcentration in the food chain, and known or predicted safe exposure levels shall be considered.

61.2(5) *Implementation strategy.* Numerical criteria specified in these water quality standards shall be met when the flow of the receiving stream equals or exceeds the design low flows noted below.

Type of Numerical Criteria	Design Low Flow Regime
Aquatic Life Protection (TOXICS)	
Acute	$1Q_{10}$
Chronic	$7Q_{10}$
Aquatic Life Protection (AMMONIA - N)	
Acute	$1Q_{10}$
Chronic	$30Q_{10}$
Human Health Protection & MCL	
Noncarcinogenic	$30Q_5$
Carcinogenic	Harmonic mean

a. The allowable 3°C temperature increase criterion for warm water interior streams, 61.3(3)*"b"*(5)"1," is based in part on the need to protect fish from cold shock due to rapid cessation of heat source and resultant return of the receiving stream temperature to natural background temperature. On low flow streams, in winter, during certain conditions of relatively cold background stream temperature and relatively warm ambient air and groundwater temperature, certain wastewater treatment plants with relatively constant flow and constant temperature discharges will cause temperature increases in the receiving stream greater than allowed in 61.3(3)*"b"*(5)"1."

b. During the period November 1 to March 31, for the purpose of applying the 3°C temperature increase criterion, the minimum protected receiving stream flow rate below such discharges may be increased to not more than three times the rate of flow of the discharge, where there is reasonable assurance that the discharge is of such constant temperature and flow rate and continuous duration as to not constitute a threat of heat cessation and not cause the receiving stream temperature to vary more than 3°C per day.

c. Site-specific water quality criteria may be allowed in lieu of the specific numerical criteria listed in Tables 1 and 3 of this chapter if adequate documentation is provided to show that the proposed criteria will protect all existing or potential uses of the surface water. Site-specific water quality criteria may be appropriate where:

(1) The types of organisms differ significantly from those used in setting the statewide criteria; or

(2) The chemical characteristics of the surface water such as pH, temperature, and hardness differ significantly from the characteristics used in setting the statewide criteria.

Development of site-specific criteria shall include an evaluation of the chemical and biological characteristics of the water resource and an evaluation of the impact of the discharge. All evaluations for site-specific criteria modification must be coordinated through the department, and be conducted using scientifically accepted procedures approved by the department. Any site-specific criterion developed under the provisions of this subrule is subject to the review and approval of the U.S. Environmental Protection Agency. All criteria approved under the provisions of this subrule will be

published periodically by the department. Guidelines for establishing site-specific water quality criteria can be found in "Water Quality Standards Handbook," published by the U.S. Environmental Protection Agency, December 1983.

d. A wastewater treatment facility may submit to the department technically valid instream data which provides additional information to be used in the calculations of their wasteload allocations and effluent limitations. This information would be in association with the low flow characteristics, width, length and time of travel associated with the mixing zone or decay rates of various effluent parameters. The wasteload allocation will be calculated considering the applicable data and consistent with the provisions and restrictions in the rules.

e. The department may perform use assessment and related use attainability analyses on water bodies where uses may not be known or adequately documented. The preparation of use attainability analysis documents will consider available U.S. Environmental Protection Agency guidance or other applicable guidance. Credible data and documentation will be used to assist in the preparation of use assessments and use attainability analysis reports.

[**ARC 8214B**, IAB 10/7/09, effective 11/11/09; **ARC 8466B**, IAB 1/13/10, effective 2/17/10; **ARC 9330B**, IAB 1/12/11, effective 2/16/11 (See Delay note at the end of chapter); **ARC 0121C**, IAB 5/16/12, effective 6/20/12; **ARC 1495C**, IAB 6/11/14, effective 7/16/14; **ARC 2695C**, IAB 8/31/16, effective 8/12/16; **ARC 3583C**, IAB 1/17/18, effective 2/21/18; **ARC 5226C**, IAB 10/7/20, effective 11/11/20]

567—61.3(455B) Surface water quality criteria.

61.3(1) *Surface water classification.* All waters of the state are classified for protection of beneficial uses. These classified waters include general use segments and designated use segments.

a. General use segments. These are intermittent watercourses and those watercourses which typically flow only for short periods of time following precipitation and whose channels are normally above the water table. These waters do not support a viable aquatic community during low flow and do not maintain pooled conditions during periods of no flow.

The general use segments are to be protected for livestock and wildlife watering, aquatic life, noncontact recreation, crop irrigation, and industrial, agricultural, domestic and other incidental water withdrawal uses.

b. Designated use segments. These are water bodies which maintain flow throughout the year or contain sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community.

All perennial rivers and streams as identified by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) or intermittent streams with perennial pools in Iowa not specifically listed in the surface water classification of 61.3(5) are designated as Class B(WW-1) waters.

All perennial rivers and streams as identified by the U.S. Geological Survey 1:100,000 DLG Hydrography Data Map (published July 1993) or intermittent streams with perennial pools in Iowa are designated as Class A1 waters.

Designated uses of segments may change based on a use attainability analysis consistent with 61.2(5)*"e."* Designated use changes will be specifically listed in the surface water classification of 61.3(5).

Designated use waters are to be protected for all uses of general use segments in addition to the specific uses assigned. Designated use segments include:

(1) Primary contact recreational use (Class "A1"). Waters in which recreational or other uses may result in prolonged and direct contact with the water, involving considerable risk of ingesting water in quantities sufficient to pose a health hazard. Such activities would include, but not be limited to, swimming, diving, water skiing, and water contact recreational canoeing.

(2) Secondary contact recreational use (Class "A2"). Waters in which recreational or other uses may result in contact with the water that is either incidental or accidental. During the recreational use, the probability of ingesting appreciable quantities of water is minimal. Class A2 uses include fishing, commercial and recreational boating, any limited contact incidental to shoreline activities and activities in which users do not swim or float in the water body while on a boating activity.

(3) Children's recreational use (Class "A3"). Waters in which recreational uses by children are common. Class A3 waters are water bodies having definite banks and bed with visible evidence of the flow or occurrence of water. This type of use would primarily occur in urban or residential areas.

(4) Cold water aquatic life—Type 1 (Class "B(CW1)"). Waters in which the temperature and flow are suitable for the maintenance of a variety of cold water species, including reproducing and nonreproducing populations of trout (*Salmonidae* family) and associated aquatic communities.

(5) Cold water aquatic life—Type 2 (Class "B(CW2)"). Waters that include small, channeled streams, headwaters, and spring runs that possess natural cold water attributes of temperature and flow. These waters usually do not support consistent populations of trout (*Salmonidae* family), but may support associated vertebrate and invertebrate organisms.

(6) Warm water—Type 1 (Class "B(WW-1)"). Waters in which temperature, flow and other habitat characteristics are suitable to maintain warm water game fish populations along with a resident aquatic community that includes a variety of native nongame fish and invertebrate species. These waters generally include border rivers, large interior rivers, and the lower segments of medium-size tributary streams.

(7) Warm water—Type 2 (Class "B(WW-2)"). Waters in which flow or other physical characteristics are capable of supporting a resident aquatic community that includes a variety of native nongame fish and invertebrate species. The flow and other physical characteristics limit the maintenance of warm water game fish populations. These waters generally consist of small perennially flowing streams.

(8) Warm water—Type 3 (Class "B(WW-3)"). Waters in which flow persists during periods when antecedent soil moisture and groundwater discharge levels are adequate; however, aquatic habitat typically consists of nonflowing pools during dry periods of the year. These waters generally include small streams of marginally perennial aquatic habitat status. Such waters support a limited variety of native fish and invertebrate species that are adapted to survive in relatively harsh aquatic conditions.

(9) Lakes and wetlands (Class "B(LW)"). These are artificial and natural impoundments with hydraulic retention times and other physical and chemical characteristics suitable to maintain a balanced community normally associated with lake-like conditions.

(10) Human health (Class "HH"). Waters in which fish are routinely harvested for human consumption or waters both designated as a drinking water supply and in which fish are routinely harvested for human consumption.

(11) Drinking water supply (Class "C"). Waters which are used as a raw water source of potable water supply.

61.3(2) *General water quality criteria.* The following criteria are applicable to all surface waters including general use and designated use waters, at all places and at all times for the uses described in 61.3(1)*"a."*

a. Such waters shall be free from substances attributable to point source wastewater discharges that will settle to form sludge deposits.

b. Such waters shall be free from floating debris, oil, grease, scum and other floating materials attributable to wastewater discharges or agricultural practices in amounts sufficient to create a nuisance.

c. Such waters shall be free from materials attributable to wastewater discharges or agricultural practices producing objectionable color, odor or other aesthetically objectionable conditions.

d. Such waters shall be free from substances attributable to wastewater discharges or agricultural practices in concentrations or combinations which are acutely toxic to human, animal, or plant life.

e. Such waters shall be free from substances, attributable to wastewater discharges or agricultural practices, in quantities which would produce undesirable or nuisance aquatic life.

f. The turbidity of the receiving water shall not be increased by more than 25 Nephelometric turbidity units by any point source discharge.

g. Cations and anions guideline values to protect livestock watering may be found in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020.

h. The *Escherichia coli (E. coli)* content of water which enters a sinkhole or losing stream segment, regardless of the water body's designated use, shall not exceed a Geometric Mean value of

126 organisms/100 ml or a sample maximum value of 235 organisms/100 ml. No new wastewater discharges will be allowed on watercourses which directly or indirectly enter sinkholes or losing stream segments.

61.3(3) *Specific water quality criteria.*

a. Class "A" waters. Waters which are designated as Class "A1," "A2," or "A3" in subrule 61.3(5) are to be protected for primary contact, secondary contact, and children's recreational uses. The general criteria of subrule 61.3(2) and the following specific criteria apply to all Class "A" waters.

(1) The *Escherichia coli (E. coli)* content shall not exceed the levels noted in the Bacteria Criteria Table when the Class "A1," "A2," or "A3" uses can reasonably be expected to occur.

Bacteria Criteria Table (organisms/100 ml of water)

Use or Category	Geometric Mean	Sample Maximum
Class A1		
3/15 – 11/15	126	235
11/16 – 3/14	Does not apply	Does not apply
Class A2 (Only)		
3/15 – 11/15	630	2880
11/16 – 3/14	Does not apply	Does not apply
[Class A2 and B(CW)] or OIW or ONRW		
Year-Round	630	2880
Class A3		
3/15 – 11/15	126	235
11/16 – 3/14	Does not apply	Does not apply
Class A1 - Primary Contact Recreational Use Class A2 - Secondary Contact Recreational Use Class A3 - Children's Recreational Use		

When a water body is designated for more than one of the recreational uses, the most stringent criteria for the appropriate season shall apply.

(2) The pH shall not be less than 6.5 nor greater than 9.0. The maximum change permitted as a result of a waste discharge shall not exceed 0.5 pH units.

b. Class "B" waters. All waters which are designated as Class B(CW1), B(CW2), B(WW-1), B(WW-2), B(WW-3) or B(LW) are to be protected for wildlife, fish, aquatic, and semiaquatic life. The following criteria shall apply to all Class "B" waters designated in subrule 61.3(5).

(1) Dissolved oxygen. Dissolved oxygen shall not be less than the values shown in Table 2 of this subrule.

(2) pH. The pH shall not be less than 6.5 nor greater than 9.0. The maximum change permitted as a result of a waste discharge shall not exceed 0.5 pH units.

(3) General chemical constituents. The specific numerical criteria shown in Tables 1, 2, and 3 of this subrule apply to all waters designated in subrule 61.3(5). The sole determinant of compliance with these criteria will be established by the department on a case-by-case basis. Effluent monitoring or instream monitoring, or both, will be the required approach to determine compliance.

1. The acute criteria represent the level of protection necessary to prevent acute toxicity to aquatic life. Instream concentrations above the acute criteria will be allowed only within the boundaries of the zone of initial dilution.

2. The chronic criteria represent the level of protection necessary to prevent chronic toxicity to aquatic life. Excursions above the chronic criteria will be allowed only inside of mixing zones or only for short-term periods outside of mixing zones; however, these excursions cannot exceed the acute criteria shown in Tables 1 and 3. The chronic criteria will be met as short-term average conditions at all times

the flow equals or exceeds either the design flows noted in subrule 61.2(5) or any site-specific low flow established under the provisions of subrule 61.2(5).

3. Rescinded IAB 2/15/06, effective 3/22/06.

(4) Rescinded IAB 2/15/06, effective 3/22/06.

(5) Temperature.

1. No heat shall be added to interior streams or the Big Sioux River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the stream temperature above 32°C.

2. No heat shall be added to streams designated as cold water fisheries that would cause an increase of more than 2°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the stream temperature above 20°C.

3. No heat shall be added to lakes and reservoirs that would cause an increase of more than 2°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added in excess of that amount that would raise the temperature of the lake or reservoirs above 32°C.

4. No heat shall be added to the Missouri River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In no case shall heat be added that would raise the stream temperature above 32°C.

5. No heat shall be added to the Mississippi River that would cause an increase of more than 3°C. The rate of temperature change shall not exceed 1°C per hour. In addition, the water temperature at representative locations in the Mississippi River shall not exceed the maximum limits in the table below during more than 1 percent of the hours in the 12-month period ending with any month. Moreover, at no time shall the water temperature at such locations exceed the maximum limits in the table below by more than 2°C.

Zone II—Iowa-Minnesota state line to the northern Illinois border (Mile Point 1534.6).

Zone III—Northern Illinois border (Mile Point 1534.6) to Iowa-Missouri state line.

Month	Zone II	Zone III
January	4°C	7°C
February	4°C	7°C
March	12°C	14°C
April	18°C	20°C
May	24°C	26°C
June	29°C	29°C
July	29°C	30°C
August	29°C	30°C
September	28°C	29°C
October	23°C	24°C
November	14°C	18°C
December	9°C	11°C

(6) Early life stage for each use designation. The following seasons will be used in applying the early life stage present chronic criteria noted in Table 3b, "Chronic Criterion for Ammonia in Iowa Streams - Early Life Stages Present."

1. For all Class B(CW1) waters, the early life stage will be year-round.

2. For all Class B(CW2) waters, the early life stage will begin on April 1 and last through September 30.

3. For all Class B(WW-1) waters, the early life stage will begin in March and last through September, except as follows:

- For the following, the early life stage will begin in February and last through September:

—The entire length of the Mississippi and Missouri Rivers,

—The lower reach of the Des Moines River south of the Ottumwa dam, and

—The lower reach of the Iowa River below the Cedar River.

- For the following, the early life stage will begin in April and last through September:

—All Class B(WW-1) waters in the Southern Iowa River Basin,

—All of the Class B(WW-1) reach of the Skunk River, the North Skunk River and the South Skunk River south of Indian Creek (Jasper County), and the Class B(WW-1) tributaries to these reaches, and the entire Class B(WW-1) reach of the English River.

4. For all Class B(WW-2) and Class B(WW-3) waters, the early life stage will begin in April and last through September.

5. For all Class B(LW) lake and wetland waters, the early life stage will begin in March and last through September except for the Class B(LW) waters in the southern two tiers of Iowa counties which will have the early life stage of April through September.

c. Class "C" waters. Waters which are designated as Class "C" are to be protected as a raw water source of potable water supply. The following criteria shall apply to all Class "C" waters designated in subrule 61.3(5).

(1) Radioactive substances.

1. The combined radium-226 and radium-228 shall not exceed 5 picocuries per liter at the point of withdrawal.

2. Gross alpha particle activity (including radium-226 but excluding radon and uranium) shall not exceed 15 picocuries per liter at the point of withdrawal.

3. The average annual concentration at the point of withdrawal of beta particle and photon radioactivity from man-made radionuclides other than tritium and strontium-90 shall not produce an annual dose equivalent to the total body or any internal organ greater than 4 millirem/year.

4. The average annual concentration of tritium shall not exceed 20,000 picocuries per liter at the point of withdrawal; the average annual concentration of strontium-90 shall not exceed 8 picocuries per liter at the point of withdrawal.

(2) All substances toxic or detrimental to humans or detrimental to treatment process shall be limited to nontoxic or nondetrimental concentrations in the surface water.

(3) The pH shall not be less than 6.5 nor greater than 9.0.

d. Class "HH" waters. Waters which are designated as Class HH shall contain no substances in concentrations which will make fish or shellfish inedible due to undesirable tastes or cause a hazard to humans after consumption.

(1) The human health criteria represent the level of protection necessary, in the case of noncarcinogens, to prevent adverse health effects in humans and, in the case of carcinogens, to prevent a level of incremental cancer risk not exceeding 1 in 100,000. Instream concentrations in excess of the human health criteria will be allowed only within the boundaries of the mixing zone.

(2) Reserved.

TABLE 1. Criteria for Chemical Constituents

(all values as micrograms per liter as total recoverable unless noted otherwise)

Human health criteria for carcinogenic parameters noted below were based on the prevention of an incremental cancer risk of 1 in 100,000. For parameters not having a noted human health criterion, the U.S. Environmental Protection Agency has not developed final national human health guideline values. For noncarcinogenic parameters, the recommended EPA criterion was selected. For Class C waters, the EPA criteria for fish and water consumption were selected using the same considerations for carcinogenic and noncarcinogenic parameters as noted above. For Class C waters for which no EPA human health criteria were available, the EPA MCL value was selected.

Parameter		Use Designations							
		B(CW1)	B(CW2)	B(WW-1)	B(WW-2)	B(WW-3)	B(LW)	C	HH
Alachlor	MCL	—	—	—	—	—	—	2	—
Aldrin	Acute	—	—	3	3	3	—	—	—
	Human Health — Fish	—	—	—	—	—	—	—	.00050[e]
	Human Health + — F & W	—	—	—	—	—	—	—	.00049[f]
Aluminum	Chronic[r]	890[o]	—	890[o]	890[o]	890[o]	890[o]	—	—
	Acute[r]	2,500[o]	—	2,500[o]	2,500[o]	2,500[o]	2,500[o]	—	—
Antimony	Human Health — Fish	—	—	—	—	—	—	—	640[e]
	Human Health + — F & W	—	—	—	—	—	—	—	5.6[f]
Arsenic (III)	Chronic[p]	150	—	150	150	150	150	—	—
	Acute[p]	340	—	340	340	340	340	—	—
	Human Health — Fish	—	—	—	—	—	—	—	50[e][g]
	Human Health — F & W	—	—	—	—	—	—	—	.18[f][g]
Asbestos	Human Health — F & W	—	—	—	—	—	—	—	7[a][f]
Atrazine	MCL	—	—	—	—	—	—	3	—
Barium	Human Health + — F & W	—	—	—	—	—	—	—	1000[f]
Benzene	Human Health — F & W	—	—	—	—	—	—	—	22[f]
	Human Health — Fish	—	—	—	—	—	—	—	510[e]
Benzo(a)Pyrene	Human Health — F & W	—	—	—	—	—	—	—	.038[f]
	Human Health — Fish	—	—	—	—	—	—	—	.18[e]
Beryllium	MCL	—	—	—	—	—	—	4	—
Bromoform	Human Health — F & W	—	—	—	—	—	—	—	43[f]
	Human Health — Fish	—	—	—	—	—	—	—	1400[e]
Cadmium	Chronic[p]	1.2[h]	—	1.2[h]	1.2[h]	1.2[h]	1.2[h]	—	—
	Acute[p]	3.4[h]	—	5.35[h]	12.5[h]	12.5[h]	5.35[h]	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	168[e]
	MCL	—	—	—	—	—	—	5	—
Carbofuran	MCL	—	—	—	—	—	—	40	—
Carbon Tetrachloride	Human Health — F & W	—	—	—	—	—	—	—	2.3[f]
	Human Health — Fish	—	—	—	—	—	—	—	16[e]
Chlordane	Chronic	.004	—	.0043	.0043	.0043	.004	—	—
	Acute	2.5	—	2.4	2.4	2.4	2.5	—	—
	Human Health — Fish	—	—	—	—	—	—	—	.0081[e]
	Human Health — F & W	—	—	—	—	—	—	—	.008[f]

Parameter		Use Designations							
		B(CW1)	B(CW2)	B(WW-1)	B(WW-2)	B(WW-3)	B(LW)	C	HH
Chloride	Chronic	389[m]*	389[m]*	389[m]*	389[m]*	389[m]*	389[m]*	—	—
	Acute	629[m]*	629[m]*	629[m]*	629[m]*	629[m]*	629[m]*	—	—
	MCL	—	—	—	—	—	—	250*	—
Chlorobenzene	Human Health + — Fish	—	—	—	—	—	—	—	1.6*[e]
	Human Health + — F & W	—	—	—	—	—	—	—	130[f]
	MCL	—	—	—	—	—	—	100	—
Chlorodibromomethane	Human Health — F & W	—	—	—	—	—	—	—	4.0[f]
	Human Health — Fish	—	—	—	—	—	—	—	130[e]
Chloroform	Human Health — F & W	—	—	—	—	—	—	—	57[f]
	Human Health — Fish	—	—	—	—	—	—	—	4700[e]
Chloropyrifos	Chronic	.041	—	.041	.041	.041	.041	—	—
	Acute	.083	—	.083	.083	.083	.083	—	—
Chromium (VI)	Chronic[p]	11	—	11	11	11	11	—	—
	Acute[p]	16	—	16	16	16	16	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	3365[e]
	MCL	—	—	—	—	—	—	100	—
Copper	Chronic[n]	20	—	16.9[i]	16.9[i]	16.9[i]	10	—	—
	Acute[n]	30	—	26.9[i]	26.9[i]	26.9[i]	20	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	1000[e]
	Human Health + — F & W	—	—	—	—	—	—	—	1300[f]
Cyanide	Chronic	5	—	5.2	5.2	5.2	10	—	—
	Acute	20	—	22	22	22	45	—	—
	Human Health + — F & W	—	—	—	—	—	—	—	140[f]
	Human Health — Fish	—	—	—	—	—	—	—	140[e]
Dalapon	MCL	—	—	—	—	—	—	200	—
Dibromochloropropane	MCL	—	—	—	—	—	—	.2	—
4,4-DDT ++	Chronic	.001	—	.001	.001	.001	.001	—	—
	Acute	.9	—	1.1	1.1	1.1	.55	—	—
	Human Health — Fish	—	—	—	—	—	—	—	.0022[e]
	Human Health — F & W	—	—	—	—	—	—	—	.0022[f]
o-Dichlorobenzene	MCL	—	—	—	—	—	—	600	—

Parameter		Use Designations							
		B(CW1)	B(CW2)	B(WW-1)	B(WW-2)	B(WW-3)	B(LW)	C	HH
para-Dichlorobenzene	Human Health + — F & W	—	—	—	—	—	—	—	63[f]
	Human Health + — Fish	—	—	—	—	—	—	—	190[e]
3,3-Dichlorobenzidine	Human Health — Fish	—	—	—	—	—	—	—	.28[e]
	Human Health — F & W	—	—	—	—	—	—	—	.21[f]
Dichlorobromomethane	Human Health — F & W	—	—	—	—	—	—	—	5.5[f]
	Human Health — Fish	—	—	—	—	—	—	—	170[e]
1,2-Dichloroethane	Human Health — F & W	—	—	—	—	—	—	—	3.8[f]
	Human Health — Fish	—	—	—	—	—	—	—	370[e]
1,1-Dichloroethylene	Human Health — F & W	—	—	—	—	—	—	—	330[f]
	Human Health — Fish	—	—	—	—	—	—	—	7.1*[e]
cis-1,2-Dichloroethylene	MCL	—	—	—	—	—	—	70	—
1,2-trans-Dichlorethylene	Human Health + — F & W	—	—	—	—	—	—	—	10*[f]
	Human Health — Fish	—	—	—	—	—	—	—	140[e]
Dichloromethane	MCL	—	—	—	—	—	—	5	—
1,2-Dichloropropane	Human Health — F & W	—	—	—	—	—	—	—	5.0[f]
	Human Health — Fish	—	—	—	—	—	—	—	150[e]
Dieldrin	Chronic	.056	—	.056	.056	.056	.056	—	—
	Acute	.24	—	.24	.24	.24	.24	—	—
	Human Health — Fish	—	—	—	—	—	—	—	.00054[e]
	Human Health — F & W	—	—	—	—	—	—	—	.00052[f]
Dinoseb	MCL	—	—	—	—	—	—	7	—
2,3,7,8-TCDD (Dioxin)	Human Health — F & W	—	—	—	—	—	—	—	5.0^{-8}[f]
	Human Health — Fish	—	—	—	—	—	—	—	5.1^{-8}[e]
Diquat	MCL	—	—	—	—	—	—	20	—
2,4-D	Human Health + — F & W	—	—	—	—	—	—	—	100[f]
Endosulfan[b]	Chronic	.056	—	.056	.056	.056	.15	—	—
	Acute	.11	—	.22	.22	.22	.3	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	89[e]
	Human Health + — F & W	—	—	—	—	—	—	—	62[f]
Endothall	MCL	—	—	—	—	—	—	100	—
Endrin	Chronic	.05	—	.036	.036	.036	.036	—	—
	Acute	.12	—	.086	.086	.086	.086	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	.06[e]
	Human Health + — F & W	—	—	—	—	—	—	—	.059[f]

Parameter		Use Designations							
		B(CW1)	B(CW2)	B(WW-1)	B(WW-2)	B(WW-3)	B(LW)	C	HH
Ethylbenzene	Human Health + — F & W	—	—	—	—	—	—	—	530[f]
	Human Health — Fish	—	—	—	—	—	—	—	2100[e]
Ethylene dibromide	MCL	—	—	—	—	—	—	.05	—
Di(2-ethylhexyl)adipate	MCL	—	—	—	—	—	—	400	—
bis(2-ethylhexyl)phthalate	Human Health — F & W	—	—	—	—	—	—	—	12[f]
	Human Health — Fish	—	—	—	—	—	—	—	22[e]
Fluoride	MCL	—	—	—	—	—	—	4000	—
Glyphosate	MCL	—	—	—	—	—	—	700	—
Heptachlor	Chronic	.0038	—	.0038	.0038	.0038	.0038	—	—
	Acute	.38	—	.52	.52	.52	.38	—	—
	Human Health — Fish	—	—	—	—	—	—	—	.00079[e]
	Human Health — F & W	—	—	—	—	—	—	—	.00079[f]
Heptachlor epoxide	Chronic	.0038	—	.0038	.0038	.0038	.0038	—	—
	Acute	.52	—	.52	.52	.52	.52	—	—
	Human Health — F & W	—	—	—	—	—	—	—	.00039[f]
	Human Health — Fish	—	—	—	—	—	—	—	.00039[e]
Hexachlorobenzene	Human Health — F & W	—	—	—	—	—	—	—	.0028[f]
	Human Health — Fish	—	—	—	—	—	—	—	.0029[e]
Hexachlorocyclopentadiene	Human Health — F & W	—	—	—	—	—	—	—	40[f]
	Human Health — Fish	—	—	—	—	—	—	—	1100[e]
Lead	Chronic[p]	5.3[j]	—	5.3[j]	5.3[j]	5.3[j]	5.3[j]	—	—
	Acute[p]	136[j]	—	136[j]	136[j]	136[j]	136[j]	—	—
	MCL	—	—	—	—	—	—	50	—
gamma-BHC (Lindane)	Chronic	N/A	—	N/A	N/A	N/A	N/A	—	—
	Acute	.95	—	.95	.95	.95	.95	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	1.8[e]
	Human Health + — F & W	—	—	—	—	—	—	—	.98[f]
Mercury (II)	Chronic[p]	0.77	—	0.77	0.77	0.77	0.77	—	—
	Acute[p]	1.4	—	1.4	1.4	1.4	1.4	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	.15[e]
	Human Health + — F & W	—	—	—	—	—	—	—	.05[f]
Methoxychlor	Human Health + — F & W	—	—	—	—	—	—	—	100[f]
Nickel	Chronic[p]	93[k]	—	93[k]	93[k]	93[k]	93[k]	—	—
	Acute[p]	840[k]	—	840[k]	840[k]	840[k]	840[k]	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	4600[e]
	Human Health + — F & W	—	—	—	—	—	—	—	610[f]

Parameter		Use Designations							
		B(CW1)	B(CW2)	B(WW-1)	B(WW-2)	B(WW-3)	B(LW)	C	HH
Nitrate as N	MCL	—	—	—	—	—	—	10*	—
Nitrate + Nitrite as N	MCL	—	—	—	—	—	—	10*	—
Nitrite as N	MCL	—	—	—	—	—	—	1*	—
Oxamyl (Vydate)	MCL	—	—	—	—	—	—	200	—
Parathion	Chronic	.013	—	.013	.013	.013	.013	—	—
	Acute	.065	—	.065	.065	.065	.065	—	—
Pentachlorophenol (PCP)	Chronic	(d)	—	(d)	(d)	(d)	(d)	—	—
	Acute	(d)	—	(d)	(d)	(d)	(d)	—	—
	Human Health — Fish	—	—	—	—	—	—	—	30[e]
	Human Health — F & W	—	—	—	—	—	—	—	2.7[f]
Phenols	Chronic	50	—	50	50	50	50	—	—
	Acute	1000	—	2500	2500	2500	1000	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	1700*[e]
	Human Health + — F & W	—	—	—	—	—	—	—	21*[f]
Picloram	MCL	—	—	—	—	—	—	500	—
Polychlorinated	Chronic	.014	—	.014	.014	.014	.014	—	—
Biphenyls (PCBs)	Acute	2	—	2	2	2	2	—	—
	Human Health — Fish	—	—	—	—	—	—	—	.00064[e]
	Human Health — F & W	—	—	—	—	—	—	—	.00064[f]
Polynuclear Aromatic	Chronic	.03	—	.03	3	3	.03	—	—
Hydrocarbons (PAHs)**	Acute	30	—	30	30	30	30	—	—
	Human Health — Fish	—	—	—	—	—	—	—	.18[e]
	Human Health — F & W	—	—	—	—	—	—	—	.038[f]
Selenium	Chronic	10	—	5	5	5	70	—	—
	Acute	15	—	19.3	19.3	19.3	100	—	—
	Human Health + — F & W	—	—	—	—	—	—	—	170[f]
	Human Health + — Fish	—	—	—	—	—	—	—	4200[e]
Silver	Chronic[p]	N/A	—	N/A	N/A	N/A	N/A	—	—
	Acute[p]	11	—	11	11	11	11	—	—
	MCL	—	—	—	—	—	—	50	—
2,4,5-TP (Silvex)	MCL	—	—	—	—	—	—	10	—
Simazine	MCL	—	—	—	—	—	—	4	—
Styrene	MCL	—	—	—	—	—	—	100	—

Parameter		Use Designations							
		B(CW1)	B(CW2)	B(WW-1)	B(WW-2)	B(WW-3)	B(LW)	C	HH
Tetracholorethylene	Human Health — F & W	—	—	—	—	—	—	—	6.9[f]
	Human Health — Fish	—	—	—	—	—	—	—	33[e]
Thallium	Human Health + — F & W	—	—	—	—	—	—	—	.24[f]
	Human Health + — Fish	—	—	—	—	—	—	—	.47[e]
Toluene	Chronic	50	—	50	150	150	50	—	—
	Acute	2500	—	2500	7500	7500	2500	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	15*[e]
	Human Health + — F & W	—	—	—	—	—	—	—	1300[f]
Total Residual Chlorine (TRC)	Chronic	10	—	11	11	11	10	—	—
	Acute	35	—	19	19	19	20	—	—
Toxaphene	Chronic	.037	—	.002	.002	.002	.037	—	—
	Acute	.73	—	.73	.73	.73	.73	—	—
	Human Health — Fish	—	—	—	—	—	—	—	.0028[e]
	Human Health — F & W	—	—	—	—	—	—	—	.0028[f]
1,2,4-Trichlorobenzene	MCL	—	—	—	—	—	—	70	—
1,1,1-Trichlorethane	MCL	—	—	—	—	—	—	200	—
	Human Health + — Fish	—	—	—	—	—	—	—	173*[e]
1,1,2-Trichloroethane	Human Health — F & W	—	—	—	—	—	—	—	6[f]
Trichloroethylene (TCE)	Chronic	80	—	80	80	80	80	—	—
	Acute	4000	—	4000	4000	4000	4000	—	—
	Human Health — Fish	—	—	—	—	—	—	—	300[e]
	Human Health — F & W	—	—	—	—	—	—	—	25[f]
Trihalomethanes (total)[c]	MCL	—	—	—	—	—	—	80	—
Vinyl Chloride	Human Health — F & W	—	—	—	—	—	—	—	.25[f]
	Human Health — Fish	—	—	—	—	—	—	—	24[e]
Xylenes (Total)	MCL	—	—	—	—	—	—	10*	—
Zinc	Chronic[p]	210[l]	—	210[l]	210[l]	210[l]	210[l]	—	—
	Acute[p]	210[l]	—	210[l]	210[l]	210[l]	210[l]	—	—
	Human Health + — Fish	—	—	—	—	—	—	—	26*[e]
	Human Health + — F & W	—	—	—	—	—	—	—	7.4*[f]

* units expressed as milligrams/liter

** to include the sum of known and suspected carcinogenic PAHs (includes benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene)

† expressed as nanograms/liter

+ represents the noncarcinogenic human health parameters

++ The concentrations of 4,4-DDT or its metabolites; 4,4-DDE and 4,4-DDD, individually shall not exceed the human health criteria.

(a) units expressed as million fibers/liter (longer than 10 micrometers)

(b) includes alpha-endosulfan, beta-endosulfan, and endosulfan sulfate in combination or as individually measured

(c) The sum of the four trihalomethanes (bromoform [tribromomethane], chlorodibromomethane, chloroform [trichloromethane], and dichlorobromomethane) may not exceed the MCL.

(d) Class B numerical criteria for pentachlorophenol are a function of pH using the equation: Criterion (µg/l) = $e^{[1.005(pH) - x]}$, where e = 2.71828 and x varies according to the following table:

	B(CW1)	B(CW2)	B(WW-1)	B(WW-2)	B(WW-3)	B(LW)
Acute	3.869	—	4.869	4.869	4.869	4.869
Chronic	4.134	—	5.134	5.134	5.134	5.134

(e) This Class HH criterion would be applicable to any Class B(LW), B(CW1), B(WW-1), B(WW-2), or B(WW-3) water body that is also designated Class HH.

(f) This Class HH criterion would be applicable to any Class C water body that is also designated Class HH.

(g) inorganic form only

(h) The acute and chronic criteria listed in main table are based on a hardness of 200 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for cadmium are a function of hardness (as $CaCO_3$ (mg/l)) using the following equations:

	B(CW1)	B(WW-1)&B(LW)	B(WW-2)&B(WW-3)
Acute	(1.136672 - [(ln hardness) × (0.041838)])* $e^{(0.9789 \times \ln(\text{hardness}) - 3.866)}$	(1.136672 - [(ln hardness) × (0.041838)])* $e^{(0.9789 \times \ln(\text{hardness}) - 3.4210)}$	(1.136672 - [(ln hardness) × (0.041838)])* $e^{(0.9789 \times \ln(\text{hardness}) - 2.5750)}$
Chronic	(1.101672 - [(ln hardness) × (0.041838)])* $e^{0.7977 \times \ln(\text{hardness}) - 3.909)}$	(1.101672 - [(ln hardness) × (0.041838)])* $e^{0.7977 \times \ln(\text{hardness}) - 3.909)}$	(1.101672 - [(ln hardness) × (0.041838)])* $e^{0.7977 \times \ln(\text{hardness}) - 3.909)}$

(i) Class B(WW-1), B(WW-2), and B(WW-3) criteria listed in main table are based on a hardness of 200 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for copper are a function of hardness ($CaCO_3$ (mg/l)) using the equation for each use according to the following table:

	B(WW-1)	B(WW-2)	B(WW-3)
Acute	$e^{[0.9422Ln(Hardness) - 1.700]}$	$e^{[0.9422Ln(Hardness) - 1.700]}$	$e^{[0.9422Ln(Hardness) - 1.700]}$
Chronic	$e^{[0.8545Ln(Hardness) - 1.702]}$	$e^{[0.8545Ln(Hardness) - 1.702]}$	$e^{[0.8545Ln(Hardness) - 1.702]}$

(j) The acute and chronic criteria listed in main table are based on a hardness of 200 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for lead are a function of hardness ($CaCO_3$ (mg/l)) using the following equations:

Acute	(1.46203-[(ln hardness)(0.145712)]) × $e^{[1.2731Ln(Hardness) - 1.46]}$	$e^{[1.2731Ln(Hardness) - 1.46]}$	$e^{[1.2731Ln(Hardness) - 1.46]}$
Chronic	(1.46203-[(ln hardness)(0.145712)]) × $e^{[1.2731Ln(Hardness) - 4.705]}$	$e^{[1.2731Ln(Hardness) - 4.705]}$	$e^{[1.2731Ln(Hardness) - 4.705]}$

(k) The acute and chronic criteria listed in main table are based on a hardness of 200 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for nickel are a function of hardness ($CaCO_3$ (mg/l)) using the following equations:

Acute	$0.998 \times e^{[0.846Ln(Hardness) + 2.255]}$
Chronic	$0.997 \times e^{[0.846Ln(Hardness) + 0.0584]}$

(l) The acute and chronic criteria listed in main table are based on a hardness of 200 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for zinc are a function of hardness ($CaCO_3$ (mg/l)) using the following equations:

Acute	$0.978 \times e^{[0.8473Ln(Hardness) + 0.884]}$
Chronic	$0.986 \times e^{[0.8473Ln(Hardness) + 0.884]}$

(m) Acute and chronic criteria listed in main table are based on a hardness of 200 mg/l (as $CaCO_3$ (mg/l)) and a sulfate concentration of 63 mg/l. Numerical criteria (µg/l) for chloride are a function of hardness ($CaCO_3$ (mg/l)) and sulfate (mg/l) using the equation for each use according to the following table:

	B(CW1), B(CW2), B(WW-1), B(WW-2). B(WW-3), B(LW)
Acute	$287.8(\text{Hardness})^{0.205797}(\text{Sulfate})^{-0.07452}$
Chronic	$177.87(\text{Hardness})^{0.205797}(\text{Sulfate})^{-0.07452}$

(n) The copper criteria in Table 1 can be adjusted by a Water-Effect Ratio (WER). The WER factor is equal to 1.0 unless an approved WER study has been conducted by a permittee for a specific point source. The WER study shall be conducted in accordance with the "Interim Guidance on Determination and Use of Water-Effect Ratios for Metals (EPA-823-B-94-001), February 22, 1994," or upon approval by the department, the "Streamlined Water-Effect Ratio Procedure for Discharges of Copper (EPA-822-R-01-005), March 2001," which are hereby adopted by reference.

The copper Biotic Ligand Model (BLM) may be used as an alternative to the copper criteria in Table 1. The copper BLM is found in the document "Aquatic Life Ambient Freshwater Quality Criteria - Copper 2007 Revision (EPA-822-R-07-001), February 2007," which is hereby adopted by reference.

(o) The acute and chronic criteria listed in Table 1 are calculated using Aluminum Criteria Calculator V2.0 (Excel) as described in "Final Aquatic Life Ambient Water Quality Criteria for Aluminum 2018 (EPA-822-R-18-001), December 2018." The criteria were calculated using the lowest tenth percentile of individual model outputs using spatially and temporally representative model inputs from across the state. Site-specific criteria shall also be developed using this approach and the most recent version of the calculator.

(p) The criteria are expressed as dissolved concentration.

(q) The silver criteria listed in Table 1 are based on a hardness of 200 mg/l (as $CaCO_3$ (mg/l)). Numerical criteria (µg/l) for silver are a function of hardness ($CaCO_3$ (mg/l)) using the following equation:
Acute $0.85\times e^{[1.72\text{Ln}(\text{Hardness})-6.59]}$

(r) The criteria are expressed as the bioavailable portion of aluminum.

TABLE 2. Criteria for Dissolved Oxygen

(all values expressed in milligrams per liter)

	B(CW1)	B(CW2)	B(WW-1)	B(WW-2)	B(WW-3)	B(LW)
Minimum value for at least 16 hours of every 24-hour period	7.0	7.0	5.0	5.0	5.0	5.0*
Minimum value at any time during every 24-hour period	5.0	5.0	5.0	4.0	4.0	5.0*

**applies only to the upper layer of stratification in lakes*

TABLE 3a. Acute Criterion for Ammonia in Iowa Streams

Acute Criterion, mg/l as N (or Criterion Maximum Concentration, CMC)		
pH	Class B(WW-1), B(WW-2), B(WW-3) & B(LW)	Class B(CW1) & B(CW2)
6.5	48.8	32.6
6.6	46.8	31.3
6.7	44.6	29.8
6.8	42.0	28.0
6.9	39.1	26.1
7.0	36.1	24.1
7.1	32.8	21.9
7.2	29.5	19.7
7.3	26.2	17.5
7.4	23.0	15.3

Acute Criterion, mg/l as N (or Criterion Maximum Concentration, CMC)		
pH	Class B(WW-1), B(WW-2), B(WW-3) & B(LW)	Class B(CW1) & B(CW2)
7.5	19.9	13.3
7.6	17.0	11.4
7.7	14.4	9.64
7.8	12.1	8.11
7.9	10.1	6.77
8.0	8.40	5.62
8.1	6.95	4.64
8.2	5.72	3.83
8.3	4.71	3.15
8.4	3.88	2.59
8.5	3.20	2.14
8.6	2.65	1.77
8.7	2.20	1.47
8.8	1.84	1.23
8.9	1.56	1.04
9.0	1.32	0.885

TABLE 3b. Chronic Criterion for Ammonia in Iowa Streams - Early Life Stages Present

Chronic Criterion - Early Life Stages Present, mg/l as N (or Criterion Continuous Concentration, CCC)										
pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.8	2.8	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475

Chronic Criterion - Early Life Stages Present, mg/l as N (or Criterion Continuous Concentration, CCC)										
pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

TABLE 3c. Chronic Criterion for Ammonia in Iowa Streams - Early Life Stages Absent

Chronic Criterion - Early Life Stages Absent, mg/l as N (or Criterion Continuous Concentration, CCC)										
pH	Temperature, °C									
	0-7	8	9	10	11	12	13	14	15*	16*
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.99
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

*At 15°C and above, the criterion for fish early life stage (ELS) absent is the same as the criterion for fish ELS present.

TABLE 4. Aquatic Life Criteria for Sulfate for Class B Waters

(all values expressed in milligrams per liter)

	Chloride		
Hardness mg/l as $CaCO_3$	Cl^- < 5 mg/l	5 < = Cl^- < 25	25 < = $C1^-$ < = 500
H < 100 mg/l	500	500	500
100 < = H < = 500	500	[–57.478 + 5.79 (hardness) + 54.163 (chloride)] × 0.65	[1276.7 + 5.508 (hardness) –1.457 (chloride)] × 0.65
H > 500	500	2,000	2,000

61.3(4) *Class "C" waters.* Rescinded IAB 4/18/90, effective 5/23/90.

61.3(5) *Surface water classification.* The department hereby incorporates by reference "Surface Water Classification," effective July 24, 2019. This document may be obtained on the department's website at www.iowadnr.gov.

61.3(6) *Cold water use designation assessment protocol.* The department hereby incorporates by reference "Cold Water Use Designation Assessment Protocol," effective December 15, 2004. This document may be obtained on the department's website at www.iowadnr.gov.

61.3(7) *Warm water stream use assessment and attainability analysis protocol.* The department hereby incorporates by reference "Warm Water Stream Use Assessment and Attainability Analysis Protocol," effective March 22, 2006. This document may be obtained on the department's website at www.iowadnr.gov.

61.3(8) *Recreational use assessment and attainability analysis protocol.* The department hereby incorporates by reference "Recreational Use Assessment and Attainability Analysis Protocol," effective March 19, 2008. This document may be obtained on the department's website.

61.3(9) *Iowa wasteload allocation (WLA) procedure.* The department hereby incorporates by reference "Iowa Wasteload Allocation (WLA) Procedure," as revised on November 11, 2020. This document may be obtained on the department's website at www.iowadnr.gov.

61.3(10) *Implementation procedure for biotic ligand model-based copper criteria.* The department hereby incorporates by reference "Implementation Procedure for Biotic Ligand Model-Based Copper Criteria," February 22, 2017. This document may be obtained on the department's website.

This rule is intended to implement Iowa Code chapter 455B, division I, and division III, part 1.

[**ARC 8039B**, IAB 8/12/09, effective 9/16/09; **ARC 8214B**, IAB 10/7/09, effective 11/11/09; **ARC 8226B**, IAB 10/7/09, effective 11/11/09; **ARC 8466B**, IAB 1/13/10, effective 2/17/10; **ARC 9223B**, IAB 11/17/10, effective 12/22/10; **ARC 1988C**, IAB 5/13/15, effective 6/17/15; **ARC 2911C**, IAB 1/18/17, effective 2/22/17; **ARC 3583C**, IAB 1/17/18, effective 2/21/18; **ARC 4514C**, IAB 6/19/19, effective 7/24/19; **ARC 5226C**, IAB 10/7/20, effective 11/11/20]

567—61.4 to **61.9** Reserved.

VOLUNTEER MONITORING DATA REQUIREMENTS

567—61.10(455B) Purpose. The department uses water quality monitoring data for a number of purposes, including determining compliance with effluent limits for operation permits issued under 567—Chapter 64. The department also uses water quality monitoring data to determine the relative health of a water body by comparing monitoring data to the appropriate water quality standards established in 567—Chapter 61, a process known as water body assessments. Water body assessments are performed to prepare the biennial water quality report required under Section 305(b) of the Act and the list of impaired waters under Section 303(d) of the Act.

Iowa Code sections 455B.193 to 455B.195 require that credible data, as defined in Iowa Code section 455B.171, be used for the purpose of preparing Section 303(d) lists and other water quality program functions. Data provided by a volunteer are not considered credible data unless provided by a qualified volunteer. The purpose of this chapter is to establish minimum requirements for data produced by volunteers to meet the credible data and qualified volunteer requirements.

567—61.11(455B) Monitoring plan required. Volunteer water quality monitoring data submitted to the department must have been produced in accordance with a department-approved volunteer water quality monitoring plan before the data may be used for any of the purposes listed in Iowa Code section 455B.194. Approval of a plan will establish qualified volunteer status for the personnel identified in the plan for those monitoring activities covered under the plan.

61.11(1) *Submittal of the plan.* Prior to initiation of volunteer water quality monitoring activities intended to produce credible data, a water quality monitoring plan must be submitted to the department for review and approval. The plan must be submitted to the Volunteer Monitoring Coordinator, Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319, a minimum of 90 days before planned initiation of volunteer monitoring activities. A letter transmitting the plan must specifically request formal review and approval of the plan and identify a contact person. Volunteer monitors are encouraged to communicate with the department and to attend volunteer monitoring training sessions prior to formal submittal of a plan.

61.11(2) *Content of the plan.* A volunteer monitoring plan must contain, at a minimum, the following to be considered an acceptable volunteer monitoring plan:

a. A statement of the intent of the monitoring effort.

b. The name(s) of the person or persons that will be involved in data collection or analysis, the specific responsibilities of each person or group of people, and the general qualifications of the volunteers to carry out those responsibilities. For groups, such as educational institutions, it will be acceptable to identify the persons involved by general description (e.g., tenth grade biology class) with the exception of persons in responsible charge.

c. The name(s) of the person or persons that will oversee the monitoring plan, ensure that quality assurance and control objectives are being met, and certify the data. The person or persons in responsible charge must have training commensurate with the level of expertise to ensure that credible data is being generated.

d. The duration of the volunteer monitoring effort. In general, the department will not approve plans of greater than three years' duration unless a longer duration is justified.

e. Location and frequency of sample collection.

f. Methods of data collection and analysis.

g. Record keeping and data reporting procedures.

61.11(3) *Department review of the plan.* The department will review monitoring plans and normally approve or disapprove the plan within 90 days of receipt. The department will work with the contact person identified in the plan to make any necessary changes prior to taking formal action. The department will use guidelines contained in the publications EPA Requirements for Quality Assurance Project Plans (EPA QA/R-5, 2001) and Volunteer Monitor's Guide to Quality Assurance Project Plans (1966, EPA 841-B-96-003) or equivalent updates to determine if the plans provide adequate quality assurance and quality control measures. Approval or disapproval of the plan will be in the form of a letter and approval may include conditions or limitations.

61.11(4) *Changes in monitoring plans.* The department must approve any changes to an approved monitoring plan. Data collected under a modified plan will not be considered credible data until such time as the department has approved the modifications. Modifications to an approved plan should be submitted at the earliest possible time to avoid interruptions in data collection and to ensure continuity of data.

61.11(5) *Appeal of disapproval.* If a monitoring plan submitted for approval is disapproved, the decision may be appealed by filing an appeal with the director within 30 days of disapproval. The form of the notice of appeal and appeal procedures are governed by 567—Chapter 7.

567—61.12(455B) Use of volunteer monitoring data. Data produced under an approved water quality monitoring plan will be considered credible data for the purposes listed in Iowa Code section 455B.194 if the following conditions are met.

61.12(1) *Data submittal.* A qualified volunteer monitor or qualified volunteer monitoring group must specifically request that data produced under an approved volunteer monitoring plan be considered

credible data. A letter identifying the specific data must be submitted along with a certification from the volunteer or the person in responsible charge for volunteer groups that the data, to the best of the volunteer's or responsible person's knowledge, was produced in accordance with the approved volunteer monitoring plan. The department shall provide a standard format on the IOWATER website for submittal of qualified volunteer data and related information. The department encourages volunteers to enter monitoring data on the IOWATER volunteer monitoring database maintained by the department, but doing so does not constitute submittal to or acceptance of the data by the department for uses requiring credible data. Volunteer data shall be labeled as such in any departmental reports, websites, or databases.

61.12(2) *Department review of submitted data.* The department must review and approve the submitted data. The person submitting the data will be informed of the department's decision either to accept or reject the data. The department will attempt to resolve any apparent inconsistencies or questionable values in the submitted data prior to making a final decision.

567—61.13(455B) Department audits of volunteer monitoring activities. The department shall conduct field audits of a statistically valid and representative sample of volunteer data collection and analysis procedures to ensure compliance with an approved plan and may conduct confirmatory monitoring tests. Volunteers shall be informed of any audit results and be provided with an opportunity to address any concerns to the extent possible. The department reserves the right to rescind approval of an approved plan if it finds substantial problems that cannot be addressed in a timely manner to ensure the quality of the data being produced.

These rules are intended to implement Iowa Code chapter 455B, division III, part 1.

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[1] Two ARCs

[2] February 16, 2011, effective date of 61.2(2)*"g"*(8) delayed 70 days by the Administrative Rules Review Committee at its meeting held February 11, 2011.

CHAPTER 62
EFFLUENT AND PRETREATMENT STANDARDS: OTHER EFFLUENT LIMITATIONS OR PROHIBITIONS

[Prior to 7/1/83, DEQ Ch 17]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—62.1(455B) Prohibited discharges.

62.1(1) The discharge of any pollutant from a point source into a navigable water is prohibited unless authorized by an NPDES permit. For purposes of this subrule, an NPDES permit includes an NPDES permit issued by the administrator prior to approval of the Iowa NPDES program.

62.1(2) The discharge of any radiological, chemical or biological warfare agent or high-level radioactive waste into navigable waters is prohibited.

62.1(3) Any discharge which the secretary of the army acting through the chief of engineers finds would substantially impair anchorage and navigation is prohibited.

62.1(4) Any discharge to which the regional administrator has objected in writing pursuant to any right to object provided the administrator in Section 402(d) of the Act is prohibited.

62.1(5) Any discharge from a point source which is in conflict with a plan or amendment thereto approved pursuant to Section 208(b) of the Act is prohibited.

62.1(6) The discharge of wastewater into a publicly owned treatment works or a semipublic sewage disposal system in volumes or quantities in excess of those to which a significant industrial user is committed in the treatment agreement described in 567—subrule 64.3(5) or a local control mechanism in the case of a POTW with a pretreatment program approved by the department is prohibited.

62.1(7) Wastes in such volumes or quantities as to exceed the design capacity of the treatment works, cause interference or pass through, or reduce the effluent quality below that specified in the operation permit of the treatment works are considered to be a waste which interferes with the operation or performance of a publicly owned treatment works or a semipublic sewage disposal system and are prohibited.

62.1(8) Discharge of the following pollutants to a publicly owned treatment works, a semipublic sewage disposal system, or a private sewage disposal system is prohibited:

a. Pollutants which create a fire or explosion hazard including but not limited to waste streams with a closed cup flashpoint of less than 140 degrees Fahrenheit or 60 degrees Centigrade using the test methods specified in 40 CFR 261.21;

b. Solid or viscous substances in amounts that will cause obstruction to the flow in the treatment works resulting in interference;

c. Heat in amounts which will inhibit biological activity in the treatment works resulting in interference but, in no case, heat in such quantities that the temperature of the waste stream at the treatment plant exceeds 40 degrees Celsius (104 degrees Fahrenheit) unless specifically approved by the department;

d. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

e. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that could cause acute worker health and safety problems; and

f. Pollutants which will cause corrosive structural damage to the treatment works but, in no case, discharges with a pH lower than 5.0 standard units, unless the treatment works is specifically designed to accommodate such discharges, or wastes which would intermittently change the pH of the raw waste entering the treatment plant by more than 0.5 standard pH units or which would cause the pH of the raw waste entering the treatment plant to be less than 6.0 or greater than 9.0 standard units.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—62.2(455B) Exemption of adoption of certain federal rules from public participation. Iowa Code section 17A.4(2) allows an agency to exempt a "very narrowly tailored category of rules" from the notice and public participation requirements of Iowa Code section 17A.4(1) if the agency for good cause finds that notice and public participation is "unnecessary." The commission finds good cause

for exempting from the notice and public participation requirements of Iowa Code section 17A.4(1) the adoption by reference of the following federal standards and guidelines and amendments thereto: An effluent limitation guideline promulgated pursuant to Sections 301 and 304 of the Act; a standard of performance for a new source promulgated pursuant to Section 306 of the Act; a toxic effluent standard promulgated pursuant to Section 307(a) of the Act; a pretreatment standard for an existing source promulgated pursuant to Section 307(b) of the Act; a pretreatment standard for a new source promulgated pursuant to Section 307(c) of the Act; and information on the level of effluent quality attainable through the application of secondary treatment promulgated pursuant to Section 304(d) of the Act.

Public participation would be unnecessary since the commission must adopt effluent and pretreatment standards at least as stringent as the enumerated promulgated federal standards in order to have the department's NPDES program approved by the administrator (Section 402(c) of the Act), and yet must not adopt an effluent or pretreatment standard that is more stringent than the enumerated promulgated federal standards (Iowa Code section 455B.173(3)). Any such rule adopted by reference would be effective 35 days after filing, indexing, and publication in the Iowa Administrative Code.

567—62.3(455B) Secondary treatment information: effluent standards for publicly owned treatment works and semipublic sewage disposal systems.

62.3(1) *General.* The following paragraphs describe the minimum level of effluent quality attainable by secondary treatment in terms of the pollutant measurements carbonaceous biochemical oxygen demand ($CBOD_5$), the five-day measure of the pollutant parameter carbonaceous biochemical oxygen demand; suspended solids (SS), the pollutant parameter total suspended solids; and pH, the measure of the relative acidity or alkalinity. The pollutant measurement carbonaceous biochemical oxygen demand is used in lieu of the pollutant measurement five-day biochemical oxygen demand (BOD_5), as noted in 40 CFR 133.102. All requirements for each pollutant measurement shall be achieved by publicly owned treatment works and semipublic sewage disposal systems except as provided for in subrules 62.3(2) and 62.3(3).

Effluent limitations on pollutants other than carbonaceous biochemical oxygen demand (five day), suspended solids and pH may be imposed in the NPDES permit. Such limitations will reflect pretreatment requirements that may be imposed on users of the treatment works.

a. Carbonaceous biochemical oxygen demand (5 day) — $CBOD_5$.

(1) The 30-day average shall not exceed 25 mg/l.

(2) The 7-day average shall not exceed 40 mg/l.

(3) The 30-day average percent removal shall not be less than 85 percent, and the percent removal shall be calculated by adding 5 units to the effluent $CBOD_5$ monitoring data and comparing that value to the influent BOD_5 monitoring data. Site-specific information on the relationship between BOD_5 and $CBOD_5$ shall be used in lieu of the 5-unit relationship if such information is available.

b. Suspended solids — SS.

(1) The 30-day average shall not exceed 30 mg/l.

(2) The 7-day average shall not exceed 45 mg/l.

(3) The 30-day average percent removal shall not be less than 85 percent.

c. pH: The effluent values for pH shall be maintained within the limits of 6.0 to 9.0 unless the publicly owned treatment works demonstrates that:

(1) Inorganic chemicals are not added to the waste stream as part of the treatment process, and

(2) Contributions from industrial sources do not cause the pH of the effluent to be less than 6.0 or greater than 9.0.

62.3(2) *Special considerations.*

a. *Combined sewers.* Treatment works subject to this part may not be capable of meeting the percentage removal requirements established under 62.3(1)*"a"*(3) and 62.3(1)*"b"*(3), or 62.3(3)*"f"*(3) and 62.3(3)*"g"*(3) during wet weather where the treatment works receive flows from combined sewers (i.e., sewers which are designed to transport both storm water and sanitary sewage). For such treatment

works, the decision must be made on a case-by-case basis as to whether any attainable percentage removal level can be defined, and if so, what the level should be.

b. Industrial wastes. For certain industrial categories, the discharge of $CBOD_5$ and SS permitted (under Section 301(b)(1)(A)(i), 301(b)(2)(E) or 306 of the Act) may be less stringent than the values given in 62.3(1)*"a"*(1), 62.3(1)*"b"*(1), 62.3(3)*"f"*(1), and 62.3(3)*"g"*(1). In cases when wastes would be introduced from such an industrial category into a publicly owned treatment works, the values for $CBOD_5$ and SS in 62.3(1)*"a"*(1), 62.3(1)*"b"*(1), 62.3(3)*"f"*(1), and 62.3(3)*"g"*(1) may be adjusted upwards provided that:

(1) The permitted discharge of such pollutants, attributable to the industrial category, would not be greater than that which would be permitted (under Sections 301(b)(1)(A)(i), 301(b)(2)(E) or 306 of the Act) if such industrial category were to discharge directly into waters of the state, and

(2) The flow or loading of such pollutants introduced by the industrial category exceeds 10 percent of the design flow or loading of the publicly owned treatment works.

When such an adjustment is made, the values for $CBOD_5$ or SS in 62.3(1)*"a"*(2), 62.3(1)*"b"*(2), 62.3(3)*"f"*(2), and 62.3(3)*"g"*(2) should be adjusted proportionately.

c. Waste stabilization ponds. Departmental secondary treatment standards for waste stabilization ponds are the same as those found in subrule 62.3(1) concerning secondary treatment with the exception of the standards for suspended solids which are as follows:

(1) SS, the 30-day average shall not exceed 80 mg/l.

(2) SS, the 7-day average shall not exceed 120 mg/l.

d. Less concentrated influent wastewater for separate sewers. The department may substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements in 62.3(1) and 62.3(3) provided that the permittee demonstrates that:

(1) The treatment works is consistently meeting or will consistently meet, its permit effluent concentration limits but its percent removal requirements cannot be met due to less concentrated influent wastewater.

(2) To meet the percent removal requirements, the treatment works would have to achieve significantly more stringent limitations than would otherwise be required by the concentration-based standards, and

(3) The less concentrated influent wastewater is not the result of excessive infiltration/inflow (I/I). A system is considered to have nonexcessive I/I when an average wet weather influent flow (as defined in the department's design standards 567—paragraph 64.2(9)*"b,"* Chapter 14.4.5.1.b) comprised of domestic wastewater plus infiltration plus inflow equals less than 275 gallons per day per capita.

e. Upgraded facilities designed to operate in a split flow mode. The department may substitute either a lower percent removal requirement or a mass loading limit for the percent removal requirements in 62.3(1) only (not 62.3(3)),provided that the treatment works is designed to split part of the primary treated wastewater flow around the secondary treatment unit(s). The design to accommodate split flow must be approved by the department and consistent with applicable design standards for wastewater treatment facilities. The requirements of 62.3(2)*"d"* would apply to facilities considered under this subrule. This subrule shall not be considered for facilities eligible for treatment equivalent to secondary treatment under 62.3(3).

Any applicant requesting a permit limit adjustment must include as part of the request an analysis of the I/I sources in the system and a plan for the elimination of all inflow sources such as roof drains, manholes and storm sewer interconnections. Infiltration sources that can be economically eliminated or minimized shall be corrected.

f. Dilution. Nothing in this subrule or any other rule of the department shall be construed to encourage dilution of sewage as a means of complying with secondary treatment effluent standards. Reasonable efforts to prevent and abate infiltration of groundwater into sewers, and prevention or removal of any significant source of inflow, are required of all persons responsible for facilities subject to these standards.

62.3(3) *Treatment equivalent to secondary treatment.* This subrule describes the minimum level of effluent quality attainable by facilities eligible for treatment equivalent to secondary treatment in terms

of the pollutant measurements $CBOD_5$, SS and pH. The pollutant measurement $CBOD_5$ is used in lieu of the pollutant measurement BOD_5 as noted in 40 CFR 133.105. Treatment works shall be eligible at any time for consideration of effluent limitations described for treatment equivalent to secondary treatment if:

a. The $CBOD_5$ and SS effluent concentrations consistently achievable through proper operation and maintenance of the treatment works exceed the minimum level of the effluent quality set forth in 62.3(1)*"a"* and 62.3(1)*"b"*; and

b. A trickling filter or waste stabilization pond is used as the principal process; and

c. The treatment works provide significant biological treatment of municipal wastewater; and

d. The facility was not constructed since January 1, 1972, in order to achieve design effluent limits set forth in 62.3(1)*"a," "b,"* and *"c"* or predecessor rules on secondary treatment. An eligible trickling filter or waste stabilization pond may have undergone an upgrade to achieve the effluent requirements specified in this subrule. Nothing in this subrule shall be construed to allow a facility to circumvent the design standards of 567—Chapter 64 in the replacement or construction of the individual treatment units; and

e. The treatment works is one that does not receive organic or hydraulic loadings which prevent the facilities from consistently complying with 62.3(3)*"f," "g,"* and *"h."*

All requirements for the specified pollutant measurements in paragraphs *"f," "g,"* and *"h"* following in this subrule shall be achieved except as provided for above in 62.3(2) or paragraph *"i"* of this subrule below.

f. $CBOD_5$ limitations:

(1) The 30-day average shall not exceed 40 mg/l.

(2) The 7-day average shall not exceed 60 mg/l.

(3) The 30-day average percent removal shall not be less than 65 percent, and the percent removal shall be calculated by adding 5 units to the effluent $CBOD_5$ monitoring data and comparing that value to the influent BOD_5 monitoring data. Site-specific information on the relationship between BOD_5 and $CBOD_5$ shall be used in lieu of the 5-unit relationship if such information is available.

g. SS limitations. Except where SS values have been adjusted in accordance with subrule 62.3(2), paragraph *"c,"* above:

(1) The 30-day average shall not exceed 45 mg/l.

(2) The 7-day average shall not exceed 65 mg/l.

(3) The 30-day average percent removal shall not be less than 65 percent.

h. pH. The requirements of above subrule 62.3(1), paragraph *"c,"* shall be met.

i. Permit adjustments. More stringent limitations are required if the 30-day average and 7-day average $CBOD_5$ and SS effluent values that could be achievable through proper operation and maintenance of the upgraded or existing treatment works, based on an analysis of the past performance of the treatment works, would enable the treatment works to achieve more stringent limitations. These more stringent limitations shall be maintained and not relaxed unless as specified in subrule 62.3(2)*"b."*

Effluent concentrations consistently achievable through proper operation and maintenance are:

(1) The ninety-fifth percentile value of the 30-day average effluent quality achieved by the upgraded or existing treatment works in a period of at least two years, excluding values attributable to upsets, bypasses, operational errors, or other unusual conditions, and

(2) A 7-day average value equal to 1.5 times the value derived for the 30-day average above.

This subrule shall only be applied when the existing or upgraded facility has achieved its design organic loading as specified in the most recent construction permit or its accompanying documentation. The determination of the effluent concentration consistently achievable through proper operation and maintenance shall only be based on the effluent quality data following the period when the design organic loading has been achieved.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—62.4(455B) Federal effluent and pretreatment standards. The federal standards, 40 Code of Federal Regulations (CFR), revised as of January 1, 2015, are applicable to the following categories:

62.4(1) *General provisions.* The following is adopted by reference: 40 CFR Part 401.

62.4(2) *Cooling water intake structures.* The following is adopted by reference: 40 CFR Part 125, Subparts I and J.

62.4(3) *General pretreatment regulations for existing and new sources of pollution.* The following is adopted by reference: 40 CFR Part 403.

62.4(4) *Thermal discharges.* The following is adopted by reference: 40 CFR Part 125, Subpart H.

62.4(5) *Dairy products processing point source category.* The following is adopted by reference: 40 CFR Part 405.

62.4(6) *Grain mills point source category.* The following is adopted by reference: 40 CFR Part 406.

62.4(7) *Canned and preserved fruits and vegetables processing point source category.* The following is adopted by reference: 40 CFR Part 407.

62.4(8) *Canned and preserved seafood processing point source category.* The following is adopted by reference: 40 CFR Part 408.

62.4(9) *Sugar processing point source category.* The following is adopted by reference: 40 CFR Part 409.

62.4(10) *Textile mills point source category.* The following is adopted by reference: 40 CFR Part 410.

62.4(11) *Cement manufacturing point source category.* The following is adopted by reference: 40 CFR Part 411.

62.4(12) *Concentrated animal feeding operations (CAFO) point source category.* The following is adopted by reference: 40 CFR Part 412.

62.4(13) *Electroplating point source category.* The following is adopted by reference: 40 CFR Part 413.

62.4(14) *Organic chemicals, plastics and synthetic fibers point source category.* The following is adopted by reference: 40 CFR Part 414.

62.4(15) *Inorganic chemicals manufacturing point source category.* The following is adopted by reference: 40 CFR Part 415.

62.4(16) Reserved.

62.4(17) *Soap and detergent manufacturing point source category.* The following is adopted by reference: 40 CFR Part 417.

62.4(18) *Fertilizer manufacturing point source category.* The following is adopted by reference: 40 CFR Part 418.

62.4(19) *Petroleum refining point source category.* The following is adopted by reference: 40 CFR Part 419.

62.4(20) *Iron and steel manufacturing point source category.* The following is adopted by reference: 40 CFR Part 420.

62.4(21) *Nonferrous metals manufacturing point source category.* The following is adopted by reference: 40 CFR Part 421.

62.4(22) *Phosphate manufacturing point source category.* The following is adopted by reference: 40 CFR Part 422.

62.4(23) *Steam electric power generating point source category.* The following is adopted by reference: 40 CFR Part 423.

62.4(24) *Ferroalloy manufacturing point source category.* The following is adopted by reference: 40 CFR Part 424.

62.4(25) *Leather tanning and finishing point source category.* The following is adopted by reference: 40 CFR Part 425.

62.4(26) *Glass manufacturing point source category.* The following is adopted by reference: 40 CFR Part 426.

62.4(27) *Asbestos manufacturing point source category.* The following is adopted by reference: 40 CFR Part 427.

62.4(28) *Rubber manufacturing point source category.* The following is adopted by reference: 40 CFR Part 428.

62.4(29) *Timber products processing point source category.* The following is adopted by reference: 40 CFR Part 429.

62.4(30) *Pulp, paper and paperboard point source category.* The following is adopted by reference: 40 CFR Part 430.

62.4(31) *Builders paper and roofing felt segment of the builders paper and board mills point source category.* Reserved.

62.4(32) *Meat and poultry products point source category.* The following is adopted by reference: 40 CFR Part 432.

62.4(33) *Metal finishing point source category.* The following is adopted by reference: 40 CFR Part 433.

62.4(34) *Coal mining point source category.* The following is adopted by reference: 40 CFR Part 434.

62.4(35) *Oil and gas extraction point source category.* The following is adopted by reference: 40 CFR Part 435.

62.4(36) *Mineral mining and processing point source category.* The following is adopted by reference: 40 CFR Part 436.

62.4(37) *Centralized waste treatment point source category.* The following is adopted by reference: 40 CFR Part 437.

62.4(38) *Metal products and machinery point source category.* The following is adopted by reference: 40 CFR Part 438.

62.4(39) *Pharmaceutical manufacturing point source category.* The following is adopted by reference: 40 CFR Part 439.

62.4(40) *Ore mining and dressing point source category.* The following is adopted by reference: 40 CFR Part 440.

62.4(41) *Industrial laundries point source category.* Reserved.

62.4(42) *Transportation equipment cleaning point source category.* The following is adopted by reference: 40 CFR Part 442.

62.4(43) *Paving and roofing materials (tars and asphalt) point source category.* The following is adopted by reference: 40 CFR Part 443.

62.4(44) *Waste combustors point source category.* The following is adopted by reference: 40 CFR Part 444.

62.4(45) *Landfills point source category.* The following is adopted by reference: 40 CFR Part 445.

62.4(46) *Paint formulating point source category.* The following is adopted by reference: 40 CFR Part 446.

62.4(47) *Ink formulating point source category.* The following is adopted by reference: 40 CFR Part 447.

62.4(48) *Printing and publishing point source category.* Reserved.

62.4(49) *Airport de-icing point source category.* The following is adopted by reference: 40 CFR Part 449.

62.4(50) *Construction and development point source category.* The following is adopted by reference: 40 CFR Part 450.

62.4(51) *Concentrated aquatic animal production point source category.* The following is adopted by reference: 40 CFR Part 451.

62.4(52) *Concrete products point source category.* Reserved.

62.4(53) *Shore receptor and bulk terminals point source category.* Reserved.

62.4(54) *Gum and wood chemicals manufacturing point source category.* The following is adopted by reference: 40 CFR Part 454.

62.4(55) *Pesticide chemicals.* The following is adopted by reference: 40 CFR Part 455.

62.4(56) *Adhesives and sealants industry point source category.* Reserved.

62.4(57) *Explosives manufacturing point source category.* The following is adopted by reference: 40 CFR Part 457.

62.4(58) *Carbon black manufacturing point source category.* The following is adopted by reference: 40 CFR Part 458.

62.4(59) *Photographic point source category.* The following is adopted by reference: 40 CFR Part 459.

62.4(60) *Hospital point source category.* The following is adopted by reference: 40 CFR Part 460.

62.4(61) *Battery manufacturing point source category.* The following is adopted by reference: 40 CFR Part 461.

62.4(62) Reserved.

62.4(63) *Plastic molding and forming point source category.* The following is adopted by reference: 40 CFR Part 463.

62.4(64) *Metal molding and castings point source category.* The following is adopted by reference: 40 CFR Part 464.

62.4(65) *Coil coating point source category.* The following is adopted by reference: 40 CFR Part 465.

62.4(66) *Porcelain enameling point source category.* The following is adopted by reference: 40 CFR Part 466.

62.4(67) *Aluminum forming point source category.* The following is adopted by reference: 40 CFR Part 467.

62.4(68) *Copper forming point source category.* The following is adopted by reference: 40 CFR Part 468.

62.4(69) *Electrical and electronic components point source category.* The following is adopted by reference: 40 CFR Part 469.

62.4(70) Reserved.

62.4(71) *Nonferrous metals forming and metal powders point source category.* The following is adopted by reference: 40 CFR Part 471.

[**ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—62.5(455B) Federal toxic effluent standards. The following is adopted by reference: 40 CFR Part 129.

[**ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—62.6(455B) Effluent limitations and pretreatment requirements for sources for which there are no federal effluent or pretreatment standards.

62.6(1) *Definitions.* As used in this rule:

a. *"Average"* means the sum of the total daily discharges by weight, volume or concentration during the reporting period (as specified in the operation permit) divided by the total number of days during the reporting period when the facility was in operation. With respect to the monitoring requirements, the "daily average" discharge shall be determined by the summation of all the measured daily discharges by weight, volume or concentration divided by the number of days during the reporting period when the measurements were made.

b. *"Maximum"* means the total discharge by weight, volume or concentration which cannot be exceeded during a 24-hour period.

c. *"Best engineering judgment"* means a judgment that considers any or all of the following:

(1) Known state-of-the-art (i.e., demonstrated treatment that is being done or can be done);

(2) Published technical articles and research results;

(3) Engineering reference books;

(4) Consultation with acknowledged experts in the field;

(5) Availability of equipment;

(6) Known or suspected toxicity of the pollutants;

(7) Safety, welfare and aesthetic effects on persons who may come in contact with the discharge; and

(8) Standards and rules of other regulatory agencies and states.

62.6(2) *Time of compliance.* Effluent limitations and pretreatment limitations established pursuant to this rule shall be achieved within a reasonable time after receipt of notice from the department of the applicability of these limitations.

62.6(3) *Effluent limitations.* This subrule establishes effluent limitations on the discharge of pollutants from sources other than publicly owned treatment works and semipublic sewage disposal systems that are not subject to the federal effluent standards adopted by reference in 62.4(1) and 62.4(3) to 62.4(71).

a. There shall be established an effluent limitation that represents the best engineering judgment of the department of the degree of effluent reduction consistent with the Act and Iowa Code chapter 455B.

b. The following wastes shall not be introduced into privately owned treatment works subject to this subrule:

(1) Wastes that create a fire or explosion hazard in the treatment works.

(2) Wastes at a flow rate or pollutant discharge rate, or both, which is excessive over relatively short time periods so that there is a treatment process upset and subsequent loss of treatment efficiency such that the effluent limitations in the permit of the treatment works are violated.

62.6(4) *Pretreatment requirements for incompatible wastes.* This subrule establishes pretreatment requirements for incompatible pollutants that apply to sources other than significant industrial users as defined in 567—60.2(455B), and to sources that are new or existing significant industrial users for which there is no federal pretreatment standard (i.e., sources which do not fall within a point source category or, if they do fall within a point source category, sources for which the administrator has not yet promulgated a pretreatment standard).

a. For sources that are within a point source category adopted by reference in 567—62.4(455B) for which there are promulgated effluent limitation guidelines, but no promulgated pretreatment standards, the pretreatment standard for incompatible pollutants shall be the promulgated effluent limitation guideline.

b. For sources that are not subject to paragraph *"a,"* the department shall establish an effluent limitation that represents the best professional judgment for effluent reduction that is consistent with the Act and Iowa Code chapter 455B.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—62.7(455B) Effluent limitations less stringent than the effluent limitation guidelines. An effluent limitation less stringent than the effluent limitation guideline (adopted by reference in 567—62.4(455B)) representing the degree of effluent reduction achievable by application of the best practicable control technology currently available may be allowed in an NPDES permit if the factors relating to the equipment or facilities involved, the process applied, or other such factors related to the discharger are fundamentally different from the factors considered by the administrator in the establishment of the guidelines. An individual discharger or other interested person may submit evidence concerning such factors to the director. On the basis of such evidence or other available information and in accordance with 40 CFR 125.31, the director will make a written finding that such factors are or are not fundamentally different from the facility compared to those specified in the development document. Any such less stringent effluent limitations must, as a condition precedent, be approved by the administrator.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—62.8(455B) Effluent limitations or pretreatment requirements more stringent than the effluent or pretreatment standards.

62.8(1) *Effluent limitations more stringent than the effluent limitation guidelines.* An effluent limitation more stringent than the effluent limitation guidelines representing the degree of effluent reduction achievable by application of the best practicable control technology currently available may be required in an NPDES permit if the factors relating to the equipment or facilities involved, the process applied, or other such factors related to the discharger are fundamentally different from the factors considered by the administrator in the establishment of the guidelines. An individual discharger or other interested person may submit evidence concerning such factors to the director. On the basis of

such evidence or other information available to the director, the director will make a written finding that such factors are or are not fundamentally different for the facility compared to those specified in the development document. Any such more stringent effluent limitation must, as a condition precedent, be approved by the administrator.

62.8(2) *Effluent limitations necessary to meet water quality standards.* No effluent, alone or in combination with the effluent of other sources, shall cause a violation of any applicable water quality standard. When it is found that a discharge that would comply with applicable effluent standards in 567—62.3(455B), 567—62.4(455B) or 567—62.5(455B) or effluent limitations in 567—62.6(455B) would cause a violation of water quality standards, the discharge will be required to meet the water quality-based effluent limits (WQBELs) necessary to achieve the applicable water quality standards as established in 567—Chapter 61. Any such effluent limit shall be derived from the calculated waste load allocation, as described in "Iowa Wasteload Allocation (WLA) Procedure," as revised on February 21, 2018, or the waste load allocation as required by a total maximum daily load, whichever is more stringent. The translation of waste load allocations to WQBELs shall use Iowa permit derivation methods, as described in the "Iowa Wasteload Allocation (WLA) Procedure," as revised on February 21, 2018, except that the daily sample maximum criteria for *E. coli* set forth in 567—Chapter 61 shall not be used as an end-of-pipe permit limitation.

62.8(3) *Pretreatment requirements more stringent than pretreatment standards or requirements.* The department or the publicly owned treatment works may impose pretreatment requirements more stringent than the applicable pretreatment standard of 567—62.4(455B) or pretreatment requirements of 567—62.6(455B) if such more stringent requirements are necessary to prevent violations of water quality standards, interference, or pass through.

62.8(4) *Effluent limitations or pretreatment requirements in approved areawide waste treatment management plans.* Effluent limitations or pretreatment requirements more stringent than applicable effluent or pretreatment standards in 567—62.3(455B) to 567—62.5(455B) or effluent limitations or pretreatment requirements in 567—62.6(455B) may be imposed by the department if the more stringent effluent limitations or pretreatment requirements are required by an approved areawide waste treatment management (208(b)) plan.

62.8(5) *Effluent limitations for pollutants not covered by effluent or pretreatment standards.* An effluent limitation on a pollutant not otherwise regulated under 567—62.3(455B) to 567—62.6(455B) (e.g., polybrominated biphenyls, PBBs) may be imposed on a case-by-case basis. Such limitation shall be based on effect of the pollutant in water and the feasibility and reasonableness of treating such pollutant.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 8123B**, IAB 9/9/09, effective 10/14/09; **ARC 8214B**, IAB 10/7/09, effective 11/11/09; **ARC 3583C**, IAB 1/17/18, effective 2/21/18]

567—62.9(455B) Disposal of pollutants into wells. Commencing September 1, 1977, there shall be no disposal of a pollutant other than heat into wells within Iowa. Any disposal of heat shall be sufficiently controlled to protect the public health and welfare and to prevent pollution of ground and surface water resources. In reviewing any permits proposed to be issued for the disposal into wells, the director shall consider, among other things, any policies, technical information, or requirements specified by the administrator in regulations issued pursuant to the Act or in directives issued to EPA regional offices.

567—62.10(455B) Effluent reuse. Treated final effluent may be reused in a manner noted in 62.10(1) or as specified in the NPDES permit.

62.10(1) Reuse for golf course irrigation. Treated final effluent may be reused for golf course irrigation if the conditions described in *"a"* and *"b"* are met.

a. The treated final effluent must meet one of the following conditions:

(1) A minimum total residual chlorine level of 0.5 mg/l must be maintained at a minimum of 15 minutes contact time of chlorine to wastewater prior to the irrigation of the golf course with treatment plant effluent; or

(2) Disinfected effluent shall be held in a retention pond with a detention time of at least 20 days prior to reuse as irrigation on a golf course. For this purpose, effluent may be disinfected using any

common treatment technology, and either an existing pond or a pond constructed specifically for effluent retention may be used.

b. A golf course utilizing treated final effluent shall take all of the following actions:

(1) Clearly state on all scorecards that treated final effluent is used for irrigation of the golf course and oral contact with golf balls and tees should be avoided;

(2) Post signs that warn against consumption of water at all water hazards;

(3) Color code, label, or tag all piping and sprinklers associated with the distribution or transmission of the treated final effluent to clearly warn against the consumptive use of the contents; and

(4) Restrict the access of the public to any area of the golf course where spraying is being conducted.

All four of the above conditions must be met.

62.10(2) Reserved.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

These rules are intended to implement Iowa Code chapter 455B, division III, part 1.

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CHAPTER 63
MONITORING, ANALYTICAL AND REPORTING REQUIREMENTS

[Prior to 7/1/83, DEQ Ch 18]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—63.1(455B) Guidelines establishing test procedures for the analysis of pollutants. Only the procedures prescribed in this chapter shall be used to perform the measurements indicated in an application for an operation permit submitted to the department, a report required to be submitted by the terms of an operation permit, and a certification issued by the department pursuant to Section 401 of the Act.

63.1(1) Identification of test procedures.

a. The following is adopted by reference: 40 Code of Federal Regulations (CFR) Part 136.

b. All parameters for which testing is required by a wastewater discharge permit, permit application, or administrative order, except operational performance testing, must be analyzed using approved methods specified in 40 CFR Part 136.3 or, under certain circumstances, by other methods that may be more advantageous to use when such other methods have been previously approved by the director pursuant to 63.1(2). Samples collected for operational testing pursuant to 63.3(4) need not be analyzed by approved analytical methods; however, commonly accepted test methods should be used.

63.1(2) Application for alternate test procedures.

a. Any person may apply to the EPA regional administrator through the director for approval of an alternate test procedure.

b. The application for an alternate test procedure may be made by letter and shall:

(1) Provide the name and address of the responsible person or firm holding or applying for the permit (if not the applicant) and the applicable ID number of the existing or pending permit and type of permit for which the alternate test procedure is requested and the discharge serial number, if any.

(2) Identify the pollutant or parameter for which approval of an alternate testing procedure is being requested.

(3) Provide justification for using testing procedures other than those specified in 40 CFR Part 136.3.

63.1(3) Required containers, preservation techniques and holding times. All samples collected in accordance with self-monitoring requirements as defined in an operation permit shall comply with the container, preservation techniques, and holding time requirements as specified in Table IV. Sample preservation should be performed immediately upon collection, if feasible.

63.1(4) All laboratories conducting analyses required by this chapter must be certified in accordance with 567—Chapter 83. Routine on-site monitoring for pH, temperature, dissolved oxygen, total residual chlorine, other pollutants that must be analyzed immediately upon sample collection, settleable solids, physical measurements such as flow and cell depth, and operational monitoring tests specified in 63.3(4) are excluded from this requirement. All instrumentation used for conducting any analyses required by this chapter must be properly calibrated according to the manufacturer's instructions.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—63.2(455B) Records of monitoring activities and results.

63.2(1) The permittee shall maintain records of all information resulting from any monitoring activities required in its operation permit and from any operational performance monitoring.

63.2(2) Any records of monitoring activities and results shall include for all samples:

a. The date, exact place and time of sampling.

b. The dates analyses were performed.

c. Who performed the analyses.

d. The analytical techniques or methods used, and

e. The results of such analyses.

63.2(3) The permittee shall retain for a minimum of three years all paper and electronic records of monitoring activities and results including all original strip chart recordings for continuous monitoring instrumentation and calibration and maintenance records. This retention includes but is not limited to

monitoring and calibration records from pH meters, dissolved oxygen meters, total residual chlorine meters, flow meters, and temperature readings from any composite samplers. The period of retention shall be considered to be extended during the course of any unresolved litigation or when requested by the director or the regional administrator.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—63.3(455B) Minimum self-monitoring requirements in permits.

63.3(1) *Monitoring by organic waste dischargers.* The minimum self-monitoring requirements to be incorporated in operation permits for facilities discharging organic wastes shall be the appropriate requirements in Tables I, II, and III. Additional monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, industrial contribution to the system, complexity of the treatment process, history of noncompliance or any other factor which requires strict operational control to meet the effluent limitations of the permit, as described in the Supporting Document for Permit Monitoring Frequency Determination, August 2008, located on the NPDES Web site.

63.3(2) *Monitoring by inorganic waste dischargers.* The self-monitoring requirements to be incorporated in the operation permit for facilities discharging inorganic wastes shall be determined on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, complexity of the treatment process, history of noncompliance or any other factor which requires strict control to meet the effluent limitations of the permit, as described in the Supporting Document for Permit Monitoring Frequency Determination, August 2008, located on the NPDES Web site.

63.3(3) *Monitoring of significant industrial users of publicly owned treatment works.* Monitoring for significant industrial users as defined in 567—60.2(455B) shall be determined as described in the Supporting Document for Permit Monitoring Frequency Determination, August 2008, located on the NPDES Web site. Results of such monitoring shall be submitted to the department in accordance with the reporting requirements in the operation permit. The monitoring program of a publicly owned treatment works with a pretreatment program approved by the department may be used in lieu of the supporting document.

63.3(4) *Operational performance monitoring.* Operational performance monitoring for treatment unit process control shall be conducted to ensure that the facility is properly operated in accordance with its design. The results of any operational performance monitoring need not be reported to the department, but shall be maintained in accordance with rule 567—63.2(455B). Additional operational performance monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, complexity of the treatment process, history of noncompliance or any other factor that requires strict control to meet the effluent limitations of the permit. The results of operational performance monitoring specified in the operation permit shall be submitted to the department in accordance with the reporting requirements in the operation permit.

63.3(5) *Modification of minimum monitoring requirements.* Monitoring requirements may be modified or reduced at the discretion of the director when requested by the permittee. Adequate justification must be presented by the permittee that the reduced or modified requirements will accurately reflect actual wastewater characteristics and will not adversely impact the operation of the facility. Requests for modification or reduction of monitoring requirements in an existing permit are considered variance requests and must follow the procedures in 567—paragraph 60.4(2)*"b."* All reductions or modifications of monitoring incorporated into an operation or NPDES permit by amendment or upon reissuance of the permit are only effective until the expiration date of that permit.

63.3(6) *Impairment monitoring.* If a wastewater treatment facility is located in the watershed of an impaired water body that is listed on Iowa's most recent Section 303(d) list (as described in 40 CFR 130.7), additional monitoring for parameters that are contributing to the impairment may be included in the operation or NPDES permit on a case-by-case basis.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—63.4(455B) Effluent toxicity testing requirements in permits.

63.4(1) *Effluent toxicity testing.* All major municipal and industrial dischargers shall be required to carry out effluent toxicity testing. Minor dischargers may be required to conduct effluent toxicity tests based on a case-by-case evaluation of the impact of the discharge on the receiving stream or industrial contribution to the system. All dischargers required to conduct effluent toxicity tests shall conduct, at a minimum, one valid effluent toxicity test annually. The testing requirements will be placed in the operation permit for each discharger required to conduct this testing. Additional monitoring may be specified in the operation permit based on a case-by-case evaluation of the impact of the discharge on the receiving stream, toxic or deleterious effects of wastewaters, industrial contribution to the system, complexities of the treatment process, history of noncompliance or any other factor which requires strict operational control to meet the effluent limitations of the permit. Any effluent toxicity test completed by the department or other agency and conducted according to procedures stated or referenced in this rule may be used to determine compliance with an operational permit.

63.4(2) *Testing procedures.* Dischargers shall be required to conduct effluent toxicity tests in accordance with the following general requirements:

a. The effluent toxicity tests shall be performed using a 24-hour composite sample of the effluent collected at the location stated in the operation permit. All composite samples shall be delivered to the testing laboratory within a reasonable time (approximately 24 hours) after collection and all tests must commence within 36 hours following sample collection. The results of all effluent toxicity tests conducted using approved procedures, including any tests performed at a greater frequency than required in the operation permit, shall be submitted to the department, on Form 542-1381 provided by the department, within 30 days of completing the test.

b. All effluent toxicity tests shall be conducted using the test methodologies and protocols described within "Standard Operating Procedure: Effluent Toxicity Testing, Iowa Department of Natural Resources," March 1991. This procedure is adopted as part of this subrule and is filed as part of this subrule with the administrative rules coordinator. This procedure is an essential part of the testing procedures and is available upon request to the department although not printed in this subrule. Laboratories performing the effluent toxicity tests shall also have a quality assurance plan.

c. All effluent toxicity tests shall be performed using the water flea *(Ceriodaphnia dubia),* and the fathead minnow *(Pimephales promelas)*.

d. Effluent toxicity tests shall include, at a minimum, two different concentrations of effluent. One test shall consist of 100 percent effluent, and a second test shall be a diluted effluent sample as defined. A control test, consisting of 100 percent culture water for each respective organism shall also be used. The test shall last for 48 hours at which time the mortality will be determined for all tests.

e. All effluent toxicity tests shall be of the pass/fail type.

63.4(3) If there is a positive toxicity test result in the diluted effluent sample from a valid effluent toxicity test, the following requirements apply unless the exception in paragraph *"c"* of this subrule is applicable.

a. At a minimum, the discharger shall be required to conduct quarterly effluent toxicity tests until three successive tests are determined not to be positive, after which the normal annual testing shall be resumed.

b. If the discharger has two successive positive valid diluted effluent toxicity test results or three positive test results out of five valid diluted effluent toxicity tests, the discharger shall be required to conduct a toxicity reduction evaluation (TRE). The discharger may be required to carry out instream monitoring or other analysis in conjunction with the TRE. At any time during the course of conducting a TRE there are three consecutive follow-up toxicity test results for the diluted sample which are not positive, the facility will be considered in compliance and work on the TRE may cease. Annual testing for effluent toxicity shall then resume. Nothing in these rules shall preclude the department from taking enforcement action beyond that described in these rules.

c. When the pretest chemical analysis for un-ionized ammonia nitrogen (NH3-N) or total residual chlorine (TRC) on the diluted effluent sample exceeds the concentrations given below, a positive test

result is likely to have been caused by high concentrations of NH3 or TRC, and the test result will not be used to determine if follow-up testing is needed.

(1) Un-ionized Ammonia Nitrogen—0.9 mg/l

(2) TRC—0.1 mg/l

567—63.5(455B) Self-monitoring and reporting for animal feeding operations.

63.5(1) The following self-monitoring requirements may be imposed on an animal-feeding operation in any operation permit issued for such an operation.

a. Measurement of liquid level in a waste storage facility on a periodic basis.

b. Measurement of daily precipitation, as appropriate.

c. Sampling and analysis of groundwater as necessary to determine effects of wastewater application.

d. Other measurements necessary to evaluate the adequacy of a waste disposal system.

63.5(2) Reports of the self-monitoring results shall be submitted to the appropriate regional field office of the department quarterly. The quarterly reports shall cover the periods January through March, April through June, July through September, and October through December. The quarterly report for each period shall be submitted by the tenth day of the month following the quarter being reported.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—63.6(455B) Bypasses and upsets.

63.6(1) *Prohibition.* Bypasses from any portion of a treatment facility or from a sanitary sewer collection system designed to carry only sewage are prohibited. The department may not assess a civil penalty against a permittee for a bypass if the permittee has complied with all of the following:

a. The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

c. The permittee submitted the information required in 63.6(2), 63.6(3), and 63.6(5).

63.6(2) *Request for anticipated bypass.* Except for bypasses that occur as a result of mechanical failure or acts beyond the control of the owner or operator of a waste disposal system (unanticipated bypasses), the owner or operator shall obtain written permission from the department prior to any discharge of sewage or wastes from a waste disposal system not authorized by a discharge permit. The director may approve an anticipated bypass after considering its adverse effects if the director determines that it will meet the conditions in 63.6(1).

a. The request for a bypass shall be submitted to the appropriate regional field office of the department at least ten days prior to the expected date of the event.

b. The request shall be submitted in writing and shall include all of the following:

(1) The reason for the bypass;

(2) The date and time the bypass will begin;

(3) The expected duration of the bypass;

(4) An estimate of the amount of untreated or partially treated sewage or wastewater that will be discharged;

(5) The location of the bypass;

(6) The name of any body of surface water that will be affected by the bypass; and

(7) Any actions the owner or operator proposes to take to mitigate the effects of the bypass upon the receiving stream or other surface water.

63.6(3) *Notification of unanticipated bypass or upset and public notices.* In the event that a bypass or upset occurs without prior notice having been provided pursuant to 63.6(2) or as a result of mechanical failure or acts beyond the control of the owner or operator, the owner or operator of the treatment facility

or collection system shall notify the department by telephone as soon as possible but not later than 24 hours after the onset or discovery.

a. Notification shall be made by contacting the appropriate field office.

b. Notification shall include information on as many items listed in subparagraphs 63.6(3)*"d"*(1) through (6) as available information will allow.

c. When the department has been notified of an unanticipated bypass, the department shall determine if a public notice is necessary. If the department determines that public notification is necessary, the owner or operator of the treatment facility or the collection system shall prepare a public notice.

d. A written submission describing the bypass shall also be provided within five days of the time the permittee becomes aware of the bypass. The written submission shall contain the following:

(1) The reason for the bypass, including the amount and duration of any rainfall event that may have contributed to the bypass;

(2) The date and time of onset or discovery of the bypass;

(3) The duration of the bypass;

(4) An estimate of the amount of untreated or partially treated sewage or wastewater that was discharged;

(5) The location of the bypass; and

(6) The name of any body of surface water that was affected by the bypass.

63.6(4) *Monitoring, disinfection, and cleanup.* The owner or operator of the treatment facility or collection system shall perform any additional monitoring, sampling, or analysis of the bypass or upset requested by the regional field office of the department and shall comply with the instructions of the department intended to minimize the effect of a bypass or upset on the receiving water of the state. The following requirements for disinfection and cleanup apply to all bypasses:

a. The department may require temporary disinfection depending on the volume and duration of the bypass, the classification of the stream affected by the bypass, and the time of year during which the bypass occurs; and

b. The department may require cleanup of any debris and waste materials deposited in the area affected by the bypass. In conjunction with the cleanup, the department may require lime application to the ground surface or disinfection of the area with chlorine solution.

63.6(5) *Reporting of subsequent findings and additional information requested by the department.* All subsequent findings and laboratory results concerning a bypass shall be submitted in writing to the appropriate regional field office of the department as soon as they become available. Any additional information requested by the department concerning the steps taken to minimize the effects of a bypass shall be submitted within 30 days of the request.

63.6(6) *Upset.* An upset is an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

a. An upset constitutes an affirmative defense to the assessment of a civil penalty for noncompliance with technology-based effluent limitations if the requirements of paragraph *"b"* of this subrule are met.

b. A permittee that wishes to establish an affirmative defense of upset shall demonstrate, through properly signed operation logs or other relevant evidence, that:

(1) An upset occurred and that the permittee can identify the cause(s) of the upset;

(2) The permitted facility was at the time of upset being properly operated;

(3) The permittee submitted notice of upset in accordance with 63.6(3); and

(4) The permittee completed any remedial measures required by the department, including monitoring, sampling, or analysis of the upset requested by the department and any instructions from the department calculated to minimize the effect of the upset on the receiving water of the state.

c. In any enforcement action proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09 (See Delay note at end of chapter); **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—63.7(455B) Submission of records of operation. Except as provided in subrules 63.3(4) and 63.5(1), records of operation shall be submitted to the appropriate regional field office of the department within 15 days following the close of the reporting period specified in 63.8(455B) and in accordance with monitoring requirements derived from this chapter and incorporated in the operation permit. The permittee shall report all instances of noncompliance not reported under 63.12(455B) at the time monitoring reports are submitted. If a permittee becomes aware that it failed to submit any relevant facts in any report to the director, the permittee shall promptly submit such facts or information.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—63.8(455B) Frequency of submitting records of operation. Except as provided in subrules 63.3(4) and 63.5(1), records of operation required by these rules shall be submitted at monthly intervals. The department may vary the interval at which records of operation shall be submitted in certain cases. Variation from the monthly interval shall be made only under such conditions as the department may prescribe in writing to the person concerned.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—63.9(455B) Content of records of operation. Records of operation shall include the results of all monitoring specified in or authorized by this chapter and incorporated in the operation permit. The results of any monitoring not specified in the operation permit performed at the compliance monitoring point and analyzed according to 40 CFR Part 136 shall be included in the calculation and reporting of any data submitted in accordance with this chapter and the operation permit.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—63.10(455B) Records of operation forms. Records of operation forms shall be those provided by the department unless its forms are not applicable and in such case the records of operation shall be submitted on such other forms as are agreeable to the department.

567—63.11(455B) Certification and signatory requirements in the submission of records of operation. All records of operation as required by these rules shall include certification which attests that all information contained therein is representative and accurate. Each record of operation shall contain the signature of a duly authorized representative of the corporation, partnership or sole proprietorship, municipality, or public facility which has proprietorship of the wastewater treatment or disposal system as specified in 567—subrule 64.3(8). For electronic submissions of records of operation, a signed paper copy of the record that was submitted electronically must be maintained at the facility for a minimum of three years.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—63.12(455B) Twenty-four-hour reporting. All permittees shall report any permit noncompliance that may endanger human health or the environment including, but not limited to, violations of maximum daily limits for any toxic pollutant (listed as toxic under 307(a)(1) of the Act) or hazardous substance (as designated in 40 CFR Part 116 pursuant to 311 of the Act). Information shall be provided orally to the appropriate regional field office of the department within 24 hours from the time the permittee becomes aware of the circumstances. In addition, a written submission that includes a description of noncompliance and its cause; the period of noncompliance including exact dates and times; whether the noncompliance has been corrected or the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent a reoccurrence of the noncompliance must be provided to the regional field office within 5 days of the occurrence.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—63.13(455B) Planned changes. The permittee shall give notice to the appropriate regional field office of the department 30 days prior to any planned physical alterations or additions to the permitted facility. Notice is required only when:

1. Notice has not been given to any other section of the department;
2. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source as defined in 567—60.2(455B);
3. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices; or
4. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in the permit.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—63.14(455B) Anticipated noncompliance. The permittee shall give notice to the appropriate regional field office of the department of any activity which may result in noncompliance with permit requirements. Notice is required only when previous notice has not been given to any other section of the department.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—63.15(455B) Other noncompliance. The permittee shall provide a written description of all instances of noncompliance not reported under rule 567—63.12(455B) or 567—paragraph 64.7(4)*"c"* at the time discharge monitoring reports (DMRs) are submitted. The written description shall contain the information listed in rule 567—63.12(455B).

[**ARC 2482C**, IAB 4/13/16, effective 5/18/16]

Table I Minimum Self-Monitoring in Permits for Organic Waste Dischargers
Controlled Discharge Wastewater Treatment Plants

Wastewater Parameter	Sampling[5] Location	Sample Type[4]	Frequency by P.E.[1,5,6]			
			< 100	101-500	501-1,000	>1,001
Flow[2]	Raw	24-Hr Total	1/Week	Daily	Daily	Daily
	Final	Instantaneous	2/Week During Drawdown	Daily During Drawdown		
BOD_5	Raw	24-Hr Composite	–	–	–	1/3 Months
$CBOD_5$[3]	Final	Grab	1/Drawdown[7]	Twice during drawdown		
Total Suspended Solids (TSS)[3]	Raw	24-Hr Composite	–	–	–	1/3 Months
	Final	Grab	1/Drawdown[7]	Twice during drawdown		
Ammonia Nitrogen	Final	Grab	1/Drawdown	Twice during drawdown		
E. coli	Final	Grab	1/Drawdown	1/Drawdown	Twice During Drawdown	
pH[8]	Raw	Grab	–	–	–	1/3 Months
	Final	Grab	1/Drawdown	1/Drawdown	Twice During Drawdown	1/Week During Drawdown
Cell Depth[9]	Each Cell	Measurement	1/Week	1/Week	1/Week	2/Week
Total Residual Chlorine (TRC)[10]	Final	Grab	1/Drawdown	1/Drawdown	Twice during drawdown	

Explanation of Superscripts

1 - The P.E. shall be computed on the basis of the original engineering design criteria for the facility and any modifications thereof. Where such design criteria are not available, the P.E. shall be computed using 0.167 pounds of BOD_5 per capita per day.

2 - Facilities serving a population equivalent less than 100 are not required to provide continuous flow measurement but are required to provide manual flow measurement at the specified frequency. Facilities serving a population equivalent greater than 100 are required to provide continuous flow measurement of the raw waste but need only provide manual flow measurement on the final effluent. Acceptable flow measurement and recording techniques shall be those described in "Iowa Wastewater Facilities Design Standards," Chapter 14 (14.7.2).

3 - In addition to the sampling required above, a grab sample of the lagoon cell contents collected at a point near the outlet structure shall be analyzed at least two weeks prior to an anticipated discharge to demonstrate that the wastewater is of such quality to meet the effluent limitations in the permit. The permittee must have the sample analyzed for 5-day carbonaceous biochemical oxygen demand ($CBOD_5$) and total suspended solids (TSS). The results must be compared with the 30-day average effluent limits. If the results are less than the 30-day average limits, the permittee may isolate the final cell and draw down the lagoon cell. If the pre-discharge sample results exceed the 30-day average effluent limits for either $CBOD_5$ or TSS, the permittee must contact the local DNR Field Office for guidance before beginning to discharge.

4 - Sample types are defined as:

"Grab Sample" means a representative, discrete portion of sewage, industrial waste, other waste, surface water or groundwater taken without regard to flow rate.

"24-Hour Composite" means:

a. For facilities where no significant industrial waste is present, a sample made by collecting a minimum of six grab samples taken four hours apart and combined in proportion to the flow rate at the time each grab sample was collected. (Generally, grab samples should be collected at 8 a.m., 12 a.m. (noon), 4 p.m., 8 p.m., 12 p.m. (midnight), and 4 a.m. on weekdays (Monday through Friday) unless local conditions indicate another more appropriate time for sample collection.)

b. For facilities where significant industrial waste is present, a sample made by collecting a minimum of 12 grab samples taken two hours apart and combined in proportion to the flow rate at the time each grab sample was collected. (Generally, grab samples should be collected at 8 a.m., 10 a.m., 12 a.m. (noon), 2 p.m., 4 p.m., 6 p.m., 8 p.m., 10 p.m., 12 p.m. (midnight), 2 a.m., 4 a.m., and 6 a.m. on weekdays (Monday through Friday) unless local conditions indicate another more appropriate time for sample collection.)

c. An automatic composite sampling device may also be used for collection of flow-proportioned or time-proportioned composite samples.

5 - Raw wastewater samples shall be taken continuously (year-round) at the specified frequency. Final effluent wastewater samples shall be taken only during the drawdown period. The first final effluent sample shall be taken the third day after the drawdown begins, and subsequent samples shall be taken at the specified frequencies. For final effluent samples that are required to be taken twice during drawdown, the first sample shall be taken the third day after the drawdown begins, and the second sample shall be taken between three (3) and five (5) days before the drawdown ends.

6 - If a facility has a P.E. greater than 3000 or a significant industrial contributor, additional monitoring may be required.

7 - One-cell controlled discharge lagoons with a P.E. less than 100 will be required to perform final effluent sampling for 5-day carbonaceous biochemical oxygen demand ($CBOD_5$) and total suspended solids (TSS) twice during drawdown in accordance with superscript #5.

8 - pH can be monitored using a colorimetric comparator or a meter.

9 - Cell Depth monitoring is required to be conducted year-round (not exclusively during drawdown periods). It may be applied to lagoon cells at continuous discharge wastewater treatment facilities on a case-by-case basis.

10 - TRC can be monitored using a colorimetric comparator or a meter. TRC monitoring is only required for facilities with TRC effluent limitations.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09 (See Delay note at end of chapter); **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

Table II Minimum Self-Monitoring in Permits for Organic Waste Dischargers
Continuous Discharge Wastewater Treatment Plants

Wastewater Parameter	Sampling Location	Sample Type[3,11]	Frequency by P.E.[1,6]						
			≤ 100	101-500	501-1,000	1,001-3,000	3,001-15,000	15,001-105,000	> 105,000
Flow[2]	Raw or Final	24-Hr Total	1/week	Daily	Daily	Daily	Daily	Daily	Daily
BOD_5	Raw	24-Hr Comp.	1/6 Months	1/3 Months	1/Week	1/Week	2/Week	2-5/Week[5]	Daily
$CBOD_5$	Final	24-Hr Comp.	1/3 Months	1/Month	1/Week	1/Week	2/Week	2-5/Week[5]	Daily
Total Suspended Solids (TSS)	Raw	24-Hr Comp.	1/6 Months	1/3 Months	1/Month	1/2 Weeks	1/Week	2-5/Week[5]	Daily
	Final	24-Hr Comp.	1/3 Months	1/3 Months	1/Month	1/2 Weeks	1/Week	2-5/Week[5]	Daily
Ammonia Nitrogen[10]	Final	24-Hr Comp.	1/Month	1/Month	1/Week	1/Week	2/Week	2-5/Week[5]	Daily
TKN[8]	Raw	24-Hr Comp.	—	—	—	—	1/Month	1/Month	1/2 Weeks
Total Nitrogen[9]	Final	24-Hr Comp.	—	—	—	—	1/3 Months	1/2 Months	1/2 Months
Total Phosphorus[9]	Final	24-Hr Comp.	—	—	—	—	1/3 Months	1/2 Months	1/2 Months
pH[12]	Raw	Grab	—	—	1/Week	1/Week	2/Week	2-5/Week[5]	Daily
	Final	Grab	1/3 Months	1/Month	1/Week	1/Week	2/Week	5/Week	Daily
E. coli[4,7]	Final	Grab	5 samples, 1/3 Months	5 samples, 1/3 Months	5 samples, 1/3 Months	5 samples, 1/3 Months	5 samples, 1/3 Months	5 samples, 1/3 Months	5 samples, 1/3 Months
Temperature	Raw	Grab	—	—	1/Week	1/Week	2/Week	2-5/Week[5]	Daily
	Final	Grab	1/3 Months	1/Month	1/Week	1/Week	2/Week	2-5/Week[5]	Daily
Total Residual Chlorine (TRC)[13]	Final	Grab	1/Week	1/Week	2/Week	2/Week	3/Week	5/Week	Daily

Explanation of Superscripts

1 - See Superscript #1, Table I.

2 - See Superscript #2, Table I. Both raw and final flow monitoring may be required if the raw and final wastewater flows may be different for any reason.

3 - See Superscript #4, Table I.

4 - Analysis is required only when the facility discharges directly to a stream designated as Class A1, A2, or A3 or there is a reasonable potential for the discharge to affect a stream designated as Class A1, A2, or A3.

5 - The frequency of sample collection and analysis shall be increased by 1/week according to the following: 15,001 to 30,000 – 2/week; 30,001 to 45,000 – 3/week; 45,001 to 75,000 – 4/week; 75,001 – 105,000 – 5/week.

6 - The requirements for significant industrial users shall be those specified in the permit for final effluent monitoring.

7 - Bacteria Monitoring. All facilities must collect and analyze a minimum of five *E. coli* samples in one calendar month during each three-month period (quarter) during the appropriate recreation season associated with the receiving stream designation as specified in 567—subrule 61.3(3). For sampling required during the recreational season, March 15 to November 15, the three-month periods are March – May, June – August, and September – November. For year-round sampling, the three-month periods are January – March, April – June, July – September, and October – December. For each three-month period, the operator must take five samples during one calendar month, resulting in 15 samples in one year for sampling required during the recreation season and 20 samples per year for sampling required year-round.

The following requirements apply to the individual samples collected in one calendar month:

a. Samples must be spaced over one calendar month.
b. No more than one sample can be collected on any one day.
c. There must be a minimum of two days between each sample.
d. No more than two samples may be collected in a period of seven consecutive days.

The geometric mean must be calculated using all valid sample results collected during a month. The geometric mean formula is as follows: Geometric Mean = (Sample one x Sample two x Sample three x Sample four x Sample five…Sample N)^(1/N), which is the Nth root of the result of the multiplication of all of the sample results where N = the number of samples. If a sample result is a less than value, the value reported by the lab without the less than sign shall be used in the geometric mean calculation.

8 - Additional Total Kjeldahl Nitrogen (TKN) monitoring may be required if the facility has one or more significant industrial users or has effluent ammonia violations.

9 - Total nitrogen shall be determined by testing for Total Kjeldahl Nitrogen (TKN) and nitrate + nitrite nitrogen and reporting the sum of the TKN and nitrate + nitrite results (reported as N). Nitrate + nitrite can be analyzed together or separately. Total phosphorus shall be reported as P.

10 - Ammonia nitrogen monitoring is only required for facilities with ammonia nitrogen effluent limitations.

11 - For aerated lagoons, 24-hour composite samples are not required on the final effluent; grab samples are acceptable.

12 - See Superscript #8, Table I.

13 - See Superscript #10, Table I.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09 (See Delay note at end of chapter); **ARC 8123B**, IAB 9/9/09, effective 10/14/09; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

Table III Minimum Self-Monitoring in Permits for Land Application Systems

Wastewater Parameter	Sampling Location	Sample Type[2]	Flow in Million Gallons Per Day[1]		
			< 0.5	0.5 - 2.0	> 2.0
Nitrate Nitrogen	Monitoring Wells[3]	Grab	1/3 Months	1/2 Months	1/Month
Dissolved Solids	Monitoring Wells[3]	Grab	1/3 Months	1/2 Months	1/Month
Fecal Coliform	Monitoring Wells[3]	Grab	1/3 Months	1/2 Months	1/Month
Volume Applied	Final[4]	24-Hr Total	Daily	Daily	Daily
Total Nitrogen	Final[4]	24-Hr Comp.	1/3 Months	1/2 Months	1/Month
Total Phosphorus	Final[4]	24-Hr Comp.	1/3 Months	1/2 Months	1/Month

Explanation of Superscripts

1 - The flow to be used for determining sample frequency shall be the original engineering design, average wet weather flow, or any modifications thereof. The design flow shall be the raw wastewater flow prior to any treatment units.

2 - See Superscript #4, Table I.

3 - Monitoring wells shall be sampled according to the procedures described in Table IV.

4 - Final shall be the final effluent from the storage facility prior to land application.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

Table IV Required Containers, Preservation Techniques, and Holding Times

	PARAMETER	CONTAINER[1]	PRESERVATIVE[2]	MAXIMUM HOLDING TIME[3]
	Bacterial Tests			
1.	Coliform, fecal and total	P,G	Cool, 4°C 0.008% $Na_2S_2O_3$[4]	6 hours
2.	*Escherichia coli (E. coli)*	P,G	Cool, 4°C	6 hours
3.	Fecal streptococci	P,G	Cool, 4°C 0.008% $Na_2S_2O_3$[4]	6 hours
	Chemical Tests			
4.	Acidity	P,G	Cool, 4°C	14 days
5.	Alkalinity	P,G	Cool, 4°C	14 days
6.	Ammonia	P,G	Cool, 4°C H_2SO_4 to pH < 2	28 days
7.	Biochemical oxygen demand	P,G	Cool, 4°C	48 hours
8.	Biochemical oxygen demand, carbonaceous	P,G	Cool, 4°C	48 hours
9.	Bromide	P,G	None required	28 days
10.	Chemical oxygen demand	P,G	Cool, 4°C H_2SO_4 to pH < 2	28 days
11.	Chloride	P,G	None required	28 days
12.	Chlorine, total residual	P,G	None required	Analyze immediately
13.	Color	P,G	Cool, 4°C	48 hours
14.	Cyanide, total and amenable to chlorination	P,G	Cool, 4°C NaOH to pH > 12 0.6g ascorbic acid[4]	14 days[5]
15.	Cyanide, free	P,G	Cool, 4°C NaOH to pH > 12 0.6g ascorbic acid[4]	4 hours
16.	Fluoride	P	None required	28 days
17.	Hardness	P,G	HNO_3 to pH < 2	6 months
18.	Hydrogen ion (pH)	P,G	None required	Analyze immediately
19.	Kjeldahl and organic nitrogen	P,G	Cool, 4°C H_2SO_4 to pH < 2	28 days
	Metals			
20.	Chromium VI	P,G	Cool, 4°C	24 hours
21.	Mercury	P,G	HNO_3 to pH < 2	28 days
22.	Metals, except above	P,G	HNO_3 to pH < 2	6 months
23.	Nitrate	P,G	Cool, 4°C	48 hours
24.	Nitrate-nitrite	P,G	Cool, 4°C H_2SO_4 to pH < 2	28 days
25.	Nitrite	P,G	Cool, 4°C	48 hours
26.	Oil and grease	G	Cool, 4°C H_2SO_4 to pH < 2	28 days
	Metals			
27.	Organic carbon	P,G	Cool, 4°C Cl or H_2SO_4 to pH < 2	28 days
28.	Orthophosphate	P,G	Filter immediately Cool, 4°C	48 hours
29.	Oxygen, dissolved probe	G Bottle and top	None required	Analyze immediately
	Winkler	G Bottle and top	Fix on site and store in dark	8 hours
30.	Phenols	G only	Cool, 4°C H_2SO_4 to pH < 2	28 days
31.	Phosphorus (elemental)	G	Cool, 4°C	48 hours
32.	Phosphorus, total	P,G	Cool, 4°C H_2SO_4 to pH < 2	28 days

	PARAMETER	CONTAINER[1]	PRESERVATIVE[2]	MAXIMUM HOLDING TIME[3]
33.	Residue, total	P,G	Cool, 4°C	7 days
34.	Residue, filterable	P,G	Cool, 4°C	7 days
35.	Residue, Nonfilterable (TSS)	P,G	Cool, 4°C	7 days
36.	Residue, settleable	P,G	Cool, 4°C	48 hours
37.	Residue, volatile	P,G	Cool, 4°C	7 days
38.	Silica	P	Cool, 4°C	28 days
39.	Specific conductance	P,G	Cool, 4°C	28 days
40.	Sulfate	P,G	Cool, 4°C	28 days
41.	Sulfide	P,G	Cool, 4°C, add zinc acetate plus sodium hydroxide to pH > 9	7 days
42.	Sulfite	P,G	None required	Analyze immediately
43.	Surfactants	P,G	Cool, 4°C	48 hours
44.	Temperature	P,G	None required	Analyze immediately
45.	Turbidity	P,G	Cool, 4°C	48 hours

46. Sampling Procedures for Monitoring Wells

A. Measure depth from top of well head casing to water table

B. Calculate quantity of water to be flushed from well using the formula:

Gallons to be pumped = $0.221\ d^2h$, where

d = well diameter in inches

h = depth in feet of standing water in well prior to pumping

C. Pump well

D. Measure depth from well hand casing to water table after pumping

E. Wait for well to recharge to or near static water level prior to sampling

Table IV Notes

1. Polyethylene (P) or Glass (G).
2. Sample preservation should be performed immediately upon sample collection. For composite samples, each aliquot should be preserved at the time of collection. When use of an automated sampler makes it impossible to preserve each aliquot, then samples may be preserved by maintaining at 4°C until compositing and sample splitting is completed.
3. Samples should be analyzed as soon as possible after collection. The times listed are the maximum times that samples may be held before analysis and still be considered valid. Samples may be held for longer periods only if the permittee, or monitoring laboratory, has data on file to show that the specific types of samples under study are stable for the longer time, and has received a variance from the executive director. Some samples may not be stable for the maximum time period given in the table. A permittee, or monitoring laboratory, is obligated to hold the sample for a shorter time if knowledge exists to show this is necessary to maintain sample stability.
4. Should only be used in the presence of residual chlorine.
5. Maximum holding time is 24 hours when sulfide is present. Optionally, all samples may be tested with lead acetate paper before the pH adjustment in order to determine if sulfide is present. If sulfide is present, it can be removed by the addition of cadmium carbonate powder until a negative spot test is obtained. The sample is filtered and then NaOH is added to pH 12.
6. Samples should be filtered immediately onsite before adding preservative for dissolved metals.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09 (See Delay note at end of chapter); **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

These rules are intended to implement Iowa Code section 455B.173.

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[Filed ARC 2482C (Notice ARC 2353C, IAB 1/6/16), IAB 4/13/16, effective 5/18/16]

[1] April 15, 2009, effective date of Items 27 and 33 to 38 of ARC 7625B delayed 70 days by the Administrative Rules Review Committee at its meeting held April 8, 2009; at its meeting held April 28, 2009, the Committee voted to lift the delay, effective April 29, 2009.

CHAPTER 64
WASTEWATER CONSTRUCTION AND OPERATION PERMITS

[Prior to 7/1/83, DEQ Ch 19]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—64.1(455B) Definitions. Rescinded IAB 3/11/09, effective 4/15/09.

567—64.2(455B) Permit to construct.

64.2(1) No person shall construct, install or modify any wastewater disposal system or part thereof or extension or addition thereto without, or contrary to any condition of, a construction permit issued by the director or by a local public works department authorized to issue such permits under 567—Chapter 9, nor shall any connection to a sewer extension in violation of any special limitation specified in a construction permit pursuant to 64.2(10) be allowed by any person subject to the conditions of the permit.

64.2(2) The site for each new wastewater treatment plant or expansion or upgrading of existing facilities must be inspected and approved by the department prior to submission of plans and specifications. Applications must be submitted in accordance with 567—60.4(455B).

64.2(3) Site approval under 64.2(2) shall be based on the criteria contained in the Ten States Standards, design manuals published by the department, applicable federal guidelines and standards, standard textbooks, current technical literature and applicable safety standards. To the extent that separation distances of this subrule conflict with the separation distances of Iowa Code section 455B.134(3)*"f,"* the greater distance shall prevail. The following separation distances from a treatment works shall apply unless a separation distance exception is provided in the "Iowa Wastewater Facilities Design Standards." The separation distance from lagoons shall be measured from the water surface.

a. 1000 feet from the nearest inhabitable residence, commercial building, or other inhabitable structure. If the inhabitable or commercial building is the property of the owner of the proposed treatment facility, or there is written agreement with the owner of the building, the separation criteria shall not apply. Any such written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.

b. 1000 feet from public shallow wells.

c. 400 feet from public deep wells.

d. 400 feet from private wells.

e. 400 feet from lakes and public impoundments.

f. 25 feet from property lines and rights-of-way.

When the above separation distances cannot be maintained for the expansion, upgrading or replacement of existing facilities, the separation distances shall be maintained at no less than 90 percent of the existing separation distance on the site, providing no data is available indicating that a problem has existed or will be created.

64.2(4) Applications for a construction permit must be submitted to the director in accordance with 567—60.4(455B) at least 120 days in advance of the date of start of construction.

64.2(5) The director shall act upon the application within 60 days of receipt of a complete application by either issuing a construction permit or denying the construction permit in writing unless a longer review period is required and the applicant is so notified in writing. Notwithstanding the 120-day requirement in 64.2(4), construction of the approved system may commence immediately after the issuance of a construction permit.

64.2(6) The construction permit shall expire if construction thereunder is not commenced within one year of the date of issuance thereof. The director may grant an extension of time to commence construction if it is necessary or justified, upon showing of such necessity or justification to the director.

64.2(7) The director may modify or revoke a construction permit for cause which shall include but not be limited to the following:

a. Failure to construct said wastewater disposal system or part thereof in accordance with the approved plans and specifications.

b. Violation of any term or condition of the permit.

c. Obtaining a permit by misrepresentation of facts or failure to disclose fully all material facts.

d. Any change during construction that requires material changes in the approved plans and specifications.

64.2(8) A construction permit shall not be required for the following:

a. Storm sewers or storm water disposal systems that transport only storm water.

b. Any new disposal system or extension or addition to any existing disposal system that receives only domestic or sanitary sewage from a building, housing or occupied by 15 persons or less.

c. A privately owned pretreatment facility, except an anaerobic lagoon, where a treatment unit or units provide partial reduction of the strength or toxicity of the waste stream prior to additional treatment and disposal by another person, corporation, or municipality. However, the department may require that the design basis and construction drawings be filed for information purposes.

64.2(9) Review of applications.

a. Review of applications for construction permits shall be based on the criteria contained in the "Iowa Wastewater Facilities Design Standards," the Ten States Standards, the "Iowa Antidegradation Implementation Procedure" effective August 12, 2016, applicable federal guidelines and standards, standard textbooks, current technical literature and applicable safety standards. To the extent of any conflict between the above criteria, the "Iowa Wastewater Facilities Design Standards" standards shall prevail.

b. The chapters of the "Iowa Wastewater Facilities Design Standards"* that apply to wastewater facilities projects, and the date of adoption of those chapters are:

	Chapter	Date of Adoption
11.	Project submittals	April 25, 1979
12.	Iowa Standards for Sewer Systems	September 6, 1978 (Amended March 28, 1979 and May 20, 1987)
13.	Wastewater pumping stations and force mains	March 19, 1985
14.	Wastewater treatment works	March 22, 1984 (Amended May 20, 1987)
15.	Screening and grit removal	February 18, 1986
16.	Settling	March 22, 1984 (Amended May 20, 1987)
17.	Sludge handling & disposal	March 26, 1980
18.	Biological treatment	
	A. Fixed film media treatment	October 21, 1985
	B. Activated sludge	March 22, 1984
	C. Wastewater treatment ponds (Lagoons)	April 25, 1979 (Amended May 20, 1986 and May 20, 1987)
19.	Supplemental treatment processes	November 13, 1986
20.	Disinfection	February 18, 1986
21.	Land application of wastewater	April 25, 1979

*The design manual as adopted and amended is available upon request to department, also filed with administrative rules coordinator.

c. Variances from the design standards and siting criteria which provide in the judgment of the department for substantially equivalent or improved effectiveness may be requested when there are unique circumstances not found in most projects. The director may issue variances when circumstances are appropriate. The denial of a variance may be appealed to the commission.

d. When reviewing the variance request the director may consider the unique circumstances of the project, direct or indirect environmental impacts, the durability and reliability of the alternative, and the purpose and intent of the rule or standard in question.

e. Circumstances that would warrant consideration of a variance (which provides for substantially equivalent or improved effectiveness) may include the following:

(1) The utilization of new equipment or new process technology that is not explicitly covered by the current design standards.

(2) The application of established and acceptable technologies in an innovative manner not covered by current standards.

(3) It is reasonably clear that the conditions and circumstances which were considered in the adoption of the rule or standard are not applicable for the project in question and therefore the effective purpose of the rule will not be compromised if a variance is granted.

64.2(10) Applications for sanitary sewer extension construction permits shall conform to the Iowa Standards for Sewer Systems, and approval shall be subject to the following:

a. A sanitary sewer extension construction permit may be denied if, at the time of application, the treatment facility treating wastewater from the proposed sewer is not in substantial compliance with its operating permit or if the treatment facility receives wastes in volumes or quantities that exceed its design capacity and interfere with its operation or performance.

If the applicant is operating under a compliance schedule which is being adhered to that leads to resolution of the substantial compliance issues or if the applicant can demonstrate that the problem has been identified, the planning completed, and corrective measures initiated, then the construction permit may be granted.

b. A sanitary sewer extension construction permit may be denied if bypassing has occurred at the treatment facility, except when any of the following conditions are being met:

(1) The bypassing is due to a combined sewer system, and the facility is in compliance with a long-term CSO control plan approved by the department.

(2) The bypassing occurs as a result of a storm with an intensity or duration greater than that of a storm with a return period of five years. (See App. A)

(3) The department determines that timely actions are being taken to eliminate the bypassing.

c. A sanitary sewer extension construction permit may be denied if an existing downstream sewer is or will be overloaded or surcharged, resulting in bypassing, flooded basements, or overflowing manholes, unless:

(1) The bypassing or flooding is the result of a precipitation event with an intensity or duration greater than that of a storm with a return period of two years. (See App. A); or

(2) The system is under full-scale facility planning (I/I and SSES) and the applicant provides a schedule that is approved by the department for rehabilitating the system to the extent necessary to handle the additional loadings.

d. Potential loads. Construction permits may be granted for sanitary sewer extensions that are sized to serve future loads that would exceed the capacity of the existing treatment works. However, initial connections shall be limited to the load that can be handled by the existing treatment works. The department will determine this load and advise the applicant of the limit. This limitation will be in effect until additional treatment capacity has been constructed.

64.2(11) Certification of completion. Within 30 days after completion of construction, installation or modification of any wastewater disposal system or part thereof or extension or addition thereto, the permit holder shall submit a certification by a registered professional engineer that the project was completed in accordance with the approved plans and specifications.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 2695C**, IAB 8/31/16, effective 8/12/16]

567—64.3(455B) Permit to operate.

64.3(1) Except as otherwise provided in this subrule, in 567—Chapter 65, and in 567—Chapter 69, no person shall operate any wastewater disposal system or part thereof without, or contrary to any condition of, an operation permit issued by the director. An operation permit is not required for the following:

a. A private sewage disposal system which does not discharge into, or have the potential to reach, a designated water of the state or subsurface drainage tile (NOTE: private sewage disposal systems under this exemption are regulated under 567—Chapter 69).

b. A semipublic sewage disposal system, the construction of which has been approved by the department and which does not discharge into a water of the state.

c. A pretreatment system, the effluent of which is to be discharged directly to another disposal system for final treatment and disposal.

d. A discharge from a geothermal heat pump which does not reach a navigable water.

e. Water well construction and well services related discharge that does not reach a water of the United States as defined in 40 CFR Part 122.2.

f. Discharges from the application of biological pesticides and chemical pesticides where the discharge does not reach a water of the United States as defined in 40 CFR Part 122.2.

g. Agricultural storm water discharges. This exclusion applies only to the operation permit requirement set forth in this rule and does not alter other requirements of law, including but not limited to any applicable requirements of Iowa Code chapters 459 and 459A.

h. Dewatering discharge from the installation, repair, or maintenance of agricultural drainage systems that does not reach a water of the state. This activity is not considered operation of a wastewater disposal system.

64.3(2) Rescinded, effective 2/20/85.

64.3(3) The owner of any disposal system or part thereof in existence before August 21, 1973, for which a permit has been previously granted by the Iowa department of health or the Iowa department of environmental quality shall submit such information as the director may require to determine the conformity of such system and its operation with the rules of the department by no later than 60 days after the receipt of a request for such information from the director. If the director determines that the disposal system does not conform to the rules of the department, the director may require the owner to make such modifications as are necessary to achieve compliance. A construction permit shall be required, pursuant to 64.2(1), prior to any such modification of the disposal system.

64.3(4) Applications.

a. Individual permit. Except as provided in 64.3(4)*"b,"* applications for operation permits required under 64.3(1) shall be made on forms provided by the department, as noted in 567—subrule 60.3(2). The application for an operation permit under 64.3(1) shall be filed pursuant to 567—subrule 60.4(2). Permit applications for a new discharge of storm water associated with construction activity as defined in 567—Chapter 60 under "storm water discharge associated with industrial activity" must be submitted at least 60 days before the date on which construction is to commence. Upon completion of a tentative determination with regard to the permit application as described in 64.5(1)*"a,"* the director shall issue operation permits for applications filed pursuant to 64.3(1) within 90 days of the receipt of a complete application unless the application is for an NPDES permit or unless a longer period of time is required and the applicant is so notified.

b. General permit. A Notice of Intent for coverage under a general permit must be made on the appropriate form provided by the department listed in 567—subrule 60.3(2) and in accordance with 567—64.6(455B). A Notice of Intent must be submitted to the department according to the following:

(1) For existing storm water discharge associated with industrial activity, with the exception of discharges identified in subparagraphs (2) and (3) of this paragraph, on or before October 1, 1992.

(2) For any existing storm water discharge associated with industrial activity from a facility or construction site that is owned or operated by a municipality with a population of less than 100,000 other than an airport, power plant or uncontrolled sanitary landfill, on or before March 10, 2003.

For purposes of this subparagraph, municipality means city, town, borough, county, parish, district, association, or other public body created by or under state law. The entire population served by the public body shall be used in the determination of the population.

(3) For any existing storm water discharge associated with small construction activity on or before March 10, 2003.

(4) For storm water discharge associated with industrial activity which initiates operation after October 1, 1992, with the exception of discharges identified in subparagraphs (2) and (3) of this paragraph, where storm water discharge associated with industrial activity could occur as defined in rule 567—60.2(455B).

(5) For any private sewage disposal system installed after July 1, 1998, where subsoil discharge is not possible.

(6) For any discharge, except a storm water only discharge, from a mining or processing facility after July 18, 2001.

(7) For any discharge from hydrostatic testing, tank ballasting and water lines, if required to be submitted by General Permit No. 8, on or after July 1, 2018.

(8) For any discharge from dewatering or residential geothermal systems, if required to be submitted by General Permit No. 9, on or after July 1, 2018.

64.3(5) Requirements for industries that discharge to another disposal system except storm water point sources.

a. The director may require any person discharging wastes to a publicly or privately owned disposal system to submit information similar to that required in an application for an operation permit, but no operation permit is required for such discharge.

Significant industrial users as defined in 567—Chapter 60 must submit a treatment agreement which meets the following criteria:

(1) The agreement must be on the treatment agreement form, number 542-3221, as provided by the department; and

(2) Must identify and limit the monthly average and the daily maximum quantity of compatible and incompatible pollutants discharged to the disposal system and the variations in daily flow; and

(3) Be signed and dated by the significant industrial user and the owner of the disposal system accepting the wastewater; and

(4) Provide that the quantities to be discharged to the disposal system must be in accordance with the applicable standards and requirements in 567—Chapter 62.

b. A significant industrial user must submit a new treatment agreement form 60 days in advance of a proposed expansion, production increase or process modification that may result in discharges of sewage, industrial waste, or other waste in excess of the discharge stated in the existing treatment agreement. An industry that would become a significant industrial user as a result of a proposed expansion, production increase or process modification shall submit a treatment agreement form 60 days in advance of the proposed expansion, production increase or process modification.

c. A treatment agreement form must be submitted at least 180 days before a new significant industrial user proposes to discharge into a wastewater disposal system. The owner of a wastewater disposal system shall notify the director by submitting a complete treatment agreement to be received at least 10 days prior to making any commitment to accept waste from a proposed new significant industrial user. However, the department may notify the owner that verification of the data in the treatment agreement may take longer than 10 days and advise that the owner should not enter into a commitment until the data is verified.

d. A treatment agreement form for each significant industrial user must be submitted with the facility plan or preliminary engineering report for the construction or modification of a wastewater disposal system. These agreements will be used in determining the design basis of the new or upgraded system.

e. Treatment agreement forms from significant industrial users shall be required as a part of the application for a permit to operate the wastewater disposal system receiving the wastes from the significant industrial user.

64.3(6) Rescinded, effective 7/23/86.

64.3(7) Operation permits may be granted for any period of time not to exceed five years. Applications for renewal of an operation permit must be submitted to the department 180 days in advance of the date the permit expires. General permits will be issued for a period not to exceed five years. Each permit to be renewed shall be subject to the provisions of all rules of the department in effect at the time of the renewal.

64.3(8) Identity of signatories of permit applications. The person who signs the application for a permit shall be:

a. *Corporations.* In the case of corporations, a responsible corporate officer. A responsible corporate officer means:

(1) A president, secretary, treasurer, or vice president in charge of a principal business function, or any other person who performs similar policy- or decision-making functions; or

(2) The manager of manufacturing, production, or operating facilities, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b. *Partnerships.* In the case of a partnership, a general partner.

c. *Sole proprietorships.* In the case of a sole proprietorship, the proprietor.

d. *Municipal, state, federal, or other public agency.* In the case of a municipal, state, or other public facility, either the principal executive officer or the ranking elected official. A principal executive officer of a public agency includes:

(1) The chief executive officer of the agency; or

(2) A senior executive officer having responsibility for the overall operations of a unit of the agency.

e. *Storm water discharge associated with industrial activity from construction activities.* In the case of a storm water discharge associated with construction activity, either the owner of the site or the general contractor.

f. *Certification.* Any person signing a document under paragraph *"a"* to *"d"* of this subrule shall make the following certification:

> I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for known violations.

The person who signs NPDES reports shall be a person described in this subrule, except that in the case of a corporation or a public body, monitoring reports required under the terms of the permit may be submitted by a duly authorized representative of the person described in this subrule. A person is a duly authorized representative if the authorization is made in writing by a person described in this subrule and the authorization specifies an individual or position having responsibility for the overall operation of the regulated facility, such as plant manager, superintendent, or position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the corporation.

64.3(9) When necessary to comply with present standards which must be met at a future date, an operation permit shall include a schedule for the alteration of the permitted facility to meet said standards in accordance with 64.7(4) and 64.7(5). Such schedules shall not relieve the permittee of the duty to obtain a construction permit pursuant to 567—64.2(455B). When necessary to comply with a pretreatment standard or requirement which must be met at a future date, a significant industrial user will be given a compliance schedule for meeting those requirements.

64.3(10) Operation permits shall contain such conditions as are deemed necessary by the director to ensure compliance with all applicable rules of the department, including monitoring and reporting conditions, to protect the public health and beneficial uses of state waters, and to prevent water pollution from waste storage or disposal operations.

64.3(11) The director may amend, revoke and reissue, or terminate in whole or in part any individual operation permit or coverage under a general permit for cause. Except for general permits, the director may modify in whole or in part any individual operation permit for cause. A variance or modification to the terms and conditions of a general permit shall not be granted. If a variance or modification to a general permit is desired, the applicant must apply for an individual permit following the procedures in 64.3(4)*"a."*

a. Permits may be amended, revoked and reissued, or terminated for cause either at the request of any interested person (including the permittee) or upon the director's initiative. All requests shall be in writing and shall contain facts or reasons supporting the request.

b. Cause under this subrule includes the following:

(1) Violation of any term or condition of the permit.

(2) Obtaining a permit by misrepresentation of fact or failure to disclose fully all material facts.

(3) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

(4) Failure to submit such records and information as the director shall require both generally and as a condition of the permit in order to ensure compliance with the discharge conditions specified in the permit.

(5) Failure or refusal of an NPDES permittee to carry out the requirements of 64.7(7)*"c."*

(6) Failure to provide all the required application materials or appropriate fees.

(7) A request for a modification of a schedule of compliance, an interim effluent limitation, or the minimum monitoring requirements pursuant to 567—paragraph 60.4(2)*"b."*

(8) Causes listed in 40 CFR 122.62 and 122.64.

c. The permittee shall furnish to the director, within a reasonable time, any information that the director may request to determine whether cause exists for amending, revoking and reissuing, or terminating a permit, including a new permit application.

d. The filing of a request by an interested person for an amendment, revocation and reissuance, or termination does not stay any permit condition.

e. If the director decides the request is not justified, the director shall send the requester a brief written response giving a reason for the decision. Denials of requests for modification, revocation and reissuance, or termination are not subject to public notice, comment, hearings, or appeals.

f. Draft permits.

(1) If the director tentatively decides to amend, revoke and reissue, or terminate a permit, a draft permit shall be prepared according to 64.5(1).

(2) When a permit is amended under this paragraph, only those conditions to be modified shall be reopened when a new draft permit is prepared. All other aspects of the existing permit shall remain in effect for the duration of the permit.

(3) When a permit is revoked and reissued under this paragraph, the entire permit is reopened just as if the permit had expired and was being reissued.

(4) If the permit amendment falls under the definition of "minor amendment" in 567—60.2(455B), the permit may be amended without a draft permit or public notice.

(5) During any amendment, revocation and reissuance, or termination proceeding, the permittee shall comply with all conditions of the existing permit until a new final permit is reissued.

64.3(12) No permit may be issued:

a. When the applicant is required to obtain certification under Section 401 of the Clean Water Act and that certification has not been obtained or waived;

b. When the imposition of conditions cannot ensure compliance with the applicable water quality requirements of all affected states; or

c. To a new source or new discharger if the discharge from its construction or operation will cause or contribute to a violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge to a water segment which does not meet applicable water quality standards must demonstrate, before the close of the public comment period for a draft NPDES permit, that:

(1) There is sufficient remaining load in the water segment to allow for the discharge; and

(2) The existing dischargers to the segment are subject to compliance schedules designed to bring the segment into compliance with water quality standards.

The director may waive the demonstration if the director already has adequate information to demonstrate (1) and (2).

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 8520B**, IAB 2/10/10, effective 3/17/10; **ARC 9365B**, IAB 2/9/11, effective 3/30/11; **ARC 0529C**, IAB 12/12/12, effective 1/16/13; **ARC 2482C**, IAB 4/13/16, effective 5/18/16; **ARC 2572C**, IAB 6/8/16, effective 5/18/16; **ARC 3786C**, IAB 5/9/18, effective 7/1/18]

567—64.4(455B) Issuance of NPDES permits.

64.4(1) *Individual permit.* An individual NPDES permit is required when there is a discharge of a pollutant from any point source into navigable waters. An NPDES permit is not required for the following:

a. Reserved.

b. Discharges of dredged or fill material into navigable waters which are regulated under Section 404 of the Act;

c. The introduction of sewage, industrial wastes or other pollutants into a POTW by indirect dischargers. (This exclusion from requiring an NPDES permit applies only to the actual addition of materials into the subsequent treatment works. Plans or agreements to make such additions in the future do not relieve dischargers of the obligation to apply for and receive permits until the discharges of pollutants to navigable waters are actually eliminated. It also should be noted that, in all appropriate cases, indirect discharges shall comply with pretreatment standards promulgated by the administrator pursuant to Section 307(b) of the Act and adopted by reference by the commission);

d. Any discharge in compliance with the instruction of an On-Scene Coordinator pursuant to 40 CFR Part 300 (The National Oil and Hazardous Substances Pollution Contingency Plan) or 33 CFR 153.10(e) (Pollution by Oil and Hazardous Substances);

e. Any introduction of pollutants from non-point source agricultural and silvicultural activities, including storm water runoff from orchards, cultivated crops, pastures, range lands, and forest lands, except that this exclusion shall not apply to the following:

(1) Discharges from concentrated animal feeding operations as defined in 40 CFR 122.23;

(2) Discharges from concentrated aquatic animal production facilities as defined in 40 CFR 122.24;

(3) Discharges to aquaculture projects as defined in 40 CFR 122.25;

(4) Discharges from silvicultural point sources as defined in 40 CFR 122.27;

f. Return flows from irrigated agriculture; and

g. Water transfers, which are defined as activities that convey or connect navigable waters without subjecting the transferred water to intervening industrial, municipal, or commercial use.

64.4(2) *General permit.*

a. The director may issue general permits which are consistent with 64.4(2)*"b"* and the requirements specified in 567—64.6(455B), 567—64.7(455B), subrule 64.8(2), and 567—64.9(455B) for the following activities:

(1) Storm water point sources requiring an NPDES permit pursuant to Section 402(p) of the federal Clean Water Act and 40 CFR 122.26.

(2) Private sewage disposal system discharges permitted under 567—Chapter 69 where subsoil discharge is not possible as determined by the administrative authority.

(3) Discharges from water well construction and related well services where the discharge will reach a water of the United States as defined in 40 CFR Part 122.2.

(4) For any discharge, except a storm water only discharge, from a mining or processing facility.

(5) Discharges from the application of biological pesticides and chemical pesticides which leave a residue where the discharge will reach a water of the United States as defined in 40 CFR Part 122.2.

(6) Discharges from hydrostatic testing, tank ballasting and water lines.

(7) Discharges from dewatering and residential geothermal systems.

b. Each general permit issued by the department must:

(1) Be adopted as an administrative rule in accordance with Iowa Code chapter 17A, the Administrative Procedure Act. Each proposed permit will be accompanied by a fact sheet setting forth the principal facts and methodologies considered during permit development,

(2) Correspond to existing geographic or political boundaries, and

(3) Be identified in 567—64.15(455B).

c. If an NPDES permit is required for an activity covered by a general permit, the applicant may seek either general permit coverage or an individual permit. Procedures and requirements for obtaining an individual NPDES permit are detailed in 64.3(4)*"a."* Procedures for filing a Notice of Intent for

coverage under a general permit are described in 567—64.6(455B) "Completing a Notice of Intent for Coverage Under a General Permit."

64.4(3) *Effect of a permit.*

a. Except for any toxic effluent standards and prohibitions imposed under Section 307 of the Act and standards for sewage sludge use or disposal under Section 405(d) of the Act, compliance with a permit during its term constitutes compliance, for purposes of enforcement, with Sections 301, 302, 306, 307, 318, 403 and 405(a)-(b) of the Act, and equivalent limitations and standards set out in 567—Chapters 61 and 62. However, a permit may be terminated during its term for cause as set forth in 64.3(11). Compliance with a permit condition which implements a particular standard for sewage sludge use or disposal shall be an affirmative defense in any enforcement action brought for a violation of that standard for sewage sludge use or disposal.

b. The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 8520B**, IAB 2/10/10, effective 3/17/10; **ARC 9365B**, IAB 2/9/11, effective 3/30/11; **ARC 2482C**, IAB 4/13/16, effective 5/18/16; **ARC 3786C**, IAB 5/9/18, effective 7/1/18]

567—64.5(455B) Notice and public participation in the individual NPDES permit process.

64.5(1) *Formulation of tentative determination.* The department shall make a tentative determination to issue or deny an operation or NPDES permit for the discharge described in a permit application in advance of the public notice as described in 64.5(2).

a. If the tentative determination is to issue an NPDES permit, the department shall prepare a permit rationale for each draft permit pursuant to 64.5(3) and a draft permit. The draft permit shall include the following:

(1) Effluent limitations identified pursuant to 64.7(2) and 64.7(3), for those pollutants proposed to be limited.

(2) If necessary, a proposed schedule of compliance, including interim dates and requirements, identified pursuant to 64.7(4) and 64.7(5), for meeting the effluent limitations and other permit requirements.

(3) Any other special conditions (other than those required in 64.7(7)) which will have a significant impact upon the discharge described in the permit application.

b. If the tentative determination is to deny an NPDES permit, the department shall prepare a notice of intent to deny the permit application. The notice of intent to deny an application will be placed on public notice as described in 64.5(2).

c. If the tentative determination is to issue an operation permit (non-NPDES permit), the department shall prepare a final permit and transmit the final permit to the applicant. The applicant will have 30 days to appeal the final operation permit.

d. If the tentative determination is to deny an operation permit (non-NPDES permit), no public notice is required. The department shall send written notice of the denial to the applicant. The applicant will have 30 days to appeal the denial.

64.5(2) *Public notice for NPDES permits.*

a. Prior to the issuance of an NPDES permit, a major NPDES permit amendment, or the denial of a permit application for an NPDES permit, public notice shall be circulated in a manner designed to inform interested and potentially interested persons of the proposed discharge and of the tentative determination to issue or deny an NPDES permit for the proposed discharge. Procedures for the circulation of public notice shall include at least the procedures of subparagraphs (1) to (4).

(1) The public notice for a draft NPDES permit or major permit amendment shall be circulated by the applicant within the geographical areas of the proposed discharge by posting the public notice in public places of the city nearest the premises of the applicant in which the effluent source is located and by posting the public notice near the entrance to the applicant's premises and in nearby places.

(2) The public notice for the denial of a permit application shall be sent to the applicant and circulated by the department within the geographical areas of the proposed discharge by publishing

the public notice in local newspapers and periodicals or, if appropriate, in a newspaper of general circulation.

(3) The public notice shall be sent by the department to any person upon request.

(4) Upon request, the department shall add the name of any person or group to the distribution list to receive copies of all public notices concerning the tentative determinations with respect to the permit applications within the state or within a certain geographical area and shall send a copy of all public notices to such persons.

b. In addition to the requirements in paragraph 64.5(2)*"a,"* prior to the issuance of a major NPDES permit or a major permit amendment to a major NPDES permit, the public notice shall be published by the applicant in local newspapers and periodicals or, if appropriate, in a newspaper of general circulation. Publication of a public notice is not required prior to the issuance of the following:

(1) A minor NPDES permit,

(2) A minor permit amendment, or

(3) A major permit amendment to a minor NPDES permit.

Major and minor NPDES permits and major and minor permit amendments are defined in 567—60.2(455B).

c. The department shall provide a period of not less than 30 days following the date of the public notice during which time interested persons may submit their written views on the tentative determinations with respect to the permit application and request a public hearing pursuant to 64.5(6). Written comments may be submitted by paper or electronic means. All comments submitted during the 30-day comment period shall be retained by the department and considered by the director in the formulation of the director's final determinations with respect to the permit application. The period for comment may be extended at the discretion of the department. Pertinent and significant comments received during either the original comment period or an extended comment period shall be responded to in a responsiveness summary pursuant to 64.5(8).

d. The contents of the public notice of a draft NPDES permit, a major permit amendment, or the denial of a permit application for an NPDES permit shall include at least the following:

(1) The name, address, and telephone number of the department.

(2) The name and address of each applicant.

(3) A brief description of each applicant's activities or operations which result in the discharge described in the permit application (e.g., municipal waste treatment plant, corn wet milling plant, or meat packing plant).

(4) The name of the waterway to which each discharge of the applicant is made and a short description of the location of each discharge of the applicant on the waterway indicating whether such discharge is a new or an existing discharge.

(5) A statement of the department's tentative determination to issue or deny an NPDES permit for the discharge or discharges described in the permit application.

(6) A brief description of the procedures for the formulation of final determinations, including the 30-day comment period required by paragraph *"b"* of this subrule, procedures for requesting a public hearing and any other means by which interested persons may influence or comment upon those determinations.

(7) The address, telephone number, and email address of places at which interested persons may obtain further information, request a copy of the tentative determination and any associated documents prepared pursuant to 64.5(1), request a copy of the permit rationale described in 64.5(3), and inspect and copy permit forms and related documents.

e. No public notice is required for a minor permit amendment, including an amendment to correct typographical errors, include more frequent monitoring requirements, revise interim compliance schedule dates, change the owner name or address, include a local pretreatment program, or remove a point source outfall that does not result in the discharge of pollutants from other outfalls.

f. No public notice is required when a request for a permit amendment or a request for a termination of a permit is denied. The department shall send written notice of the denial to the requester and the permittee only. No public notice is required if an applicant withdraws a permit application.

64.5(3) *Permit rationales and notices of intent to deny.*

a. When the department has made a determination to issue an NPDES permit as described in 64.5(1), the department shall prepare and, upon request, shall send to any person a permit rationale with respect to the application described in the public notice. The contents of such permit rationales shall include at least the following information:

(1) A detailed description of the location of the discharge described in the permit application.

(2) A quantitative description of the discharge described in the permit application which includes:

1. The average daily discharge in pounds per day of any pollutants which are subject to limitations or prohibitions under 64.7(2) or Section 301, 302, 306 or 307 of the Act and regulations published thereunder; and

2. For thermal discharges subject to limitation under the Act, the average and maximum summer and winter discharge temperatures in degrees Fahrenheit.

(3) The tentative determinations required under 64.5(1).

(4) A brief citation, including a brief identification of the uses for which the receiving waters have been classified, of the water quality standards applicable to the receiving waters and effluent standards and limitations applicable to the proposed discharge.

(5) An explanation of the principal facts and the significant factual, legal, methodological, and policy questions considered in the preparation of the draft permit.

(6) Any calculations or other necessary explanation of the derivation of effluent limitations.

b. When the department has made a determination to deny an application for an NPDES permit as described in 64.5(1), the department shall prepare and, upon request, shall send to any person a notice of intent to deny with respect to the application described in the public notice. The contents of such notice of intent to deny shall include at least the following information:

(1) A detailed description of the location of the discharge described in the permit application; and

(2) A description of the reasons supporting the tentative decision to deny the permit application.

c. When the department has made a determination to issue an operation permit as described in 64.5(1), the department shall prepare a short description of the waste disposal system and the reasons supporting the decision to issue an operation permit. The description shall be sent to the operation permit applicant upon request.

d. When the department has made a determination to deny an application for an operation permit as described in 64.5(1), the department shall prepare and send written notice of the denial to the applicant only. The written denial shall include a description of the reasons supporting the decision to deny the permit application.

e. Upon request, the department shall add the name of any person or group to a distribution list to receive copies of permit rationales and notices of intent to deny and shall send a copy of all permit rationales and notices of intent to deny to such persons or groups.

64.5(4) *Notice to other government agencies.* Prior to the issuance of an NPDES permit, the department shall notify other appropriate government agencies of each complete application for an NPDES permit and shall provide such agencies an opportunity to submit their written views and recommendations. Notifications may be distributed and written views or recommendations may be submitted by paper or electronic means. Procedures for such notification shall include the procedures of paragraphs *"a"* to *"f."*

a. At the time of issuance of public notice pursuant to 64.5(2), the department shall transmit the public notice to any other state whose waters may be affected by the issuance of the NPDES permit. Each affected state shall be afforded an opportunity to submit written recommendations to the department and to the regional administrator which the director may incorporate into the permit if issued. Should the director fail to incorporate any written recommendation thus received, the director shall provide to the affected state or states and to the regional administrator a written explanation of the reasons for failing to accept any written recommendation.

b. At the time of issuance of public notice pursuant to 64.5(2), the department shall send the public notice for proposed discharges (other than minor discharges) into navigable waters to the appropriate district engineer of the army corps of engineers.

(1) The department and the district engineer for each corps of engineers district within the state may arrange for: notice to the district engineer of minor discharges; waiver by the district engineer of the right to receive public notices with respect to classes, types, and sizes within any category of point sources and with respect to discharges to particular navigable waters or parts thereof; and any procedures for the transmission of forms, period of comment by the district engineer (e.g., 30 days), and for objections of the district engineer.

(2) A copy of any written agreement between the department and a district engineer shall be forwarded to the regional administrator and shall be available to the public for inspection and copying in accordance with 567—Chapter 2.

c. Upon request, the department shall send the public notice to any other federal, state, or local agency, or any affected county, and provide such agencies an opportunity to respond, comment, or request a public hearing pursuant to 64.5(6).

d. The department shall send the public notice for any proposed NPDES permit within the geographical area of a designated and approved management agency under Section 208 of the Act (33 U.S.C.1288).

e. The department shall send the public notice to the local board of health for the purpose of assisting the applicant in coordinating the applicable requirements of the Act and Iowa Code chapter 455B with any applicable requirements of the local board of health.

f. Upon request, the department shall provide any of the entities listed in 64.5(4)*"a"* through *"e"* with a copy of the permit rationale, permit application, or proposed permit prepared pursuant to 64.5(1).

64.5(5) *Public access to NPDES information.* The records of the department connected with NPDES permits are available for public inspection and copying to the extent provided in 567—Chapter 2.

64.5(6) *Public hearings on proposed NPDES permits.* The applicant, any affected state, the regional administrator, or any interested agency, person or group of persons may request or petition for a public hearing with respect to an NPDES application. Any such request shall clearly state issues and topics to be addressed at the hearing. Any such request or petition for public hearing must be filed with the director within the 30-day period prescribed in 64.5(2)*"b"* and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted. The director shall hold an informal and noncontested case hearing if there is a significant public interest (including the filing of requests or petitions for such hearing) in holding such a hearing. Frivolous or insubstantial requests for hearing may be denied by the director. Instances of doubt should be resolved in favor of holding the hearing. Any hearing held pursuant to this subrule shall be held in the geographical area of the proposed discharge, or other appropriate area in the discretion of the director, and may, as appropriate, consider related groups of permit applications.

64.5(7) *Public notice of public hearings on proposed NPDES permits.*

a. Public notice of any hearing held pursuant to 64.5(6) shall be circulated at least as widely as was the notice of the tentative determinations with respect to the permit application.

(1) Notice shall be published in at least one newspaper of general circulation within the geographical area of the discharge;

(2) Notice shall be sent to all persons and government agencies which received a copy of the notice for the permit application;

(3) Notice shall be mailed to any person or group upon request; and

(4) Notice pursuant to subparagraphs (1) and (2) of this paragraph shall be made at least 30 days in advance of the hearing.

b. The contents of public notice of any hearing held pursuant to 64.5(6) shall include at least the following:

(1) The name, address, and telephone number of the department;

(2) The name and address of each applicant whose application will be considered at the hearing;

(3) The name of the water body to which each discharge is made and a short description of the location of each discharge to the water body;

(4) A brief reference to the public notice issued for each NPDES application, including the date of issuance;

(5) Information regarding the time and location for the hearing;

(6) The purpose of the hearing;

(7) A concise statement of the issues raised by the person or persons requesting the hearing;

(8) The address and telephone number of the premises where interested persons may obtain further information, request a copy of the draft NPDES permit prepared pursuant to 64.5(1), request a copy of the permit rationale prepared pursuant to 64.5(3), and inspect and copy permit forms and related documents;

(9) A brief description of the nature of the hearing, including the rules and procedures to be followed; and

(10) The final date for submission of comments (paper or electronic) regarding the tentative determinations with respect to the permit application.

64.5(8) *Response to comments.* At the time a final NPDES permit is issued, the director shall issue a response to significant and pertinent comments in the form of a responsiveness summary. A copy of the responsiveness summary shall be sent to the permit applicant, and the document shall be made available to the public upon request. The responsiveness summary shall:

a. Specify which provisions, if any, of the draft permit have been changed in the final permit decision and the reasons for the changes; and

b. Briefly describe and respond to all significant and pertinent comments on the draft permit raised during the public comment period provided for in the public notice or during any hearing. Comments on a draft permit may be submitted by paper or electronic means or orally at a public hearing.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 0529C**, IAB 12/12/12, effective 1/16/13; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—64.6(455B) Completing a Notice of Intent for coverage under a general permit.

64.6(1) *Contents of a complete Notice of Intent.* An applicant proposing to conduct activities covered by a general permit shall file a complete Notice of Intent by submitting to the department materials required in paragraphs *"a"* to *"c"* of this subrule except that a Notice of Intent is not required for discharges authorized under General Permit No. 6, for certain discharges under General Permit No. 8, or for certain discharges under General Permit No. 9.

a. *Notice of Intent Application Form.* The following Notice of Intent forms must be completed in full.

(1) General Permit No. 1 "Storm Water Discharge Associated with Industrial Activity," Form 542-1415.

(2) General Permit No. 2 "Storm Water Discharge Associated with Industrial Activity for Construction Activities," Form 542-1415.

(3) General Permit No. 3 "Storm Water Discharge Associated with Industrial Activity from Asphalt Plants, Concrete Batch Plants, Rock Crushing Plants and Construction Sand and Gravel Facilities," Form 542-1415.

(4) General Permit No. 4 "Discharge from On-Site Wastewater Treatment and Disposal Systems," Form 542-1541.

(5) General Permit No. 5 "Discharge from Mining and Processing Facilities," Form 542-4006.

(6) General Permit No. 7, "Pesticide General Permit (PGP) for Point Source Discharges to Waters of the United States From the Application of Pesticides."

(7) General Permit No. 8 "Discharge from Hydrostatic Testing, Tank Ballasting and Water Lines."

(8) General Permit No. 9 "Discharge from Dewatering and Residential Geothermal Systems."

b. *General permit fee.* The general permit fee according to the schedule in 567—64.16(455B) payable to the Department of Natural Resources.

c. *Public notification.* The following public notification requirements must be completed for the corresponding general permit.

(1) General Permits No. 1, No. 2 and No. 3. A demonstration that a public notice was published in at least one newspaper with the largest circulation in the area in which the facility is located or the activity will occur. The newspaper notice shall, at the minimum, contain the following information:

PUBLIC NOTICE OF STORM WATER DISCHARGE

The (applicant name) plans to submit a Notice of Intent to the Iowa Department of Natural Resources to be covered under NPDES General Permit (select the appropriate general permit—No. 1 "Storm Water Discharge Associated with Industrial Activity" or General Permit No. 2 "Storm Water Discharge Associated with Industrial Activity for Construction Activities"). The storm water discharge will be from (description of industrial activity) located in (¼ section, township, range, county). Storm water will be discharged from (number) point source(s) and will be discharged to the following streams: (stream name(s)).

Comments may be submitted to the Storm Water Discharge Coordinator, Iowa Department of Natural Resources, 502 East 9th Street, Des Moines, Iowa 50319-0034. The public may review the Notice of Intent from 8 a.m. to 4:30 p.m., Monday through Friday, at the above address after it has been received by the department.

(2) General Permits No. 4, No. 5, No. 6, No. 7, No. 8 and No. 9. There are no public notification requirements for these permits.

64.6(2) *Authorization to discharge under a general permit.* Upon the submittal of a complete Notice of Intent in accordance with 64.6(1) and 64.3(4)*"b,"* the applicant is authorized to discharge after evaluation of the Notice of Intent by the department is complete and the determination has been made that the contents of the Notice of Intent satisfy the requirements of 567—Chapter 64. The discharge authorization date for all storm water discharges associated with industrial activity that are in existence on or before October 1, 1992, shall be October 1, 1992. The applicant will receive notification by the department of coverage under the general permit. If any of the items required for filing a Notice of Intent specified in 64.6(1) are missing, the department will consider the application incomplete and will notify the applicant of the incomplete items.

64.6(3) *General permit suspension or revocation.* In addition to the causes for suspension or revocation which are listed in 64.3(11), the director may suspend or revoke coverage under a general permit issued to a facility or a class of facilities for the following reasons and require the applicant to apply for an individual NPDES permit in accordance with 64.3(4)*"a"*:

a. The discharge would not comply with Iowa's water quality standards pursuant to 567—Chapter 61, or

b. The department finds that the activities associated with a Notice of Intent filed with the department do not meet the conditions of the general permit. The department will notify the affected discharger and establish a deadline, not longer than one year, for submitting an individual permit application, or

c. The department finds that water well construction and well service discharge are not managed in a manner consistent with the conditions specified in General Permit No. 6, or

d. The department finds that discharges from biological pesticides and chemical pesticides which leave a residue are not managed in a manner consistent with the conditions specified in General Permit No. 7, or

e. The department finds that discharges from hydrostatic testing, tank ballasting or water line testing are not managed in a manner consistent with the conditions specified in General Permit No. 8, or

f. The department finds that discharges from dewatering or residential geothermal systems are not managed in a manner consistent with the conditions specified in General Permit No. 9.

64.6(4) *Eligibility for individual permit holders.* A person holding an individual NPDES permit for an activity covered by a general permit may apply for coverage under a general permit upon expiration of the individual permit and by filing a Notice of Intent according to procedures described in 64.3(4)*"b."*

64.6(5) *Filing a Notice of Discontinuation.* A notice to discontinue the activity covered by the NPDES general permit shall be made in writing to the department 30 days prior to or after discontinuance of the discharge. For storm water discharge associated with industrial activity for construction activities, the discharge will be considered as discontinued when "final stabilization" has been reached. Final stabilization means that all soil-disturbing activities at the site have been completed and that a uniform perennial vegetative cover with a density of 70 percent for the area has been established or equivalent stabilization measures have been employed.

The notice of discontinuation shall contain the following:

a. The name of the facility to which the permit was issued,

b. The general permit number and permit authorization number,

c. The date the permitted activity was, or will be, discontinued, and

d. A signed certification in accordance with the requirements in the general permit.

64.6(6) *Transfer of ownership—construction activity part of a larger common plan of development.* For construction activity which is part of a larger common plan of development, such as a housing or commercial development project, in the event a permittee transfers ownership of all or any part of property subject to NPDES General Permit No. 2, both the permittee and transferee shall be responsible for compliance with the provisions of the general permit for that portion of the project which has been transferred, including when the transferred property is less than one acre in area, provided that:

a. The transferee is notified in writing of the existence and location of the general permit and pollution prevention plan, and of the transferee's duty to comply, and proof of such notice is included with the notice to the department of the transfer.

b. If the transferee agrees, in writing, to become the sole responsible permittee for the property which has been transferred, then the transferee shall be solely responsible for compliance with the provisions of the general permit for the transferred property.

c. If the transferee agrees, in writing, to obtain coverage under NPDES General Permit No. 2 for the property which has been transferred, then the transferee is required to obtain coverage under NPDES General Permit No. 2 for the transferred property. After the transferee has agreed, in writing, to obtain coverage under NPDES General Permit No. 2 for the transferred property, the authorization issued under NPDES General Permit No. 2 to the transferor for the transferred property shall be considered by the department as not providing NPDES permit coverage for the transferred property and the transferor's authorization issued under NPDES General Permit No. 2 for, and only for, the transferred property shall be deemed by the department as being discontinued without further action of the transferor.

d. All notices as described in this subrule shall contain the name of the development as submitted to the department in the original Notice of Intent and as modified by any subsequent written notices of name changes submitted to the department, the authorization number assigned to the authorization by the department, the legal description of the transferred property including lot number, if any, and any other information necessary to precisely locate the transferred property and to establish the legality of the document.

[**ARC 8520B**, IAB 2/10/10, effective 3/17/10; **ARC 9365B**, IAB 2/9/11, effective 3/30/11; **ARC 1337C**, IAB 2/19/14, effective 3/26/14; **ARC 2482C**, IAB 4/13/16, effective 5/18/16; **ARC 3786C**, IAB 5/9/18, effective 7/1/18]

567—64.7(455B) Terms and conditions of NPDES permits.

64.7(1) *Prohibited discharges.* No NPDES permit may authorize any of the discharges prohibited by 567—62.1(455B).

64.7(2) *Application of effluent, pretreatment and water quality standards and other requirements.* Each NPDES permit shall include any of the following that is applicable:

a. An effluent limitation guideline promulgated by the administrator under Sections 301 and 304 of the Act and adopted by reference by the commission in 567—62.4(455B).

b. A standard of performance for a new source promulgated by the administrator under Section 306 of the Act and adopted by reference by the commission in 567—62.4(455B).

c. An effluent standard, effluent prohibition or pretreatment standard promulgated by the administrator under Section 307 of the Act and adopted by reference by the commission in 567—62.4(455B) or 567—62.5(455B).

d. A water quality related effluent limitation established by the administrator pursuant to Section 302 of the Act.

e. Prior to promulgation by the administrator of applicable effluent and pretreatment standards under Sections 301, 302, 306, and 307 of the Act, such conditions as the director determines are necessary to carry out the provisions of the Act.

f. Any other limitation, including those:

(1) Necessary to meet water quality standards, treatment or pretreatment standards, or schedules of compliance established pursuant to any Iowa law or regulation, or to implement the antidegradation policy in 567—subrule 61.2(2); or

(2) Necessary to meet any other federal law or regulation; or

(3) Required to implement any applicable water quality standards; or

(4) Any legally applicable requirement necessary to implement total maximum daily loads established pursuant to Section 303(d) of the Act and incorporated in the continuing planning process approved under Section 303(e) of the Act and any regulations and guidelines issued pursuant thereto.

(5) Any limitation necessary to comply with the antidegradation policy requirements of 567—subrule 61.2(2) implemented according to procedures hereby incorporated by reference and known as the "Iowa Antidegradation Implementation Procedure," effective August 12, 2016. This document may be obtained on the department's website at: www.iowadnr.gov/Environmental-Protection/Water-Quality/Water-Quality-Standards.

g. Limitations must control all pollutants or pollutant parameters which the director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any water quality standard, including narrative criteria, in 567—Chapter 61. When the permitting authority determines that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion of the water quality standard for an individual pollutant, the permit must contain effluent limits for that pollutant.

h. Any more stringent legally applicable requirements necessary to comply with a plan approved pursuant to Section 208(b) of the Act.

In any case where an NPDES permit applies to effluent standards and limitations described in paragraph *"a," "b," "c," "d," "e," "f," "g,"* or *"h,"* the director must state that the discharge authorized by the permit will not violate applicable water quality standards and must have prepared some verification of that statement. In any case where an NPDES permit applies any more stringent effluent limitation, described in 64.7(2)*"f"*(1) or *"g,"* based upon applicable water quality standards, a waste load allocation must be prepared to ensure that the discharge authorized by the permit is consistent with applicable water quality standards.

64.7(3) *Effluent limitations in issued NPDES permits.* In the application of effluent standards, and limitations, water quality standards, and other legally applicable requirements, pursuant to 64.7(2), the director shall, for each issued NPDES permit, specify average and maximum daily quantitative limitations for the level of pollutants in the authorized discharge in terms of weight (except pH, temperature, radiation, and any other pollutants not appropriately expressed by weight). The director may, in addition to the specification of daily quantitative limitations by weight, specify other limitations such as average or maximum concentration limits, for the level of pollutants authorized in the discharge.

[COMMENT. The manner in which effluent limitations are expressed will depend upon the nature of the discharge. Continuous discharges shall be limited by daily loading figures and, where appropriate, may be limited as to concentration or discharge rate (e.g., for toxic or highly variable continuous discharges). Batch discharges should be more particularly described and limited in terms of (i) frequency (e.g., to occur not more than once every three weeks), (ii) total weight (e.g., not to exceed 300 pounds per batch discharge), (iii) maximum rate of discharge of pollutants during the batch discharge (e.g., not to exceed 2 pounds per minute), and (iv) prohibition or limitation by weight, concentration, or other appropriate measure of specified pollutants (e.g., shall not contain at any time more than 0.1

ppm zinc or more than ¼ pound of zinc in any batch discharge). Other intermittent discharges, such as recirculation blowdown, should be particularly limited to comply with any applicable water quality standards and effluent standards and limitations.]

64.7(4) *Schedules of compliance in issued NPDES permits.* The director shall follow the following procedure in setting schedules in NPDES permit conditions to achieve compliance with applicable effluent standards and limitations, water quality standards, and other legally applicable requirements.

a. With respect to any discharge which is not in compliance with applicable effluent standards and limitations, applicable water quality standards, or other legally applicable requirements listed in 64.7(2)*"f"* and 64.7(2)*"g,"* the permittee shall be required to take specific steps to achieve compliance with: applicable effluent standards and limitations; if more stringent, water quality standards; or if more stringent, legally applicable requirements listed in 64.7(2)*"f"* and 64.7(2)*"g."* In the absence of any legally applicable schedule of compliance, such steps shall be achieved in the shortest, reasonable period of time, such period to be consistent with the guidelines and requirements of the Act.

b. In any case where the period of time for compliance specified in paragraph 64.7(4)*"a"* exceeds one year, a schedule of compliance shall be specified in the permit which shall set forth interim requirements and the dates for their achievement; in no event shall more than one year elapse between interim dates. If the time necessary for completion of the interim requirements (such as the construction of a treatment facility) is more than one year and is not readily divided into stages for completion, interim dates shall be specified for the submission of reports of progress toward completion of the interim requirement.

[COMMENT. Certain interim requirements such as the submission of preliminary or final plans often require less than one year, and thus a shorter interval should be specified. Other requirements such as the construction of treatment facilities may require several years for completion and may not readily subdivide into one-year intervals. Long-term interim requirements should nonetheless be subdivided into intervals not longer than one year at which the permittee is required to report progress to the director pursuant to 64.7(4)*"c."*]

c. Either before or up to 14 days following each interim date and the final date of compliance the permittee shall provide the department with written notice of the permittee's compliance or noncompliance with the interim or final requirement.

d. On the last day of the months of February, May, August, and November, the director shall transmit to the regional administrator a list of all instances, as of 30 days prior to the date of such report, of failure or refusal of a permittee to comply with an interim or final requirement or to notify the department of compliance or noncompliance with each interim or final requirement (as required pursuant to paragraph *"c"* of this subrule). Such list shall be available to the public for inspection and copying and shall contain at least the following information with respect to each instance of noncompliance:

(1) Name and address of each noncomplying permittee.

(2) A short description of each instance of noncompliance (e.g., failure to submit preliminary plans, two-week delay in commencement of construction of treatment facility; failure to notify of compliance with interim requirement to complete construction by June 30).

(3) A short description of any actions or proposed actions by the permittee to comply or by the director to enforce compliance with the interim or final requirement.

(4) Any details which tend to explain or mitigate an instance of noncompliance with an interim or final requirement (e.g., construction delayed due to materials shortage, plan approval delayed by objections).

e. If a permittee fails or refuses to comply with an interim or final requirement in an NPDES permit such noncompliance shall constitute a violation of the permit for which the director may, pursuant to 567—Chapters 7 and 60, modify, suspend or revoke the permit or take direct enforcement action.

64.7(5) *Schedules of compliance in issued NPDES permits for disadvantaged communities.* If compliance with federal regulations, applicable requirements in 567—Chapters 60, 61, 62, 63, and 64, or an order of the department will result in substantial and widespread economic and social impact (SWESI) to the ratepayers and the affected community, the director may establish in an NPDES permit a schedule of compliance that will result in an improvement of water quality and reasonable

progress toward complying with the applicable requirements but does not result in SWESI. Schedules of compliance established under this subrule are intended to result in compliance with the applicable federal and state regulations and requirements by the regulated entity and the affected community.

a. Disadvantaged community status. The director shall find that a regulated entity and the affected community are a disadvantaged community by evaluating all of the following:

(1) The ability of the regulated entity and the affected community to pay for a project based on the ratio of the total annual project costs per household to median household income (MHI),

(2) MHI in the community and the unemployment rate of the county in which the community is located, and

(3) The outstanding debt of the system and the bond rating of the community.

b. Disadvantaged community analysis (DCA). A regulated entity or affected community must submit a disadvantaged community analysis (DCA) to the director to be considered for disadvantaged status. A DCA may only be submitted when new requirements in a proposed or reissued NPDES permit may result in SWESI.

(1) A DCA may be submitted by any of the following:

1. A wastewater disposal system owned by a municipal corporation or other public body created by or under Iowa law and having jurisdiction over disposal of sewage, industrial wastes or other wastes, or a designated and approved management agency under Section 208 of the Act (a POTW);

2. A wastewater disposal system for the treatment or disposal of domestic sewage which is not a private sewage disposal system and which is not owned by a city, a sanitary sewer district, or a designated and approved management agency under Section 208 of the Act (33 U.S.C. 1288) (a semipublic system); or

3. Any other owner of a wastewater disposal system that is not a private sewage disposal system and does not discharge industrial wastes. "Private sewage disposal system" and "industrial waste" are defined in rule 567—60.2(455B).

(2) A DCA may be submitted prior to the issuance of an initial NPDES permit if the facility does not discharge industrial wastes and is not a new source or new discharger. "New source" is defined in rule 567—60.2(455B). "New discharger" means any building, structure, facility, or installation from which there is or may be a discharge of pollutants; that did not commence the discharge of pollutants at a particular site prior to August 13, 1979; that is not a new source; and that has never received a finally effective NDPES permit for discharges at that site.

(3) A DCA may be submitted by the entities noted in subparagraph 64.7(5)*"b"*(1) above for consideration of a disadvantaged community loan interest rate under the clean water state revolving fund.

c. Contents of a DCA.

(1) A DCA must contain all of the following:

1. Proposed total annual project costs as defined in paragraph 64.7(5)*"d"*;

2. The number of households in the affected community or, if the entity is not serving households, the number of ratepayers;

3. A description of the bond rating of the affected community over the last year, if available;

4. The user rates, as follows:

- If the DCA is submitted by or for a municipality or other community, the current sewer rate ordinances, including the sewer rates of any industrial users;
- If the DCA is submitted by or for a water treatment facility, the water rate schedules or tables; or
- If the DCA is submitted by or for an entity other than a municipality, community, or water treatment facility, the monthly ratepayer charge for wastewater treatment;

5. An explanation of why the regulated entity or affected community believes that compliance with the proposed requirements will result in SWESI.

(2) If the DCA is submitted by or for an entity other than a municipality, community, or water treatment facility, the DCA must also contain either:

1. For entities with more than ten households or ratepayers, the median household or ratepayer income, as determined by an income survey conducted by the regulated entity based on the Iowa community development block grant income survey guidelines (the survey must be included in the DCA); or

2. For entities with ten or fewer households or ratepayers, an estimate of median household or ratepayer income.

d. Definition of total annual project costs. "Total annual project costs" means the current costs of wastewater treatment in the community (if any) plus the future costs of proposed wastewater system improvements that will meet or exceed all applicable federal regulations, requirements in 567—Chapters 60, 61, 62, 63, and 64, or requirements of an order of the department. Total annual project costs shall include any current and proposed facility operation and maintenance costs and any existing (outstanding) and proposed system debt, as expressed in current and proposed sewer rates. The costs of the proposed wastewater treatment shall assume a 30-year loan period at an interest rate equal to the current state revolving fund interest rate. Awarded grant funding must be subtracted from the total annual project costs.

The formula for the calculation of total annual project costs for a regulated entity and affected community is: total annual project costs = [(Estimated costs to design and build proposed project - Awarded grant funding) amortized over 30 years] + Current annual system budget (if any), including operation and maintenance (O&M) and existing debt service + Future annual O&M costs.

e. Disadvantaged community matrix (DCM). The department hereby incorporates by reference "Disadvantaged Community Matrix," DNR Form 542-1246, effective January 16, 2013. This document may be obtained on the department's NPDES website.

Upon receipt of a complete DCA, the director shall use the disadvantaged community matrix (DCM) to evaluate the disadvantaged status of the community. Compliance with the applicable federal regulations, requirements in 567—Chapters 60, 61, 62, 63, and 64, or an order of the department shall be considered to result in SWESI, and the regulated entity and affected community shall be considered a disadvantaged community, if the point total derived from the DCM is equal to or greater than 12. The following data sources shall be used to derive the point total in the DCM:

(1) The total annual project costs as stated in the DCA;

(2) The number of households or ratepayers in a community as stated in the DCA;

(3) The bond rating of the community, if available, as stated in the DCA;

(4) The MHI of either:

1. The community, as found in the most recent American Community Survey or United States Census or as stated in an income survey that is conducted by the regulated entity or community and is based on the Iowa community development block grant income survey guidelines; or

2. The ratepayer group, as stated in an income survey that is conducted by the regulated entity and is based on the Iowa community development block grant income survey guidelines; and

(5) The unemployment rate of the county where the community is located and of the state as found in the most recent Iowa Workforce Information Network unemployment data.

The ratio of the total annual project costs per household or per ratepayer to MHI shall be calculated in the DCM as follows: The total annual project costs shall be divided by the number of households or ratepayers to obtain the costs per household or per ratepayer, and the costs per household or per ratepayer shall be divided by the MHI to obtain the ratio.

f. Ratio. The director shall not consider a regulated entity or affected community a disadvantaged community if the ratio of compliance costs to MHI is less than 1 percent. The director shall consider a regulated entity or affected community a disadvantaged community if the ratio of compliance costs to MHI is greater than or equal to 2 percent. If the ratio of compliance costs to MHI is greater than or equal to 1 percent and less than 2 percent, the director shall use the DCM to determine if the community is disadvantaged. The ratio of compliance costs to MHI shall be the ratio of the total annual project costs per household to MHI as calculated in the DCM.

g. Compliance schedule for a disadvantaged community. A schedule of compliance established in an NPDES permit for a disadvantaged community as a result of SWESI may contain one or two parts

as necessary to comply with the applicable federal regulations and requirements in 567—Chapters 60, 61, 62, 63, and 64.

(1) The first part of a schedule of compliance for a disadvantaged community shall encompass one five-year NPDES permit cycle and shall require the permit holder to submit an alternatives report, an alternatives implementation compliance plan (AICP), and annual reports of progress that contain brief updates regarding the completion of the alternatives report and the AICP.

1. Alternatives report. The alternatives report must detail the alternative pollution control measures that will be investigated and contain an examination of all other appropriate measures that may achieve compliance with applicable federal regulations, requirements in 567—Chapters 60, 61, 62, 63, and 64, or an order of the department without creating SWESI. The alternatives report must describe which measures will be evaluated for feasibility and affordability during the next portion of the compliance schedule. Alternative pollution control measures may include, but are not limited to, facility upgrades, construction of a new facility, relocation of the discharge point(s), regionalization, or outfall consolidation. Other appropriate measures may include, but are not limited to, mixing zone studies, consideration of seasonal limitations or site-specific data, alteration of current facility operations, intermittent discharges, source reduction, effluent recycling or reuse, or renegotiation of treatment agreements. The alternatives report must also include a plan for pursuing funding options, including grants and low-interest loans. The alternatives report shall be submitted no later than two years after permit issuance.

2. Alternatives implementation compliance plan (AICP). The AICP shall include the results of the investigation detailed in the alternatives report, a description of any feasible and affordable alternative(s) that will be implemented, a schedule of the time necessary to implement the alternative(s), and an updated DCA. The AICP shall be submitted no later than 4½ years after permit issuance.

(2) If the entity or community continues to qualify as disadvantaged according to the DCM evaluation based on the DCA submitted with the AICP, the entity or community may receive a second schedule of compliance as specified in this subrule. The second schedule of compliance for a disadvantaged community may contain either the implementation schedule from the AICP or a schedule for submittal of a future compliance plan (FCP).

1. AICP implementation schedule. If the AICP proposes a schedule for implementation of one or more feasible alternatives, the proposed schedule shall be included in the reissued NPDES permit for the disadvantaged community.

2. Future compliance plan (FCP). The submittal of an FCP will be necessary only if the AICP concludes that the disadvantaged community cannot feasibly implement any alternatives and if the community is still disadvantaged according to the updated information in the DCA submitted with the AICP. The FCP shall detail how the disadvantaged community will meet the applicable federal regulations, requirements in 567—Chapters 60, 61, 62, 63, and 64, or an order of the department and the period necessary to do so. An FCP shall review the types of technology capable of treating the pollutant of concern, as well as the costs of installing and operating each type of technology. All technically feasible alternatives shall be explored. The FCP shall be submitted no later than three years after permit issuance. A schedule of compliance requiring the submittal of an FCP shall also require the submittal of annual reports of progress that contain updated financial information, an updated DCA, and a brief update regarding the completion or implementation of the FCP. If the DCM evaluation determines that an entity or community is no longer disadvantaged based on the most recent DCA, the NPDES permit may be amended to change the schedule of compliance.

3. Schedule extension. The second part of a schedule of compliance for a disadvantaged community may be extended at the discretion of the director.

(3) Schedules of compliance issued in accordance with this subrule shall comply with paragraphs 64.7(4)*"b"* through *"e."*

64.7(6) *Disadvantaged unsewered communities.* If compliance with applicable federal regulations, requirements in 567—Chapters 60, 61, 62, 63, and 64, or an order of the department will result in substantial and widespread economic and social impact (SWESI) to the ratepayers of an unsewered community, the director may negotiate a compliance agreement that will result in an improvement of

water quality and reasonable progress toward complying with the applicable requirements but does not result in SWESI.

a. Disadvantaged unsewered community status. The director shall find that an unsewered community is a disadvantaged unsewered community by evaluating all of the following:

(1) The ability of the unsewered community to pay for a project based on the ratio of the total annual project costs per household to MHI,

(2) The unemployment rate in the county where the unsewered community is located, and

(3) The MHI of the unsewered community.

b. Disadvantaged unsewered community analysis (DUCA). To be considered for disadvantaged unsewered community status, an unsewered community may submit a disadvantaged unsewered community analysis (DUCA) to the director prior to the issuance of or amendment to an administrative order with requirements that could result in SWESI and that are based on applicable federal regulations, requirements in 567—Chapters 60, 61, 62, 63, and 64, or an order of the department. Only unsewered communities may submit a DUCA under this subrule. For the purposes of this subrule, an unsewered community is defined as a grouping of ten or more residential houses with a density of one house or more per acre and with either no wastewater treatment or inadequate wastewater treatment. An entity defined in rule 567—60.2(455B) as a private sewage disposal system may not submit a DUCA or qualify for a disadvantaged unsewered community compliance agreement under paragraph 64.7(6)*"g."* A DUCA may also be submitted for consideration of a disadvantaged community loan interest rate under the clean water state revolving fund.

c. Contents of a DUCA. A DUCA must contain:

(1) Proposed total annual project costs as defined in paragraph 64.7(6)*"d"*;

(2) The number of households in the unsewered community and source of household information;

(3) Total amount of any awarded grant funding;

(4) An explanation of why the unsewered community believes that compliance with the proposed requirements will result in SWESI.

If no MHI information is available for the unsewered community, the community should conduct a rate survey to determine the MHI. The survey must be conducted in accordance with the Iowa community development block grant income survey guidelines. In addition, the survey must be attached to the DCA.

d. Definition of total annual project costs. "Total annual project costs" means the future costs of proposed wastewater system installation or improvements that will meet or exceed all applicable federal regulations, requirements in 567—Chapters 60, 61, 62, 63, and 64, or requirements of an order of the department. Total annual project costs shall include the proposed facility operation and maintenance (O&M) costs and the proposed debt of the system as expressed in the proposed sewer rates. The costs of the proposed wastewater treatment shall assume a 30-year loan period at an interest rate equal to the current state revolving fund interest rate. Awarded grant funding must be subtracted from the total annual project costs.

The formula for the calculation of total annual project costs for an unsewered community is: total annual project costs = [(Estimated costs to design and build proposed project - Awarded grant funding) amortized over 30 years] + Future annual O&M costs.

e. Disadvantaged unsewered community matrix (DUCM). The department hereby incorporates by reference "Disadvantaged Unsewered Community Matrix," DNR Form 542-1247, effective January 16, 2013. This document may be obtained on the department's NPDES website.

Upon receipt of a complete DUCA, the director shall use the disadvantaged unsewered community matrix (DUCM) to evaluate the disadvantaged status of the unsewered community. Compliance with applicable federal regulations, requirements in 567—Chapters 60, 61, 62, 63, and 64, or an order of the department shall be considered to result in SWESI, and the unsewered community shall be considered a disadvantaged unsewered community, if the point total derived from the DUCM is equal to or greater than 10. The following data sources shall be used to derive the point total in the DUCM:

(1) The total annual project costs as stated in the DUCA;

(2) The number of households in the unsewered community as stated in the DUCA;

(3) The MHI of the unsewered community as found in the most recent American Community Survey or United States Census or as stated in an income survey that is conducted by the regulated entity or community and is based on the Iowa community development block grant income survey guidelines; and

(4) The unemployment rate of the county where the unsewered community is located and of the state as found in the most recent Iowa Workforce Information Network unemployment data.

The ratio of the total annual project costs per household to MHI shall be calculated in the DUCM as follows: the total annual project costs shall be divided by the number of households in the unsewered community to obtain the costs per household, and the costs per household shall be divided by MHI to obtain the ratio.

f. Ratio and other considerations. The director shall not consider an unsewered community a disadvantaged unsewered community if the ratio of compliance costs to MHI is below 1 percent. The director shall consider an unsewered community a disadvantaged unsewered community if the ratio of compliance costs to MHI is greater than or equal to 2 percent. If the ratio of compliance costs to MHI is greater than or equal to 1 percent, and less than 2 percent, the director shall use the DUCM to determine if the unsewered community is disadvantaged. The ratio of compliance costs to MHI shall be the ratio of the total annual project costs per household to MHI as calculated in the DUCM. The director shall not require installation of a wastewater treatment system by an unsewered community if the director determines that such installation would create SWESI.

g. Compliance agreement for a disadvantaged unsewered community. A compliance agreement negotiated with a disadvantaged unsewered community as a result of SWESI shall require the unsewered community to submit an alternatives report and an alternatives implementation compliance plan (AICP).

(1) Alternatives report. The alternatives report must detail the alternative pollution control measures that will be investigated and contain an examination of all other appropriate measures that may achieve compliance with the water quality standards without creating SWESI. The alternatives report must describe which measures will be evaluated for feasibility and affordability after the report submittal. Alternative pollution control measures may include, but are not limited to, upgrades of existing infrastructure, construction of a new facility, relocation of the discharge point(s), regionalization, or outfall consolidation. Other appropriate measures may include, but are not limited to, mixing zone studies, consideration of seasonal limitations or site-specific data, alteration of current facility operations, intermittent discharges, source reduction, effluent recycling or reuse, or renegotiation of treatment agreements. The alternatives report shall also include a plan for pursuing funding options, including grants and low-interest loans. The alternatives report shall be submitted no later than two years after an unsewered community has been determined to be a disadvantaged unsewered community.

(2) Alternatives implementation compliance plan (AICP). The AICP shall include the results of the investigation detailed in the alternatives report, a description of any feasible and affordable alternative(s) that will be implemented, a schedule of the time necessary to implement the alternative(s), and an updated DUCA. The AICP shall be submitted no later than 4½ years after an unsewered community has been determined to be a disadvantaged unsewered community.

(3) AICP implementation schedule. If the AICP proposes a schedule for implementation of one or more feasible alternatives, the proposed schedule shall be included in an administrative order between the department and the unsewered community. If the feasible alternative that will be implemented requires a construction permit, an operation permit, or an NPDES permit, the unsewered community shall comply with the rules regarding those permits in this chapter.

(4) Future compliance plan (FCP). The submittal of an FCP will be necessary only if the AICP concludes that the unsewered community cannot feasibly implement any alternatives and if the community is still disadvantaged according to the updated information in the DUCA submitted with the AICP. The FCP shall detail how the unsewered community will meet the water quality standards and the period necessary to do so. An FCP shall review the types of technology capable of treating the pollutant of concern, as well as the costs of installing and operating each type of technology. All technically feasible alternatives shall be explored. The FCP shall be submitted no later than seven years after an unsewered community has been determined to be a disadvantaged unsewered community.

An administrative order requiring the submittal of an FCP shall also require the submittal of biennial progress reports that contain an updated DUCA. If the DUCM evaluation determines that an unsewered community is no longer disadvantaged based on the most recent DUCA, the order may be amended at the discretion of the director.

64.7(7) *Other terms and conditions of issued NPDES permits.* Each issued NPDES permit shall provide for and ensure the following:

a. That all discharges authorized by the NPDES permit shall be consistent with the terms and conditions of the permit; that facility expansions, production increases, or process modifications which result in new or increased discharges of pollutants must be reported by submission of a new NPDES application or, if such discharge does not violate effluent limitations specified in the NPDES permit, by submission to the director of notice of such new or increased discharges of pollutants; that the discharge of any pollutant more frequently than or at a level in excess of that identified and authorized by the permit shall constitute a violation of the terms and conditions of the permit; that if the terms and conditions of a general permit are no longer applicable to a discharge, the applicant shall apply for an individual NPDES permit;

b. That the permit may be amended, revoked and reissued, or terminated in whole or in part for the causes provided in 64.3(11)*"b."*

c. That the permittee shall permit the director or the director's authorized representative upon the presentation of credentials:

(1) To enter upon permittee's premises in which an effluent source is located or in which any records are required to be kept under terms and conditions of the permit;

(2) To have access to and copy any records required to be kept under terms and conditions of the permit;

(3) To inspect any monitoring equipment or method required in the permit; or

(4) To sample any discharge of pollutants.

d. That, if the permit is for a discharge from a publicly owned treatment works, the permittee shall provide notice to the director of the following:

(1) One hundred eighty days in advance of any new introduction of pollutants into such treatment works from a new source as defined in 567—Chapter 60 if such source were discharging pollutants;

(2) Except as specified below, 180 days in advance of any new introduction of pollutants into such treatment works from a source which would be subject to Section 301 of the Act if such source were discharging pollutants. However, the connection of such a source need not be reported if the source contributes less than 25,000 gallons of process wastewater per day at the average discharge, or contributes less than 5 percent of the organic or hydraulic loading of the treatment facility, or is not subject to a federal pretreatment standard adopted by reference in 567—Chapter 62, or does not contribute pollutants that may cause interference or pass through; and

(3) Sixty days in advance of any substantial change in volume or character of pollutants being introduced into such treatment works by a source introducing pollutants into such works at the time of issuance of the permit.

Such notice shall include information on the quality and quantity of effluent to be introduced into such treatment works and any anticipated impact of such change in the quantity or quality of effluent to be discharged from such publicly owned treatment works.

e. That, if the permit is for a discharge from a publicly owned treatment works, the permittee shall require any industrial user of such treatment works to comply with the requirements of Sections 204(b), 307, and 308 of the Act. As a means of ensuring such compliance, the permittee shall require that each industrial user subject to the requirements of Section 307 of the Act give to the permittee periodic notice (over intervals not to exceed six months) of progress toward full compliance with Section 307 requirements. The permittee shall forward a copy of the notice to the director.

f. That the permittee at all times shall maintain in good working order and operate as efficiently as possible any facilities or systems of treatment and control which have been installed or are used by the permittee to achieve compliance with the terms and conditions of the permit. Proper operation and maintenance also include adequate laboratory control and appropriate quality assurance procedures.

This provision requires the operation of backup or auxiliary facilities or similar systems which have been installed by the permittee only when such operation is necessary to achieve compliance with the conditions of the permit.

g. That if a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the Act for a toxic pollutant which is present in the permittee's discharge and such standard or prohibition is more stringent than any limitation upon such pollutant in the NPDES permit, the director shall revise or modify the permit in accordance with the toxic effluent standard or prohibition and so notify the permittee.

h. If an applicant for an NPDES permit proposes to dispose of pollutants into wells as part of a program to meet the proposed terms and conditions of an NPDES permit, the director shall specify additional terms and conditions of the issued NPDES permit which shall prohibit the proposed disposal or control the proposed disposal in order to prevent pollution of ground and surface water resources and to protect the public health and welfare. (See rule 567—62.9(455B) which prohibits the disposal of pollutants, other than heat, into wells within Iowa.)

i. That the permittee shall take all reasonable steps to minimize or prevent any discharge in violation of the permit which has a reasonable likelihood of adversely affecting human health or the environment.

j. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the terms of this permit.

64.7(8) *POTW compliance—plan of action required.* The owner of a publicly owned treatment works (POTW) must prepare and implement a plan of action to achieve and maintain compliance with final effluent limitations in its NPDES permit, as specified below:

a. The director shall notify the owner of a POTW of the plan of action requirement, and of an opportunity to meet with department staff to discuss the plan of action requirements. The POTW owner shall submit a plan of action to the appropriate regional field office of the department within six months of such notice, unless a longer time is needed and is authorized in writing by the director.

b. The plan of action will vary in length and complexity depending on the compliance history and physical status of the particular POTW. It must identify the deficiencies and needs of the system, describe the causes of such deficiencies or needs, propose specific measures (including an implementation schedule) that will be taken to correct the deficiencies or meet the needs, and discuss the method of financing the improvements proposed in the plan of action. A plan may include the submittal of a disadvantaged community analysis in accordance with subrule 64.7(5), at the discretion of the POTW.

The plan may provide for a phased construction approach to meet interim and final limitations, where financing is such that a long-term project is necessary to meet final limitations, and shorter term projects may provide incremental benefits to water quality in the interim.

Information on the purpose and preparation of the plan can be found in the departmental document entitled "Guidance on Preparing a Plan of Action," available from the department's regional field offices.

c. Upon submission of a complete plan of action to the department, the plan should be reviewed and approved or disapproved within 60 days unless a longer time is required and the POTW owner is so notified.

d. The NPDES permit for the facility shall be amended to include the implementation schedule or other actions developed through the plan to achieve and maintain compliance.

This rule is intended to implement Iowa Code chapter 455B, division III, part 1 (455B.171 to 455B.187).

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 0529C**, IAB 12/12/12, effective 1/16/13; **ARC 2482C**, IAB 4/13/16, effective 5/18/16; **ARC 2695C**, IAB 8/31/16, effective 8/12/16]

567—64.8(455B) Reissuance of operation and NPDES permits.

64.8(1) *Individual operation and NPDES permits.* Individual operation and NPDES permits will be reissued according to the procedures identified in 64.8(1)*"a"* to *"c."*

a. Any operation or NPDES permittee who wishes to continue to discharge after the expiration date of the permit shall file an application for reissuance of the permit at least 180 days prior to the expiration of the permit pursuant to 567—60.4(455B). For a POTW, permission to submit an application at a later date may be granted by the director. In addition, the applicant must submit up-to-date information on the permittee's production levels, the permittee's waste treatment practices, or the nature, contents, and frequency of the permittee's discharge, as required by the permit application.

b. The director shall follow the notice and public participation procedures specified in 567—64.5(455B) in connection with each request for reissuance of an NPDES permit.

c. Notwithstanding any other provision in these rules, any new point source the construction of which is commenced after the date of enactment of the Federal Water Pollution Control Act Amendments of 1972 (October 18, 1972) and which is so constructed as to meet all applicable standards of performance for new sources shall not be subject to any more stringent standard of performance during a ten-year period beginning on the date of completion of such construction or during the period of depreciation or amortization of such facility for the purposes of Section 167 or 169 (or both) of the Internal Revenue Code, as amended through December 31, 1976, whichever period ends first.

64.8(2) *Renewal of coverage under a general permit.* Coverage under a general permit will be renewed subject to the terms and conditions in paragraphs *"a"* to *"d."*

a. If a permittee intends to continue an activity covered by a general permit beyond the expiration date of the general permit, the permittee must reapply and submit a complete Notice of Intent in accordance with 64.6(1).

b. A complete Notice of Intent for coverage under a reissued or renewed general permit must be submitted to the department within 180 days after the expiration date of a general permit.

c. A person holding a general permit is subject to the terms of the permit until it expires or a Notice of Discontinuation is submitted in accordance with 64.6(5). If the person holding a general permit continues the activity beyond the expiration date, the conditions of the expired general permit will remain in effect provided the permittee submits a complete Notice of Intent for coverage under a renewed or reissued general permit within 180 days after the expiration date of the expired general permit. If the person continues an activity for which the general permit has expired and the general permit has not been reissued or renewed, the discharge must be permitted with an individual NPDES permit according to the procedures in 64.3(4)*"a."*

d. The Notice of Intent requirements shall not include a public notification when a general permit has been reissued or renewed provided the permittee has already submitted a complete Notice of Intent including the public notification requirements of 64.6(1). Another public notice is required when any information, including facility location, in the original public notice is changed.

64.8(3) *Continuation of expiring operation and NPDES permits.*

a. The conditions of an expired operation or NPDES permit will continue in force until the effective date of a new permit if:

(1) The permittee has submitted a timely and complete application under 567—subrule 60.4(2); and

(2) The department, through no fault of the permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit.

b. Operation and NPDES permits continued under this subrule remain fully effective and enforceable.

c. If a permittee is not in compliance with the conditions of the expiring or continued permit, the department may choose to do any of the following:

(1) Initiate enforcement action on a permit which has been continued or reissued;

(2) Issue a notice of intent to deny a permit under 64.5(1);

(3) Reissue a permit with appropriate conditions in accordance with this subrule; or

(4) Take other actions authorized by this rule.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 9365B**, IAB 2/9/11, effective 3/30/11; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—64.9(455B) Monitoring, record keeping and reporting by operation permit holders. Operation permit holders are subject to any applicable requirements and provisions specified in the operation permit issued by the department and to the applicable requirements and provisions specified in 567—Chapter 63.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—64.10(455B) Silvicultural activities. The following is adopted by reference: 40 CFR 122.27.
[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—64.11 and **64.12** Reserved.

567—64.13(455B) Storm water discharges.

64.13(1) The following is adopted by reference: 40 CFR 122.26.

64.13(2) Small municipal separate storm sewer systems.

a. For any discharge from a regulated small municipal separate storm sewer system (MS4), the permit application must be submitted no later than March 10, 2003, if designated under this subrule.

b. All MS4s located in urbanized areas as defined by the latest decennial census and all MS4s which serve 10,000 people or more located outside urbanized areas and where the average population density is 1,000 people/square mile or more are regulated small MS4s unless waiver criteria established by the department are met and a waiver has been granted by the department.

c. Permit coverage requirements for MS4s located in urbanized areas and serving 1,000 or more people and fewer than 10,000 people may be waived if the following requirements are met:

(1) The department has evaluated all waters of the United States that receive a discharge from the MS4, and for all such waters, the department has determined that storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established total maximum daily load (TMDL) that addresses the pollutants of concern or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutants of concern. The pollutants of concern include biochemical oxygen demand, sediment or a parameter that addresses sediment (total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the MS4.

(2) The department has determined that future discharges from the MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses or other significant water quality impacts including habitat and biological impacts.

d. Permit coverage requirements for MS4s located in urbanized areas and serving fewer than 1,000 people may be waived if the following requirements are met:

(1) The system is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES storm water program.

(2) The MS4 discharges any pollutants that have been identified as a cause of impairment of any water body to which the MS4 discharges and the department has determined that storm water controls are not needed based upon wasteload allocations that are a part of an EPA approved or established TMDL that addresses the pollutants of concern.

e. Permit coverage requirements for MS4s located outside of urbanized areas and serving 10,000 or more people may be waived if the following criterion is met:

The MS4 is not discharging pollutants which are the cause of the impairment to a water body designated by the department as impaired.

f. Should conditions under which the initial waiver was granted change, the waiver may be rescinded by the department and permit coverage may be required.

g. MS4 applications shall, at a minimum, demonstrate in what manner the applicant will develop, implement and enforce a storm water management program designed to reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act. The manner in which the permittee will address the following items must be addressed in the application: public education and

outreach on storm water impacts, public involvement and participation, illicit discharge detection and elimination, construction site storm water runoff control, postconstruction storm water management in new development and redevelopment, and pollution prevention for municipal operations. Measurable goals which the applicant intends to meet and dates by which the goals will be accomplished shall be included with the application.

64.13(3) Waivers for storm water discharge associated with small construction activity. The director may waive the otherwise applicable requirements in a general permit for storm water discharge from small construction activities as defined in 567—Chapter 60 when:

a. The value of the rainfall erosivity factor ("R" in the Revised Universal Soil Loss Equation) is less than 5 during the period of construction activity. The rainfall erosivity factor is determined in accordance with Chapter 2 of Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE), pages 21-64, dated January 1997; or

b. Storm water controls are not needed based on a TMDL approved or established by the EPA that addresses the pollutant(s) of concern or, for nonimpaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The pollutant(s) of concern includes sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

567—64.14(455B) Transfer of title and owner or operator address change.

64.14(1) *Permits issued under rule 567—64.2(455B), 567—64.3(455B), or 567—64.6(455B), except 64.6(1)"a"(5) and (6).* If title to any disposal system or part thereof for which a permit has been issued under these rules is transferred, the new owners shall be subject to all terms and conditions of the permit. Whenever title to a disposal system or part thereof is changed, the department shall be notified in writing of such change within 30 days of the occurrence. No transfer of the authorization to discharge from the facility represented by the permit shall take place prior to notification of the department of the transfer of title. Whenever the address of the owner is changed, the department shall be notified in writing within 30 days of the address change. Electronic notification is not sufficient; all title transfers and address changes must be reported to the department by mail.

64.14(2) *Permits issued under 64.6(1)"a"(5) and (6).* When the operator of a facility permitted under subparagraphs 64.6(1)*"a"*(5) and (6) changes, the department must be notified of the transfer within 30 days. When a discharge is covered by the general permit, the operator of record shall be subject to all terms and conditions of the permit. No transfer of the authorization to discharge from the facility represented by the permit shall take place prior to notification of the department of the transfer. Whenever the address of the operator is changed, the department shall be notified in writing within 30 days of the address change. Electronic notification is not sufficient; all transfers and address changes must be reported to the department by mail.

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 9553B**, IAB 6/15/11, effective 7/20/11; **ARC 2482C**, IAB 4/13/16, effective 5/18/16]

Rules 567—64.3(455B) to 567—64.14(455B) are intended to implement Iowa Code section 455B.173.

567—64.15(455B) General permits issued by the department. The following is a list of general permits adopted by the department through the Administrative Procedure Act, Iowa Code chapter 17A, and the term of each permit.

64.15(1) Storm Water Discharge Associated with Industrial Activity, NPDES General Permit No. 1, effective March 1, 2018, to February 28, 2023. Facilities assigned Standard Industrial Classification 1442, 2951, or 3273, and those facilities assigned Standard Industrial Classification 1422 or 1423 which are engaged primarily in rock crushing are not eligible for coverage under General Permit No. 1.

64.15(2) Storm Water Discharge Associated with Industrial Activity for Construction Activities, NPDES General Permit No. 2, effective March 1, 2018, to February 28, 2023.

64.15(3) Storm Water Discharge Associated with Industrial Activity from Asphalt Plants, Concrete Batch Plants, Rock Crushing Plants, and Construction Sand and Gravel Facilities, NPDES General Permit No. 3, effective March 1, 2018, to February 28, 2023. General Permit No. 3 authorizes storm water discharges from facilities primarily engaged in manufacturing asphalt paving mixtures and which are classified under Standard Industrial Classification 2951, primarily engaged in manufacturing Portland cement concrete and which are classified under Standard Industrial Classification 3273, those facilities assigned Standard Industrial Classification 1422 or 1423 which are primarily engaged in the crushing, grinding or pulverizing of limestone or granite, and construction sand and gravel facilities which are classified under Standard Industrial Classification 1442. General Permit No. 3 does not authorize the discharge of water resulting from dewatering activities at rock quarries.

64.15(4) "Discharge from Private Sewage Disposal Systems," NPDES General Permit No. 4, effective March 1, 2018, to February 28, 2023.

64.15(5) "Discharge from Mining and Processing Facilities," NPDES General Permit No. 5, effective July 20, 2016, to July 19, 2021.

64.15(6) "Discharge Associated with Well Construction Activities," NPDES General Permit No. 6, effective March 1, 2020, to February 28, 2025.

64.15(7) "Pesticide General Permit (PGP) for Point Source Discharges to Waters of the United States from the Application of Pesticides," NPDES General Permit No. 7, effective May 18, 2016, to May 17, 2021.

64.15(8) "Discharge from Hydrostatic Testing, Tank Ballasting and Water Lines," NPDES General Permit No. 8, effective July 1, 2018, to June 30, 2023.

64.15(9) "Discharge from Dewatering and Residential Geothermal Systems," NPDES General Permit No. 9, effective July 1, 2018, to June 30, 2023.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 8520B**, IAB 2/10/10, effective 3/17/10; **ARC 9365B**, IAB 2/9/11, effective 3/30/11; **ARC 9553B**, IAB 6/15/11, effective 7/20/11; **ARC 0261C**, IAB 8/8/12, effective 10/1/12; **ARC 1337C**, IAB 2/19/14, effective 3/26/14; **ARC 1912C**, IAB 3/18/15, effective 3/1/15; **ARC 2054C**, IAB 7/8/15, effective 8/12/15; **ARC 2572C**, IAB 6/8/16, effective 5/18/16; **ARC 2571C**, IAB 6/8/16, effective 7/20/16; **ARC 3584C**, IAB 1/17/18, effective 3/1/18; **ARC 3585C**, IAB 1/17/18, effective 3/1/18; **ARC 3786C**, IAB 5/9/18, effective 7/1/18; **ARC 4609C**, IAB 8/14/19, effective 3/1/20]

567—64.16(455B) Fees.

64.16(1) A person who applies for an individual permit or coverage under a general permit to construct, install, modify or operate a disposal system shall submit along with the application an application fee or a permit fee or both as specified in 64.16(3). Certain individual facilities shall also be required to submit annual fees as specified in 64.16(3)*"b."* Fees shall be assessed based on the type of permit coverage the applicant requests, either as general permit coverage or as an individual permit. For a construction permit, an application fee must be submitted with the application. For General Permits Nos. 1, 2, 3 and 5, the applicant has the option of paying an annual permit fee or a multiyear permit fee at the time the Notice of Intent for coverage is submitted.

For individual storm water only permits, a one-time, multiyear permit fee must be submitted at the time of application. A storm water only permit is defined as an NPDES permit that authorizes the discharge of only storm water and any allowable non-storm water as defined in the permit. For all other non-storm water NPDES permits and operation permits, the applicant must submit an application fee at the time of application and the appropriate annual fee on a yearly basis. A non-storm water NPDES permit is defined as any individual NPDES permit or operation permit issued to a municipality, industry, semipublic entity, or animal feeding operation that is not an individual storm water only permit. If a facility needs coverage under more than one NPDES permit, fees for each permit must be submitted appropriately.

Fees are nontransferable. Failure to submit the appropriate fee at the time of application renders the application incomplete, and the department shall suspend processing of the application until the fee is received. Failure to submit the appropriate annual fee may result in revocation or suspension of the permit as noted in 64.3(11)*"f."*

64.16(2) Payment of fees. Fees shall be paid by check or money order made payable to the "Iowa Department of Natural Resources."

For facilities needing coverage under both a storm water only permit and a non-storm water NPDES permit, separate payments shall be made according to the fee schedule in 64.16(3).

64.16(3) Fee schedule. The following fees have been adopted:

a. For coverage under the NPDES general permits, the following fees apply:

(1) Storm Water Discharges Associated with Industrial Activity, NPDES General Permit No. 1.

Annual Permit Fee . . . . . $175(per year)

or

Five-year Permit Fee $700

Four-year Permit Fee $525

Three-year Permit Fee $350

All fees are to be submitted with the Notice of Intent for coverage under the general permit.

(2) Storm Water Discharge Associated with Industrial Activity for Construction Activities, NPDES General Permit No. 2. The fees are the same as those specified for General Permit No. 1 in subparagraph (1) of this paragraph.

(3) Storm Water Discharge Associated with Industrial Activity from Asphalt Plants, Concrete Batch Plants, and Rock Crushing Plants, NPDES General Permit No. 3. The fees are the same as those specified for General Permit No. 1 in subparagraph (1) of this paragraph.

(4) Discharge from Private Sewage Disposal Systems, NPDES Permit No. 4. No fees shall be assessed.

(5) Discharge from Mining and Processing Facilities, NPDES General Permit No. 5.

Annual Permit Fee . . . . . $125 (per year)

or

Five-year Permit Fee $500

Four-year Permit Fee $400

Three-year Permit Fee $300

New facilities seeking General Permit No. 5 coverage shall submit fees with the Notice of Intent for coverage. Maximum coverage is for five years. Coverage may also be obtained for four years, three years, or one year, as shown in the fee schedule above. Existing facilities shall submit annual fees by August 30 of every year, unless a multiyear fee payment was received in an earlier year. In the event a facility is no longer eligible to be covered under General Permit No. 5, the remainder of the fees previously paid by the facility shall be applied toward its individual permit fees.

b. Individual NPDES and operation permit fees. The following fees are applicable for the described individual NPDES permit:

(1) For permits that authorize the discharge of only storm water associated with industrial activity and any allowable non-storm water, a five-year permit fee of $1,250 must accompany the application.

(2) For permits that authorize the discharge of only storm water from municipal separate storm sewer systems and any allowable non-storm water, a five-year permit fee of $1,250 must accompany the application.

(3) For operation and non-storm water NPDES permits not subject to subparagraphs (1) and (2), a single application fee of $85 as established in Iowa Code section 455B.197 is due at the time of application. The application fee is to be submitted with the application forms (as required by 567—Chapter 60) at the time of a new application, renewal application, or amendment application. Before an approved amendment request submitted by a facility holding a non-storm water NPDES permit can be processed by the department, the application fee must be submitted. Application fees will not be charged to facilities holding non-storm water NPDES permits when an amendment request

is initiated by the director, when the requested amendment will correct an error in the permit, or when there is a transfer of title or change in the address of the owner as noted in 567—64.14(455B).

(4) For every major and minor municipal facility, every semipublic facility, every major and minor industrial facility, every facility that holds an operation permit (no wastewater discharge into surface waters), and every open feedlot animal feeding operation required to hold a non-storm water NPDES permit, an annual fee as established in Iowa Code section 455B.197 is due by August 30 of each year.

(5) For every municipal water treatment facility with a non-storm water NPDES permit, no fee is charged (as established in Iowa Code section 455B.197).

(6) For a new facility, an annual fee as established in Iowa Code section 455B.197 is due 30 days after the new permit is issued.

c. Wastewater construction permit fees. A single construction permit fee as established in Iowa Code section 455B.197 is due at the time of construction permit application submission.

64.16(4) Fee refunds for storm water general permit coverage—pilot project. Rescinded IAB 10/16/02, effective 11/20/02.

64.16(5) "Discharge Associated with Well Construction Activities," NPDES General Permit No. 6. No fees shall be assessed.

64.16(6) "Pesticide General Permit (PGP) for Point Source Discharges to Waters of the United States From the Application of Pesticides," NPDES General Permit No. 7. No fees shall be assessed.

64.16(7) "Discharge from Hydrostatic Testing, Tank Ballasting and Water Lines," NPDES General Permit No. 8. No fees shall be assessed.

64.16(8) "Discharge from Dewatering and Residential Geothermal Systems," NPDES General Permit No. 9. No fees shall be assessed.

64.16(9) *Fee refunds.*

a. Individual and general permit application, permit, and annual fees may be refunded, completely or in part, at the discretion of the director. Permittees who wish to receive fee refunds should notify the department in writing. Fees may be refunded under various circumstances, including, but not limited to:

(1) A duplicate fee was submitted (for example, two annual fees for the same permit are paid in the same fiscal year).

(2) A fee was overpaid.

(3) A fee was submitted but is not required as part of the permit application or renewal (for example, an individual annual permit fee was submitted for a discontinued permit, a general permit NOI fee was submitted for an individual permit, or an amendment fee was submitted for a permit that cannot be amended).

(4) An application is returned to the applicant by the department without decision.

b. Fees shall not be refunded under any of the following conditions:

(1) If the permit or permit coverage is suspended, revoked, or modified, or if the activity is discontinued or ceased.

(2) If a permit is amended.

(3) If a permit application is withdrawn by the applicant or denied by the department pursuant to 64.5(1).

[Editorial change: IAC Supplement 2/11/09; **ARC 7625B**, IAB 3/11/09, effective 4/15/09; **ARC 8520B**, IAB 2/10/10, effective 3/17/10; **ARC 9365B**, IAB 2/9/11, effective 3/30/11; **ARC 9553B**, IAB 6/15/11, effective 7/20/11; **ARC 2482C**, IAB 4/13/16, effective 5/18/16; **ARC 3786C**, IAB 5/9/18, effective 7/1/18]

567—64.17(455B) Validity of rules. If any section, paragraph, sentence, clause, phrase or word of these rules, or any part thereof, be declared unconstitutional or invalid for any reason, the remainder of said rules shall not be affected thereby and shall remain in full force and effect.

567—64.18(455B) Applicability. This chapter shall apply to all waste disposal systems treating or intending to treat sewage, industrial waste, or other waste except waste resulting from livestock or poultry operations. All livestock and poultry operations constituting animal feeding operations as defined in 567—Chapter 65 shall be governed by the requirements contained in Chapter 65. However, the provisions of this chapter concerning NPDES permits which relate to notice and public participation,

to the terms and conditions of the permit, to the reissuance of the permit and to monitoring, reporting and record-keeping activities shall apply to animal feeding operations which are required to apply for and obtain an NPDES permit to the extent that such requirements are not inconsistent with 567—Chapter 65.
[**ARC 1627C**, IAB 9/17/14, effective 10/22/14]

These rules are intended to implement Iowa Code chapter 455B, division III, part 1.

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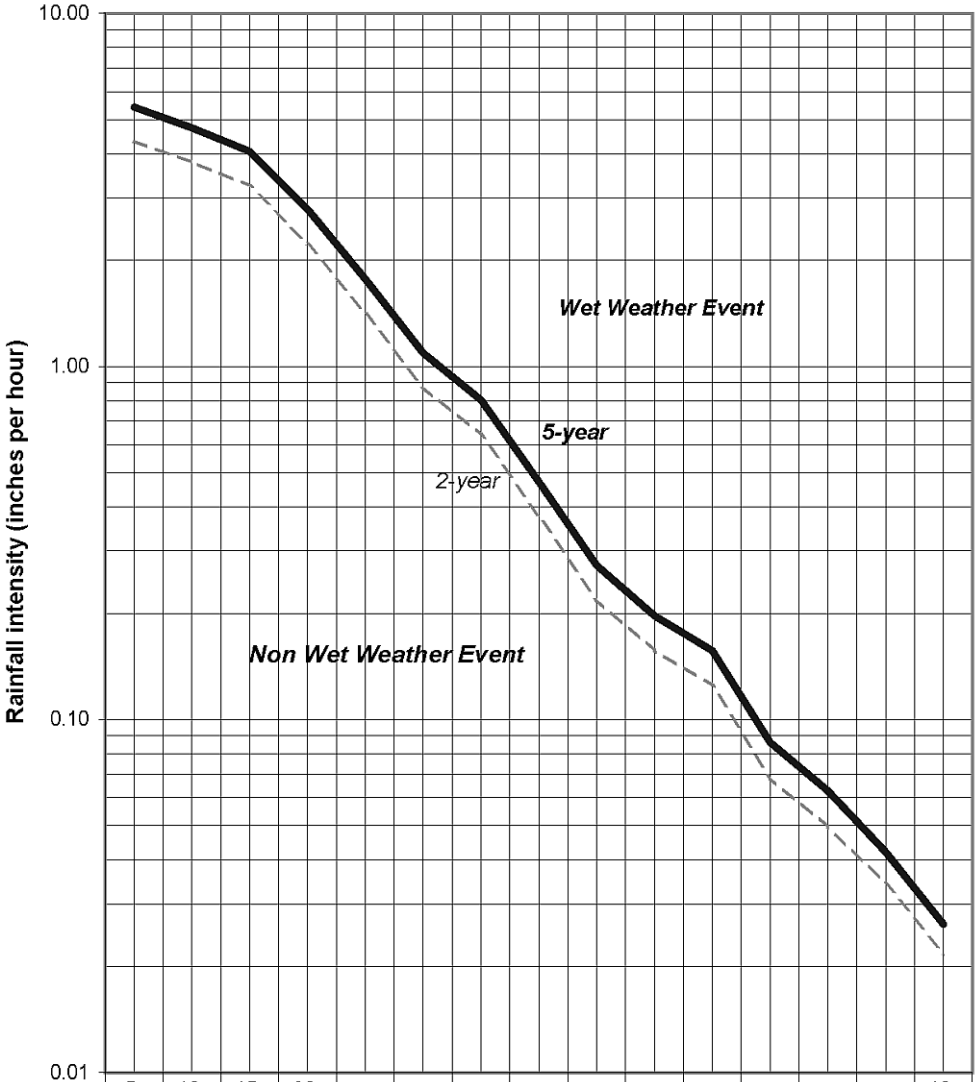
[Filed ARC 2571C (Notice ARC 2442C, IAB 3/16/16), IAB 6/8/16, effective 7/20/16]
[Filed Emergency After Notice ARC 2695C (Notice ARC 2579C, IAB 6/8/16), IAB 8/31/16, effective 8/12/16]
[Filed ARC 3584C (Notice ARC 3309C, IAB 9/13/17), IAB 1/17/18, effective 3/1/18]
[Filed ARC 3585C (Notice ARC 3310C, IAB 9/13/17), IAB 1/17/18, effective 3/1/18]
[Filed ARC 3786C (Notice ARC 3625C, IAB 2/14/18), IAB 5/9/18, effective 7/1/18]
[Filed ARC 4609C (Notice ARC 4421C, IAB 5/8/19), IAB 8/14/19, effective 3/1/20]

[1] Effective date of 64.2(9)*"c"* delayed 70 days by the Administrative Rules Review Committee. The 70-day delay of effective date of 64.2(9)*"c"* was lifted by the Administrative Rules Review Committee on 7/31/86.

APPENDIX A
Rainfall Intensity - Duration - Frequency Curve
(5 and 2 year Return Intervals)

Data Source: *Rainfall Frequency Atlas of the Midwest*, Illinios State Water Survey, 1992.



Duration (time)	5-min	10-min	15-min	30-min	1-hr	2-hr	3-hr	6-hr	12-hr	18-hr	24-hr	48-hr	72-hr	5-day	10-day
5 year	5.41	4.73	4.06	2.78	1.77	1.09	0.80	0.47	0.27	0.20	0.16	0.086	0.063	0.042	0.026
2 year	4.33	3.79	3.24	2.22	1.41	0.87	0.64	0.38	0.22	0.16	0.13	0.068	0.050	0.034	0.022

Rainfall intensity data points (inches per hour)

[**ARC 7625B**, IAB 3/11/09, effective 4/15/09]

CHAPTER 65
ANIMAL FEEDING OPERATIONS

[Prior to 7/1/83, DEQ Ch 20]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

DIVISION I
CONFINEMENT FEEDING OPERATIONS

567—65.1(459,459B) Definitions and incorporation by reference. In addition to the definitions in Iowa Code sections 455B.101, 455B.171 and 459.102 and in 567—Chapter 60, the following definitions shall apply to Division I of this chapter:

65.1(1) *Definitions.*

"Abandoned confinement feeding operation structure" means the confinement feeding operation structure has been razed, removed from the site of a confinement feeding operation, filled in with earth, or converted to uses other than a confinement feeding operation structure so that it cannot be used as a confinement feeding operation structure without significant reconstruction.

"Adjacent—air quality" means, for the purpose of determining separation distance requirements pursuant to 567—65.11(459,459B), that two or more confinement feeding operations are adjacent if they have animal feeding operation structures that are separated at their closest points by less than the following:

1. 1,250 feet for a confinement feeding operation having an animal unit capacity of less than 1,250 animal units for swine maintained as part of a farrowing and gestating operation, less than 2,700 animal units for swine maintained as part of a farrow-to-finish operation, less than 4,000 animal units for cattle maintained as part of a cattle operation, or less than 3,000 animal units for any other confinement feeding operation, or for a confinement feeding operation consisting of dry bedded confinement feeding operation structures.

2. 1,500 feet for a confinement feeding operation having an animal unit capacity of 1,250 or more but less than 2,000 animal units for swine maintained as part of a swine farrowing and gestating operation, 2,700 or more but less than 5,400 animal units for swine maintained as part of a farrow-to-finish operation, 4,000 or more but less than 6,500 animal units for cattle maintained as part of a cattle operation, or for any other confinement feeding operation having an animal unit capacity of 3,000 or more but less than 5,000 animal units.

3. 2,500 feet for a confinement feeding operation having an animal unit capacity of 2,000 or more animal units for swine maintained as part of a swine farrowing and gestating operation, 5,400 or more animal units for swine maintained as part of a farrow-to-finish operation, or 6,500 or more animal units for cattle maintained as part of a cattle operation, or for any other confinement feeding operation with 5,000 or more animal units.

4. The distances in "1" to "3" above shall only be used to determine that two or more confinement feeding operations are adjacent if at least one confinement feeding operation structure was constructed on or after March 21, 1996.

5. To determine if two or more confinement feeding operations are adjacent, for the purpose of determining the separation distance requirements, the animal unit capacity of each individual operation shall be used. If two or more confinement feeding operations do not have the same animal unit capacity, the greater animal unit capacity shall be used to determine the separation distance.

6. Dry manure that is stockpiled within a distance of 1,250 feet from another stockpile shall be considered part of the same stockpile.

"Adjacent—water quality" means, for the purpose of determining the construction permit requirements pursuant to 567—65.7(459,459B) and manure management plan requirements pursuant to 567—65.16(459,459B), that two or more confinement feeding operations are adjacent if they have confinement feeding operation structures that are separated at their closest points by less than the following:

1. 1,250 feet for confinement feeding operations having a combined animal unit capacity of less than 1,000 animal units.

2. 2,500 feet for confinement feeding operations having a combined animal unit capacity of 1,000 or more animal units.

3. The distances in "1" and "2" above shall only be used to determine that two or more confinement feeding operations are adjacent if at least one confinement feeding operation structure is constructed or expanded on or after May 21, 1998.

"Aerobic structure" means an animal feeding operation structure other than an egg washwater storage structure which relies on aerobic bacterial action which is maintained by the utilization of air or oxygen and which includes aeration equipment to digest organic matter. Aeration equipment shall be used and shall be capable of providing oxygen at a rate sufficient to maintain an average of 2 milligrams per liter dissolved oxygen concentration in the upper 30 percent of the depth of manure in the structure at all times.

"Agricultural drainage well" means a vertical opening to an aquifer or permeable substratum which is constructed by any means including but not limited to drilling, driving, digging, boring, augering, jetting, washing, or coring and which is capable of intercepting or receiving surface or subsurface drainage water from land directly or by a drainage system.

"Agricultural drainage well area" means an area of land where surface or subsurface water drains into an agricultural drainage well directly or through a drainage system connecting to the agricultural drainage well.

"Alluvial aquifer area" means an area underlaid by sand or gravel aquifers situated beneath floodplains along stream valleys and includes alluvial deposits associated with stream terraces and benches, contiguous windblown sand deposits, and glacial outwash deposits.

"Alluvial soils" means soils formed in materials deposited by moving water.

"Anaerobic lagoon" means an unformed manure storage structure if the primary function of the structure is to store and stabilize manure, the structure is designed to receive manure on a regular basis, and the structure's design waste loading rates provide that the predominant biological activity is anaerobic. An anaerobic lagoon does not include the following:

1. A runoff control basin or a settled open feedlot effluent basin which collects and stores only precipitation-induced runoff from an open feedlot operation.

2. An anaerobic treatment system that includes collection and treatment facilities for all off gases.

"Animal" means cattle, swine, horses, sheep, chickens, turkeys, goats, fish, or ducks.

"Animal capacity" means the maximum number of animals which the owner or operator will confine in an animal feeding operation at any one time. In a confinement feeding operation, the animal capacity of all confinement buildings will be included in the determination of the animal capacity of the operation, unless the building has been abandoned in accordance with the definition of "abandoned confinement feeding operation structure."

"Animal feeding operation" means a lot, yard, corral, building, or other area in which animals are confined and fed and maintained for 45 days or more in any 12-month period, and all structures used for the storage of manure from animals in the operation. Except as required for an NPDES permit required pursuant to the Act, an animal feeding operation does not include a livestock market. Open feedlots and confinement feeding operations are considered to be separate animal feeding operations.

1. For purposes of water quality regulation, Iowa Code section 459.301provides that two or more animal feeding operations under common ownership or management are deemed to be a single animal feeding operation if they are adjacent or utilize a common area or system for manure disposal. For purposes of the air quality-related separation distances in Iowa Code section 459.202, Iowa Code section 459.201 provides that two or more animal feeding operations under common ownership or management are deemed to be a single animal feeding operation if they are adjacent or utilize a common system for manure storage. The distinction is due to regulation of animal feeding operations for water quality purposes under the Act. 40 CFR 122.23 sets out the requirements for an animal feeding operation and requires that two or more animal feeding operations under common ownership be considered a single operation if they adjoin each other or if they use a common area or system for disposal of wastes. However, this federal regulation does not control regulation of animal feeding operations for the purposes

of the separation distances in Iowa Code section 459.202, and therefore the definition is not required by federal law to include common areas for manure disposal.

2. To determine if two or more animal feeding operations are deemed to be one animal feeding operation, the first test is whether the animal feeding operations are under common ownership or management. If they are not under common ownership or management, they are not one animal feeding operation. For purposes of water quality regulation, the second test is whether the two animal feeding operations are adjacent or utilize a common area or system for manure disposal. If the two operations are not adjacent and do not use a common area or system for manure disposal, they are not one animal feeding operation. For purposes of the separation distances in Iowa Code section 459.202, the second test is whether the two animal feeding operations are adjacent or utilize a common system for manure storage. If the two operations are not adjacent and do not use the same system for manure storage, they are not one animal feeding operation.

3. A common area or system for manure disposal includes, but is not limited to, use of the same manure storage structure, confinement feeding operation structure, egg washwater storage structure, stockpile, permanent manure transfer piping system or center pivot irrigation system. A common area or system for manure disposal does not include manure application fields included in a manure management plan or anaerobic digesters.

"Animal feeding operation structure" means a confinement building, manure storage structure, dry bedded confinement feeding operation structure, or egg washwater storage structure.

"Animal unit" means a unit of measurement based upon the product of multiplying the number of animals of each category by a special equivalency factor, as follows:

1. Slaughter and feeder cattle	1.000
2. Immature dairy cattle	1.000
3. Mature dairy cattle	1.400
4. Butcher or breeding swine weighing more than 55 pounds	0.400
5. Swine weighing 15 pounds or more but not more than 55 pounds	0.100
6. Sheep or lambs	0.100
7. Goats	0.100
8. Horses	2.000
9. Turkeys weighing 7 pounds or more	0.018
10. Turkeys weighing less than 7 pounds	0.0085
11. Broiler or layer chickens weighing 3 pounds or more	0.010
12. Broiler or layer chickens weighing less than 3 pounds	0.0025
13. Ducks	0.040
14. Fish weighing 25 grams or more	0.001
15. Fish weighing less than 25 grams	0.00006

"Animal unit capacity" means a measurement used to determine the maximum number of animal units that may be maintained as part of an animal feeding operation at any one time, including as provided in Iowa Code sections 459.201 and 459.301. For dry bedded confinement feeding operations, "animal unit capacity" means the maximum number of animal units which the owner or operator confines in a dry bedded confinement feeding operation at any one time, including the animal unit capacity of all dry bedded confinement feeding operation buildings that are used to house cattle or swine in the dry bedded confinement feeding operation.

"Animal weight capacity" means the sum of the average weight of all animals in a confinement feeding operation when the operation is at full animal capacity. For confinement feeding operations with only one species, the animal weight capacity is the product of multiplying the animal capacity by the

average weight during a production cycle. For operations with more than one species, the animal weight capacity of the operation is the sum of the animal weight capacities for all species.

EXAMPLE 1. Bill wants to construct a confinement feeding operation with two confinement buildings and an earthen manure storage basin. The capacity of each building will be 900 market hogs. The hogs enter the building at 40 pounds and leave at 250 pounds. The average weight during the production cycle is then 145 pounds for this operation. The animal weight capacity of the operation is 145 pounds multiplied by 1,800 for a total of 261,000 pounds.

EXAMPLE 2. Howard is planning to build a confinement feeding operation with eight confinement buildings and an egg washwater storage lagoon. The capacity of each building will be 125,000 laying hens. The hens enter the building at around 2.5 pounds and leave at around 3.5 pounds. The average weight during the production cycle for these laying hens is 3.0 pounds. Manure will be handled in dry form. The animal weight capacity of the operation is 3.0 pounds multiplied by 1,000,000 for a total of 3,000,000 pounds.

EXAMPLE 3. Carol has an animal feeding operation with four confinement buildings with below floor formed concrete manure storage tanks and one open feedlot. One confinement building is a farrowing building with a capacity of 72 sows. One confinement building is a nursery building with a capacity of 1,450 pigs. The open feedlot contains 425 sows. Two of the confinement buildings are finishing buildings with a capacity of 1,250 market hogs. The farrowing building contains 72 sows at an average weight of 400 pounds for an animal weight capacity of 28,800 pounds. The nursery building contains 1,450 pigs with an average weight over the production cycle of 25 pounds for an animal weight capacity of 36,250 pounds. The two finishing buildings contain 2,500 market hogs (combined) with an average weight over the production cycle of 150 pounds for an animal weight capacity of 375,000 pounds. The total animal weight capacity of the confinement feeding operation is 440,050 pounds. The weights of the animals in open lots are not included in the calculation of the animal weight capacity of the confinement feeding operation.

"Applicant" means the person applying for a construction permit or an NPDES permit for a confinement feeding operation.

"Bedding" means crop, vegetation, or forage residue or similar materials placed in a dry bedded confinement building for the care of animals.

"Business" means a commercial enterprise.

"Cemetery" means a space held for the purpose of permanent burial, entombment or interment of human remains that is owned or managed by a political subdivision or private entity, or a cemetery regulated pursuant to Iowa Code chapter 523I. A cemetery does not include a pioneer cemetery where there have been six or fewer burials in the preceding 50 years.

"Church" means a religious institution.

"Commercial enterprise" means a building which is used as a part of a business that manufactures goods, delivers services, or sells goods or services, which is customarily and regularly used by the general public during the entire calendar year and which is connected to electric, water, and sewer systems. A commercial enterprise does not include a farm operation.

"Commercial manure service" means a sole proprietor or business association engaged in the business of transporting, handling, storing, or applying manure for a fee.

"Commercial manure service representative" means a manager, employee, agent, or contractor of a commercial manure service, if the person is engaged in transporting, handling, storing, or applying manure on behalf of the service.

"Common management" means significant control by an individual of the management of the day-to-day operations of each of two or more confinement feeding operations. "Common management" does not include control over a contract livestock facility by a contractor as defined in Iowa Code section 202.1.

"Common ownership" means the ownership of an animal feeding operation as a sole proprietor, or a 10 percent or more ownership interest held by a person, in each of two or more animal feeding operations as a joint tenant, tenant in common, shareholder, partner, member, beneficiary, or other equity interest

holder. The ownership interest is a common ownership interest when it is held directly, indirectly through a spouse or dependent child, or both. The following exceptions shall apply to this definition:

1. For an animal feeding operation structure constructed before February 19, 2020, "common ownership" means the ownership of an animal feeding operation as a sole proprietor, or a majority ownership interest held by a person, in each of two or more animal feeding operations as a joint tenant, tenant in common, shareholder, partner, member, beneficiary, or other equity interest holder. The majority ownership interest is a common ownership interest when it is held directly, indirectly through a spouse or dependent child, or both.

2. This definition shall not apply to a dry bedded confinement feeding operation which is subject to the common ownership requirements in Iowa Code section 459B.103(3)*"a"*(3).

"Complete application" means an application that is complete and approvable when all necessary questions on the application forms have been completed, the application is signed and all applicable portions of the application, including the application form and required attachments, have been submitted.

"Confinement feeding operation" means an animal feeding operation in which animals are confined to areas which are totally roofed and includes every animal feeding operation that is not an "open feedlot operation" as defined in 567—65.100(459A).

"Confinement feeding operation building" or *"confinement building"* means a building used in conjunction with a confinement feeding operation to house animals.

"Confinement feeding operation structure" means an animal feeding operation structure that is part of a confinement feeding operation.

"Confinement site" means a site where there is located a manure storage structure which is part of a confinement feeding operation, other than a small animal feeding operation.

"Confinement site manure applicator" means a person, other than a commercial manure service or a commercial manure service representative, who applies manure on land if the manure originates from a manure storage structure.

"Construction approval letter" means a written document of the department to acknowledge that the preconstruction submittal requirements of 567—65.9(459,459B) have been met for a confinement feeding operation that is not required to obtain a construction permit pursuant to 567—65.7(459,459B).

"Construction design statement" means a document required to be submitted by a confinement feeding operation prior to constructing a formed manure storage structure, other than a small animal feeding operation, but that does not meet the threshold engineering requirements pursuant to 567—65.1(459,459B).

"Construction permit" means a written approval of the department to construct, modify or alter the use of an animal feeding operation structure as provided in subrule 65.7(1).

"Controlling interest" means ownership of a confinement feeding operation as a sole proprietor or a majority ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary, or other equity interest holder. The majority ownership interest is a controlling interest when it is held directly, indirectly through a spouse or dependent child, or both. The majority ownership interest must be a voting interest or otherwise control management of the confinement feeding operation.

"Covered" means organic or inorganic material, placed upon an animal feeding operation structure used to store manure, which significantly reduces the exchange of gases between the stored manure and the outside air. Organic materials include, but are not limited to, a layer of chopped straw, other crop residue, or a naturally occurring crust on the surface of the stored manure. Inorganic materials include, but are not limited to, wood, steel, aluminum, rubber, plastic, or Styrofoam. The materials shall shield at least 90 percent of the surface area of the stored manure from the outside air. Cover shall include an organic or inorganic material which current scientific research shows reduces detectable odor by at least 75 percent. A formed manure storage structure directly beneath a floor where animals are housed in a confinement feeding operation is deemed to be covered.

"Critical public area" means land that is owned or managed by the federal government, by the department, or by a political subdivision and that has unique scenic, cultural, archaeological, scientific, or historic significance or contains a rare or valuable ecological system. Critical public areas include:

- State wildlife and waterfowl refuges listed in 571—subrules 52.1(2) and 52.1(3);
- Recreation areas, state parks, state parks managed by another governmental agency, and state preserves as listed in 571—61.2(461A);
- County parks and recreation areas as provided in subrule 65.1(2);
- National wildlife refuges listed as follows: Union Slough National Wildlife Refuge, DeSoto National Wildlife Refuge, Boyer Chute National Wildlife Refuge, Upper Mississippi River National Wildlife and Fish Refuge, Driftless Area National Wildlife Refuge, Neal Smith National Wildlife Refuge, and Port Louisa National Wildlife Refuge;
- National monuments and national historic sites listed as follows: Effigy Mounds National Monument and Herbert Hoover National Historic Site;
- Parks in Iowa that are under the federal jurisdiction listed with the United States Army Corps of Engineers as provided in subrule 65.1(2).

"Cropland" means any land suitable for use in agricultural production including, but not limited to, feed, grain and seed crops, fruits, vegetables, forages, sod, trees, grassland, pasture and other similar crops.

"Deep well" means a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Designated area" means a known sinkhole, abandoned well, unplugged agricultural drainage well, agricultural drainage well cistern, agricultural drainage well surface tile inlet, drinking water well, designated wetland, or water source. "Designated area" does not include a terrace tile inlet or surface tile inlet other than an agricultural drainage well surface tile inlet.

"Designated wetland" means land designated as a protected wetland by the United States Department of the Interior or the department, including but not limited to a protected wetland as defined in Iowa Code section 456B.1, if the land is owned and managed by the federal government or the department. However, a designated wetland does not include land where an agricultural drainage well has been plugged causing a temporary wetland or land within a drainage district or levee district. Designated wetlands in the state are listed in the department's "Designated Wetlands in Iowa" (see subrule 65.1(2), Incorporation by reference).

"Discontinued animal feeding operation" means an animal feeding operation whose structures have been abandoned or whose use has been discontinued as evidenced by the removal of all animals and the owner or operator has no immediate plans to repopulate.

"Discontinued animal feeding operation structure" means an animal feeding operation structure that has been abandoned or whose use has been discontinued as evidenced by the removal of all animals from the structure and the owner or operator has no immediate plans to repopulate.

"Document" means any form required to be processed by the department under this chapter regulating animal feeding operations, including but not limited to applications or related materials for permits as provided in Iowa Code section 459.303, manure management plans as provided in Iowa Code section 459.312, comment or evaluation by a county board of supervisors considering an application for a construction permit, the department's analysis of the application including using and responding to a master matrix pursuant to Iowa Code section 459.304, and notices required under those sections.

"Dry bedded confinement feeding operation" means a confinement feeding operation in which cattle or swine are confined to areas which are totally roofed and in which all manure is stored as dry bedded manure. Unless specifically stated otherwise, all requirements in Division I of this chapter do apply to dry bedded confinement feeding operations.

"Dry bedded confinement feeding operation structure" means a dry bedded confinement feeding operation building or a dry bedded manure storage structure.

"Dry bedded manure" means manure from cattle or swine that meets all of the following requirements:

1. The manure does not flow perceptibly under pressure.

2. The manure is not capable of being transported through a mechanical pumping device designed to move a liquid.

3. The manure contains bedding.

"Dry bedded manure confinement feeding operation building" or *"building"* means a building used in conjunction with a confinement feeding operation to house cattle or swine and in which any manure from the animals is stored as dry bedded manure.

"Dry bedded manure storage structure" means a covered or uncovered structure, other than a building, used to store dry bedded manure originating from a confinement feeding operation.

"Dry manure" means manure which meets all of the following conditions:

1. The manure does not flow perceptibly under pressure.

2. The manure is not capable of being transported through a mechanical pumping device designed to move a liquid.

3. The constituent molecules of the manure do not flow freely among themselves but may show a tendency to separate under stress.

"Dry manure" includes manure marketed as a bulk dry animal nutrient product that is stored 1,250 feet or less from the confinement animal feeding structure from which it originated.

"Earthen manure storage basin" means an earthen cavity, either covered or uncovered, which, on a regular basis, receives manure discharges from a confinement feeding operation if accumulated manure from the basin is completely removed at least once each year.

"Earthen waste slurry storage basin" means an uncovered and exclusively earthen cavity which, on a regular basis, receives manure discharges from a confinement animal feeding operation if accumulated manure from the basin is completely removed at least twice each year and which was issued a permit, constructed or expanded on or after July 1, 1990, but prior to May 31, 1995.

"Educational institution" means a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area educational agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.

"Egg washwater storage structure" means an aerobic or anaerobic structure used to store the wastewater resulting from the washing and in-shell packaging of eggs. It does not include a structure also used as a manure storage structure.

"Enforcement action" means an action against a person with a controlling interest in a confinement feeding operation initiated by the department or the attorney general to enforce the provisions of Iowa Code chapter 459 or rules adopted pursuant to the chapter. An enforcement action begins when the attorney general institutes proceedings in district court pursuant to Iowa Code section 455B.112. An enforcement action is pending until final resolution of the action by satisfaction of a court order, for which all judicial appeal rights are exhausted, expired, or waived.

"Family member" means a person related to another person as parent, grandparent, child, grandchild, sibling, or a spouse of such related person.

"Formed manure storage structure" means a covered or uncovered impoundment used to store manure from an animal feeding operation, which has walls and a floor constructed of concrete, concrete block, wood, steel, or similar materials. Similar materials may include, but are not limited to, plastic, rubber, fiberglass, or other synthetic materials. Materials used in a formed manure storage structure shall have the structural integrity to withstand expected internal and external load pressures.

"Freeboard" means the difference in elevation between the liquid level and the confinement feeding operation structure's overflow level.

"Frozen ground" means soil that is impenetrable due to frozen soil moisture but does not include soil that is only frozen to a depth of two inches or less.

"Grassed waterway" means a natural or constructed channel that is shaped or graded to required dimensions and established in suitable vegetation for the stable conveyance of runoff.

"Highly erodible land" means a field that has one-third or more of its acres or 50 acres, whichever is less, with soils that have an erodibility index of eight or more, as determined by rules promulgated by the United States Department of Agriculture.

"Human sanitary waste" means wastewater derived from domestic uses including bathroom and laundry facilities generating wastewater from toilets, baths, showers, lavatories and clothes washing.

"Incidental" means a duty which is secondary or subordinate to a primary job or function.

"Incorporation" means a soil tillage operation following the surface application of manure which mixes the manure into the upper four inches or more of soil.

"Indemnity fund" means the manure storage indemnity fund created in Iowa Code section 459.501.

"Injection" means the application of manure into the soil surface using equipment that discharges it beneath the surface.

"Interest" means ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary, or other equity interest holder. The ownership interest is an interest when it is held directly, indirectly through a spouse or dependent child, or both.

"Internet" means the federated international system that is composed of allied electronic communication networks linked by telecommunication channels, that uses standardized protocols, and that facilitates electronic communication services, including but not limited to use of the World Wide Web; the transmission of electronic mail or messages; the transfer of files and data or other electronic information; and the transmission of voice, image, and video.

"Karst terrain" means land having karst formations that exhibit surface and subterranean features of a type produced by the dissolution of limestone, dolomite, or other soluble rock and characterized by closed depressions, sinkholes, or caves. If a 25-foot vertical separation distance can be maintained between the bottom of an unformed manure storage structure and limestone, dolomite, or other soluble rock, then the structure is not considered to be in karst terrain.

"Liquid manure" means manure that meets all of the following requirements:

1. The manure flows perceptibly under pressure.
2. The manure is capable of being transported through a mechanical pumping device designated to move a liquid.
3. The constituent molecules of the liquid manure flow freely among themselves and show a tendency to separate under stress.

Liquid manure that is frozen or partially frozen is included in this definition.

"Livestock market" means any place where animals are assembled from two or more sources for public auction, private sale, or on a commission basis, which is under state or federal supervision, including a livestock sale barn or auction market, if such animals are kept for ten days or less.

"Long-term stockpile location" means an area where a person stockpiles manure for more than a total of six months in any two-year period.

"Low-pressure irrigation system" means spray irrigation equipment which discharges manure from a maximum height of 9 feet in a downward direction, and which utilizes spray nozzles which discharge manure at a maximum pressure of 25 pounds per square inch.

"Major water source" means a water source that is a lake, reservoir, river or stream located within the territorial limits of the state, or any marginal river area adjacent to the state, if the water source is capable of supporting a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Table 1 and Table 2 at the end of this chapter.

"Manager" means a person who is actively involved in the operation of the service and makes management decisions in the operation of a commercial manure service.

"Man-made manure drainage system" means a drainage ditch, flushing system, or other drainage device which was constructed by human beings and is used for the purpose of transporting manure.

"Manure" means animal excreta or other commonly associated wastes of animals including, but not limited to, bedding, litter, or feed losses. Manure does not include wastewater resulting from the washing and in-shell packaging of eggs. For the purposes of NPDES permitting, "manure" includes

manure, bedding, compost and raw materials or other materials commingled with manure or set aside for disposal.

"Manure storage structure" means a formed manure storage structure, an unformed manure storage structure or a dry bedded manure storage structure. A manure storage structure does not include an egg washwater storage structure. An animal truck wash facility may be part of a confinement feeding operation. An animal truck wash effluent structure may be the same as a manure storage structure that is part of the confinement feeding operation, so long as the primary function of such impoundment is to collect and store both effluent from the animal truck wash facility and manure from the confinement feeding operation.

"New animal feeding operation" means an animal feeding operation whose construction was begun after July 22, 1987, or whose operation is resumed after having been discontinued for a period of 12 months or more.

"NPDES permit" means a written permit of the department, pursuant to the National Pollutant Discharge Elimination System (NPDES) program, to authorize and regulate the operation of a CAFO. "CAFO" means the same as defined in 567—65.100(459A).

"NRCS" means United States Department of Agriculture Natural Resources Conservation Services.

"One hundred year floodplain" means the land adjacent to a major water source, if there is at least a 1 percent chance that the land will be inundated in any one year, according to calculations adopted by rules adopted pursuant to Iowa Code section 459.103. In making the calculations, the department shall consider available maps or data compiled by the Federal Emergency Management Agency.

"Owner" means the person who has legal or equitable title to the property where the confinement feeding operation is located or the person who has legal or equitable title to the confinement feeding operation structures. "Owner" does not include a person who has a lease to use the land where the confinement feeding operation is located or to use the confinement feeding operation structures.

"Permanent vegetation cover" means land which is maintained in perennial vegetative cover consisting of grasses, legumes, or both, and includes, but is not limited to, pastures, grasslands or forages.

"Professional engineer" means a person engaged in the practice of engineering as defined in Iowa Code section 542B.2 who is issued a certificate of licensure as a professional engineer pursuant to Iowa Code section 542B.17.

"Public thoroughfare" means a road, street, or bridge that is constructed or maintained by the state or a political subdivision.

"Public use area" means that portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges and cabins, shelter houses, playground equipment, swimming beaches at lakes, and fishing docks, fishing houses, fishing jetties or fishing piers at lakes. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.

"Public water supply" (also referred to as a system or a water system) means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes (1) any collection, treatment, storage, and distribution facilities under control of the supplier of water and used primarily in connection with such system, and (2) any collection (including wells) or pretreatment storage facilities not under such control which are used primarily in connection with such system. A public water supply system is either a "community water system" or a "noncommunity water system."

"Q100," as defined in 567—70.2(455B,481A), means a flood having a 1 percent chance of being equaled or exceeded in any one year as determined by the department.

"Qualified confinement feeding operation" means a confinement feeding operation which has an animal unit capacity of:

1. 5,333 or more for animals other than swine as part of a farrowing and gestating operation or farrow-to-finish operation or cattle as part of a cattle operation.

2. 2,500 or more for a swine farrowing and gestating operation, not including replacement breeding swine if the following apply:

- The replacement breeding swine are raised at the confinement feeding operation; and
- The replacement breeding swine are used in the farrowing and gestation operation.

3. 5,400 or more for a swine farrow-to-finish operation.

4. 8,500 or more for a confinement feeding operation maintaining cattle.

"Qualified stockpile cover" means a barrier impermeable to precipitation that is used to protect a stockpile from precipitation.

"Qualified stockpile structure" means a building or roofed structure that is all of the following:

1. Impermeable to precipitation.

2. Constructed using wood, steel, aluminum, vinyl, plastic, or other similar materials.

3. Constructed with walls or other means to prevent precipitation-induced surface runoff from contacting the stockpile.

"Release" means an actual, imminent or probable discharge of manure from an animal feeding operation structure to surface water, groundwater, drainage tile line or intake, or to a designated area resulting from storing, handling, transporting or land-applying manure.

"Religious institution" means a building in which an active congregation is devoted to worship.

"Research college" means an accredited public or private college or university, including but not limited to a university under control of the state board of regents as provided in Iowa Code chapter 262, or a community college under the jurisdiction of a board of directors for a merged area as provided in Iowa Code chapter 260C, if the college or university performs research or experimental activities regarding animal agriculture or agronomy.

"Residence" means a house or other building, including all structures attached to the building, not owned by the owner of the animal feeding operation, which meets all of the following criteria at the location of the intended residence:

1. Used as a place of habitation for humans on a permanent and frequent basis.

2. Not readily mobile.

3. Connected to a permanent source of electricity, a permanent private water supply or a public water supply system and a permanent domestic sewage disposal system including a private, semipublic or public sewage disposal system.

4. Assessed and taxed as real property.

If a house or other building has not been occupied by humans for more than six months in the last two years, or if a house or other building has been constructed or moved to its current location within six months, the owner of the intended residence has the burden of proving that the house or other building is a residence. Paragraph "3" shall not apply to a house or other building inhabited by persons who are exempt from the compulsory education standards of Iowa Code section 299.24 and whose religious principles or tenets prohibit the use of the utilities listed.

"Restricted spray irrigation equipment" means spray irrigation equipment which disperses manure through an orifice at a rate of 80 pounds per square inch or more.

"School" means an educational institution.

"Seasonal high-water table" means the part of the soil profile closest to the soil surface that becomes saturated (usually in the spring) as observed in a monitoring well or determined by recognition of soil redoxomorphic features.

NOTE: "Redoxomorphic features" refers to the gleying or mottling or both that occur under saturated conditions within the soil profile.

"Secondary containment barrier" means a structure used to retain accidental manure overflow from a manure storage structure.

"Shallow well" means a well located and constructed in such a manner that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department)

at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Small animal feeding operation" means an animal feeding operation which has an animal unit capacity of 500 or fewer animal units.

"Snow-covered ground" means soil covered by one inch or more of snow or soil covered by one-half inch or more of ice.

"Spray irrigation equipment" means mechanical equipment used for the aerial application of manure, if the equipment receives manure from a manure storage structure during application via a pipe or hose connected to the structure, and includes a type of equipment customarily used for aerial application of water to aid the growing of general farm crops.

"Stockpile" means dry manure or dry bedded manure originating from a confinement feeding operation that is stored at a particular location outside a confinement feeding operation building or a manure storage structure.

"Stockpile dry bedded manure" means to store dry bedded manure outside a dry bedded manure confinement feeding operation building or a dry bedded manure storage structure.

"Stockpile dry manure" means to create or add to a dry manure stockpile.

"Surface water drain tile intake" means an opening to a drain tile, including intake pipes and French drains, which allows surface water to enter the drain tile without filtration through the soil profile.

"Swine farrow-to-finish operation" means a confinement feeding operation in which porcine animals are produced and in which a primary portion of the phases of the production cycle is conducted at one confinement feeding operation. Phases of the production cycle include, but are not limited to, gestation, farrowing, growing and finishing. At a minimum, farrowing, growing, and finishing shall be conducted at the operation with a majority of the pigs farrowed at the site finished to market weight in order to qualify as a farrow-to-finish operation.

"Thoroughfare" means a road, street, bridge or highway open to the public and constructed or maintained by the state or a political subdivision.

"Threshold requirements for an engineer" means the limits, pursuant to Iowa Code section 459.303, which require that the design of a formed manure storage structure or egg washwater storage structure be prepared and signed by a professional engineer licensed in the state of Iowa or by an engineer working for the NRCS. A confinement feeding operation that utilizes a formed manure storage structure meets threshold requirements for an engineer if any of the following apply:

1. A confinement feeding operation with an animal unit capacity of 1,250 or more animal units for swine maintained as part of a swine farrowing and gestating operation.
2. A confinement feeding operation with an animal unit capacity of 2,750 or more animal units for swine maintained as part of a swine farrow-to-finish operation.
3. A confinement feeding operation with an animal unit capacity of 4,000 or more animal units for cattle maintained as part of a cattle operation.
4. Any other confinement feeding operation with an animal unit capacity of 3,000 or more animal units.

"Unformed manure storage structure" means a covered or uncovered impoundment used to store manure, other than a formed manure storage structure, which includes an anaerobic lagoon, aerobic structure, or earthen manure storage basin.

"Water of the state" means any stream, lake, pond, marsh, watercourse, waterway, well, spring, reservoir, aquifer, irrigation system, drainage system, and any other body or accumulation of water, surface or underground, natural or artificial, public or private, which are contained within, flow through or border upon the state or any portion thereof.

"Water source" means a lake, river, reservoir, creek, stream, ditch, or other body of water or channel having definite banks and a bed with water flow, except lakes or ponds without outlet to which only one landowner is riparian.

"Water well" means an excavation that is drilled, cored, bored, augered, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for groundwater, monitoring groundwater, utilizing the geothermal properties of the ground, or extracting water from or injecting water into the

aquifer. "Water well" does not include an open ditch or drain tiles or an excavation made for obtaining or prospecting for oil, natural gas, minerals, or products mined or quarried.

"Wetted perimeter" means the outside edge of land where the direct discharge of manure occurs from spray irrigation equipment.

65.1(2) *Incorporation by reference.* The text of the following incorporated materials is not included in Division I of this chapter. The materials listed below are hereby made a part of Division I of this chapter. For material subject to change, only the specific version specified in this subrule is incorporated. Any amendment or revision to a reference document is not incorporated until this subrule has been amended to specify the new version.

a. *"Act"* means the federal Water Pollution Control Act as amended through January 1, 2015, 33 U.S.C. Chapter 26;

b. *"AFO Siting Atlas"* means a tool to assist in determining potential building sites that meet regulatory requirements. The AFO Siting Atlas is located on the department's website;

c. *"CFR"* or *"Code of Federal Regulations"* means the federal administrative rules adopted by the United States in effect as of January 1, 2015;

d. County Parks and Recreation Areas listed in Iowa's County Conservation System Guide to Outdoor Adventure at www.mycountyparks.com/GuideBook/Iowa/index.html as shown on December 14, 2016;

e. Parks in Iowa under the federal jurisdiction of the United States Army Corps of Engineers listed on the United States Army Corps of Engineers' website at www.recreation.gov/campgroundDirectoryListByAgencyID.do?contractCode=NRSO&agencyID=70902 as shown on December 14, 2016;

f. Designated Wetlands in Iowa – effective date August 23, 2006, located on the department's website; and

g. Emergency spill line telephone number is (515)725-8694.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16; **ARC 4426C**, IAB 5/8/19, effective 6/12/19; **ARC 4871C**, IAB 1/15/20, effective 2/19/20]

567—65.2(459,459B) Minimum manure control requirements and reporting of releases. Confinement feeding operations shall be constructed, managed and maintained to meet the minimum manure control requirements stated in subrules 65.2(1) to 65.2(8) of this rule. A release shall be reported to the department as provided in subrule 65.2(9) of this rule. Dry manure stockpiling requirements are stated in subrule 65.2(10). Dry bedded manure stockpiling requirements are stated in 65.2(11).

65.2(1) Rescinded IAB 9/14/05, effective 9/14/05.

65.2(2) Rescinded IAB 9/14/05, effective 9/14/05.

65.2(3) The minimum level of manure control for a confinement feeding operation shall be the retention of all manure produced in the confinement enclosures between periods of manure application and as specified in this rule. In no case shall manure from a confinement feeding operation be discharged directly into a water of the state or into a tile line that discharges to waters of the state.

a. Control of manure from confinement feeding operations may be accomplished through use of manure storage structures or other manure control methods. Sufficient capacity shall be provided in the manure storage structure to store all manure between periods of manure application. A confinement feeding operation, other than a small animal feeding operation, that is constructed or expanded on or after July 1, 2009, shall not surface-apply liquid manure on frozen or snow-covered ground when there is an emergency, as described in subrule 65.3(4), unless the operation has a minimum of 180 days of manure storage capacity. Additional capacity shall be provided if precipitation, manure or wastes from other sources can enter the manure storage structure.

b. Manure shall be removed from the control facilities as necessary to prevent overflow or discharge of manure from the facilities. Manure stored in unformed manure storage structures or unformed egg washwater storage structures shall be removed from the structures as necessary to maintain a minimum of two feet of freeboard in the structure, unless a greater level of freeboard is

required to maintain the structural integrity of the structure or prevent manure overflow. Manure stored in unroofed formed manure storage structures or formed egg washwater storage structures shall be removed from the structures as necessary to maintain a minimum of one foot of freeboard in the structure unless a greater level of freeboard is required to maintain the structural integrity of the structure or prevent manure overflow.

c. To ensure that adequate capacity exists in the manure storage structure to retain all manure produced during periods when manure application cannot be conducted (due to inclement weather conditions, lack of available land disposal areas, or other factors), the manure shall be removed from the manure storage structure as needed prior to these periods.

d. Dry manure or dry bedded manure originating at a confinement feeding operation may be retained as a stockpile so long as the stockpiled dry manure or dry bedded manure meets the following:

(1) Dry manure stockpiling requirements provided in subrule 65.2(10) or dry bedded manure stockpiling requirements provided in subrule 65.2(11).

(2) Applicable NPDES requirements pursuant to the Act.

(3) The dry manure or dry bedded manure is removed from the stockpile and applied in accordance with 567—65.3(459,459B) within six months after the dry manure or dry bedded manure is first stockpiled.

(4) Dry manure stockpiles are not required to meet the requirements in subparagraphs (1) to (3) above if the dry manure originates from a confinement feeding operation that was constructed prior to January 1, 2006, unless any of the following apply:

1. The confinement feeding operation is expanded after January 1, 2006.
2. Dry manure is stockpiled in violation of subrule 65.2(3).
3. Precipitation-induced runoff from the stockpile has drained off the property.

65.2(4) If site topography, operation procedures, experience, or other factors indicate that a greater or lesser level of manure control than that specified in subrule 65.2(1), 65.2(2), or 65.2(3) is required to provide an adequate level of water pollution control for a specific animal feeding operation, the department may establish different minimum manure control requirements for that operation.

65.2(5) In lieu of using the manure control methods specified in subrule 65.2(1), 65.2(2), or 65.2(3), the department may allow the use of manure treatment or other methods of manure control if it determines that an adequate level of manure control will result.

65.2(6) No direct discharge shall be allowed from an animal feeding operation into a publicly owned lake, a sinkhole, or an agricultural drainage well.

65.2(7) All manure removed from an animal feeding operation or its manure control facilities shall be land-applied in a manner which will not cause surface or groundwater pollution. Application in accordance with the provisions of state law, and the rules and guidelines in this chapter, shall be deemed as compliance with this requirement.

65.2(8) As soon as practical but not later than six months after the use of an animal feeding operation is discontinued, all manure shall be removed from the discontinued animal feeding operation and its manure control facilities and be land-applied.

65.2(9) A release, as defined in 567—65.1(459,459B), shall be reported to the department as provided in this subrule. This subrule does not apply to land application of manure in compliance with these rules.

a. Notification. A person storing, handling, transporting, or land-applying manure from a confinement feeding operation who becomes aware of a release shall notify the department of the occurrence of release as soon as possible but not later than six hours after the onset or discovery of the release by contacting the department's spill line. The local police department or the office of the sheriff of the affected county shall also be contacted within the same time period if the spill involves a public roadway and public safety could be threatened. Reports made pursuant to this rule shall be confirmed in writing as provided in 65.2(9)*"c."*

b. Verbal report. The verbal report of such a release should provide information on as many items listed in 65.2(9)*"c"* as available information will allow.

c. Written report. The written report of a release shall be submitted at the request of the department within 30 days after the verbal report of the release and contain at a minimum the following information:

(1) The approximate location of alleged release (including at a minimum the quarter-quarter section, township and county in which the release occurred or was discovered).

(2) The time and date of onset of the alleged release, if known, and the time and date of the discovery of the alleged release.

(3) The time and date of the verbal report to the department of the release.

(4) The name, mailing address and telephone number of the person reporting the release.

(5) The name, mailing address and telephone number of any other person with knowledge of the event who can be contacted for further information.

(6) The source of the manure allegedly released (e.g., formed storage, earthen storage).

(7) The estimated or known volume of manure allegedly released.

(8) The weather conditions at the time of the onset or discovery of the release.

(9) If known, the circumstances under which the alleged release occurred or exists (e.g., overflow, storage structure breach, equipment malfunction or breakdown, land runoff).

(10) The approximate location of the nearest stream or other water body which is or could be impacted by the alleged release, and the approximate location to the alleged release of any known tile intakes or tile lines which could be a direct conveyance to a surface water or groundwater.

(11) A description of any containment or remedial measures taken to minimize the impact of the release.

(12) Any information that may assist the department in evaluating the release.

d. Reporting of subsequent findings. All subsequent findings and laboratory results should be reported and submitted in writing to the department as soon as they become available.

e. Waiver of notification requirement. A waiver from the notification requirement of paragraph *"a"* of this subrule may be granted by the department for a release to a specific drainage tile line or intake if sufficient information is provided to demonstrate that the drainage tile line or intake will not result in a discharge to a water of the state.

65.2(10) Dry manure stockpiling requirements for a confinement feeding operation.

a. Requirements for terrain, other than karst terrain. Dry manure stockpiled on terrain, other than karst terrain, for more than 15 consecutive days shall comply with either of the following:

(1) Dry manure shall be stockpiled using any of the following:

1. A qualified stockpile structure; or

2. A qualified stockpile cover. Long-term stockpiles utilizing a qualified stockpile cover shall be placed on a constructed impervious base that can support the load of the equipment used under all weather conditions. The coefficient of permeability of the impervious base shall be less than 1×10^{-7} cm/sec (0.00028 feet/day). Permeability results shall be submitted to the department prior to use of the stockpile site.

(2) A stockpile inspection statement shall be delivered to the department as follows:

1. The department must receive the statement by the fifteenth day of each month.

2. The stockpile inspection statement shall provide the location of the stockpile and document the results of an inspection conducted during the previous month. The inspection must evaluate whether precipitation-induced runoff is draining away from the stockpile and, if so, describe actions taken to prevent the runoff. If an inspection by the department documents that precipitation-induced runoff is draining away from a stockpile, the dry manure must be immediately removed from the stockpile or comply with all directives of the department to prevent the runoff.

3. The stockpile inspection statement must be in writing and may be on a form prescribed by the department.

b. Requirements for karst terrain. Dry manure stockpiled on karst terrain or an area that drains into a known sinkhole shall comply with all of the following:

(1) A minimum 5-foot layer of low permeability soil or rock between the bottom of the stockpile and underlying limestone, dolomite or other soluble rock is required. A professional engineer licensed in Iowa, NRCS qualified staff or a qualified organization shall submit a soil report, based on the results

from soil borings or test pits or representative well data, describing the subsurface materials and vertical separation distance from the proposed bottom of the stockpile and the underlying limestone, dolomite or soluble rock. A minimum of two soil borings or test pits at each end of the proposed stockpile site are required if acceptable well data are not available. After soil exploration is complete, each boring or test pit shall be properly plugged with concrete grout, bentonite or similar materials and that action shall be documented in the soil report.

(2) Dry manure stockpiled for more than 15 consecutive days shall use any of the following:

1. A qualified stockpile structure; or

2. A qualified stockpile cover. Long-term stockpiles utilizing a qualified stockpile cover shall be placed on a reinforced concrete slab at least 5 inches thick conforming to the requirements of 65.15(14)*"a"*(2), numbered paragraphs "1," "3," "4," "6," "8" and "12."

c. Dry manure stockpile siting prohibitions.

(1) Grassed waterway. A stockpile or stockpile structure shall not be placed in a grassed waterway.

(2) Sloping land. A stockpile or stockpile structure shall not be placed on land having a slope of more than 3 percent, unless the dry manure is stockpiled using methods, structures, or practices that contain the stockpile, including but not limited to silt fences, temporary earthen berms, or other effective measures, and that prevent or diminish precipitation-induced runoff from the stockpile.

65.2(11) Dry bedded manure stockpiling requirements for a dry bedded confinement feeding operation.

a. Prohibitions and siting restrictions.

(1) Prohibition in a grassed waterway. A stockpile or stockpile structure shall not be placed in a grassed waterway, where water pools on the soil surface, or in any location where surface water will enter the stockpile.

(2) Siting restrictions. A stockpile or stockpile structure shall not be placed on land having a slope of more than 3 percent, unless the dry manure or dry bedded manure is stockpiled using methods, structures, or practices that contain the stockpile, including but not limited to hay bales, silt fences, temporary earthen berms, or other effective measures that prevent or diminish precipitation-induced runoff from the stockpile.

b. Requirements for karst terrain or alluvial aquifer areas. Dry bedded manure stockpiled on karst terrain or an alluvial aquifer area shall comply with all of the following:

(1) A minimum 5-foot layer of low permeability soil or rock between the bottom of the stockpile and underlying limestone, dolomite or other soluble rock in karst terrain or the underlying sand and gravel aquifer in an alluvial aquifer area is required. A professional engineer licensed in Iowa, NRCS qualified staff or a qualified organization shall submit a soil report, based on the results from soil borings or test pits, determining the vertical separation distance from the proposed bottom of the stockpile and the underlying limestone, dolomite or soluble rock. A minimum of two soil borings or test pits at each end of the proposed site are required if acceptable well data are not available. After soil exploration is complete, each boring or test pit shall be properly plugged with concrete grout, bentonite or similar materials and that action shall be documented in the soil report.

(2) Stockpiles shall be placed on a reinforced concrete slab that is a minimum of 5 inches thick conforming to the requirements of 65.15(14)*"a"*(2), numbered paragraphs "1," "3," "4," "6," "8" and "12."

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.3(459,459B) Requirements and recommended practices for land application of manure.

65.3(1) *Application rate based on crop nitrogen use.* A confinement feeding operation that is required to submit a manure management plan to the department under rule 567—65.16(459,459B) shall not apply manure in excess of the nitrogen use levels necessary to obtain optimum crop yields. Calculations to determine the maximum manure application rate allowed under this subrule shall be performed pursuant to rule 567—65.17(459,459B).

65.3(2) *General requirements for application rates and practices.*

a. For confinement feeding operations required to submit a manure management plan to the department under rule 567—65.16(459,459B), application rates and practices shall be determined pursuant to rule 567—65.17(459,459B).

b. For manure originating from an anaerobic lagoon or aerobic structure, application rates and practices shall be used to minimize groundwater or surface water pollution resulting from application, including pollution caused by runoff or other manure flow resulting from precipitation events. In determining appropriate application rates and practices, the person land-applying the manure shall consider the site conditions at the time of application including anticipated precipitation and other weather factors, field residue and tillage, site topography, the existence and depth of known or suspected tile lines in the application field, and crop and soil conditions, including a good-faith estimate of the available water holding capacity given precipitation events, the predominant soil types in the application field and planned manure application rate.

c. Spray irrigation equipment shall be operated in a manner and with an application rate and timing that does not cause runoff of the manure onto the property adjoining the property where the spray irrigation equipment is being operated.

d. For manure from an earthen waste slurry storage basin, earthen manure storage basin, or formed manure storage structure, restricted spray irrigation equipment shall not be used unless the manure has been diluted with surface water or groundwater to a ratio of at least 15 parts water to 1 part manure. Emergency use of spray irrigation equipment without dilution shall be allowed to minimize the impact of a release as approved by the department.

65.3(3) *Separation distance requirements for land application of manure.* Land application of manure shall be separated from objects and locations as specified in this subrule.

a. For liquid manure from a confinement feeding operation, the required separation distance from a residence not owned by the titleholder of the land, a business, a church, a school, or a public use area is 750 feet, as specified in Iowa Code section 459.204. The separation distance for application of manure by spray irrigation equipment shall be measured from the actual wetted perimeter and the closest point of the residence, business, church, school, or public use area.

b. The separation distance specified in paragraph 65.3(3)*"a"* shall not apply if any of the following apply:

(1) The liquid manure is injected into the soil or incorporated within the soil not later than 24 hours after the original application.

(2) The titleholder of the land benefitting from the separation distance requirement executes a written waiver with the titleholder of the land where the manure is applied.

(3) The liquid manure originates from a small animal feeding operation.

(4) The liquid manure is applied by low-pressure spray irrigation equipment pursuant to paragraph 65.3(3)*"d."*

c. Separation distance for spray irrigation from property boundary line. Spray irrigation equipment shall be set up to provide for a minimum distance of 100 feet between the wetted perimeter as specified in the spray irrigation equipment manufacturer's specifications and the boundary line of the property where the equipment is being operated. The actual wetted perimeter, as determined by wind speed and direction and other operating conditions, shall not exceed the boundary line of the property where the equipment is being operated. For property which includes a road right-of-way, railroad right-of-way or an access easement, the property boundary line shall be the boundary line of the right-of-way or easement.

d. Distance from structures for low-pressure irrigation systems. Low-pressure irrigation systems shall have a minimum separation distance of 250 feet between the actual wetted perimeter and the closest point of a residence, a business, church, school or public use area.

e. Variances. Variances to paragraph *"c"* of this subrule may be granted by the department if sufficient and proposed alternative information is provided to substantiate the need and propriety for such action. Variances may be granted on a temporary or permanent basis. The request for a variance shall be in writing and include information regarding:

(1) The type of manure storage structure from which the manure will be applied by spray irrigation equipment.

(2) The spray irrigation equipment to be used in the application of manure.

(3) Other information as the department may request.

f. Agricultural drainage wells. Manure shall not be applied by spray irrigation equipment on land located within an agricultural drainage well area.

g. Designated areas. A person shall not apply manure on land within 200 feet from a designated area, or in the case of a high-quality water resource, within 800 feet, unless one of the following applies:

(1) The manure is land-applied by injection or incorporation on the same date as the manure was land-applied.

(2) An area of permanent vegetation cover, including filter strips and riparian forest buffers, exists for 50 feet surrounding the designated area other than an unplugged agricultural drainage well or surface intake to an unplugged agricultural drainage well, and the area of permanent vegetation cover is not subject to manure application.

h. Setback requirements for confinement feeding operations with NPDES permits. For confinement feeding operations with NPDES permits, the following is adopted by reference: 40 CFR 412.4(a), (b) and (c)(5).

65.3(4) *Surface application of liquid manure on frozen or snow-covered ground.* A person who applies liquid manure on frozen or snow-covered ground shall comply with applicable NPDES requirements pursuant to the Act and also shall comply with the following requirements:

a. *Snow-covered ground.* During the period beginning December 21 and ending April 1, a person may apply liquid manure originating from a manure storage structure that is part of a confinement feeding operation on snow-covered ground only when there is an emergency.

b. *Frozen ground.* During the period beginning February 1 and ending April 1, a person may apply liquid manure originating from a manure storage structure that is part of a confinement feeding operation on frozen ground only when there is an emergency.

c. *What constitutes an emergency.* For the purposes of this subrule, an emergency application is only allowed when there is an immediate need to apply manure to comply with the manure retention requirement of subrule 65.2(3) due to unforeseen circumstances affecting the storage of the liquid manure. The unforeseen circumstances must be beyond the control of the owner of the confinement feeding operation, including but not limited to natural disaster, unusual weather conditions, or equipment or structural failure. The authorization to apply liquid manure pursuant to this subrule does not apply to either of the following:

(1) An immediate need to apply manure in order to comply with the manure retention requirement of subrule 65.2(3) caused by the improper design or management of the manure storage structure, including but not limited to a failure to properly account for the volume of the manure to be stored. Based on the restrictions described in paragraphs 65.3(4)*"a"* and *"b"* and the possibility that the ground could be snow-covered and frozen for the entire period of December 21 to April 1, an operation should not plan to apply liquid manure during that time period. Confinement feeding operations with manure storage structures constructed after May 26, 2009, and without alternatives to manure application must have sufficient storage capacity to retain manure generated from December 21 to April 1 under normal circumstances in order to properly account for the volume of manure to be stored. For confinement feeding operations that have no manure storage structures constructed after May 26, 2009, the department will accept insufficient manure storage capacity as a reason for emergency application in the notification required in 65.3(4)*"d"*(1).

(2) Liquid manure originating from a confinement feeding operation constructed or expanded on or after July 1, 2009, if the confinement feeding operation has a capacity to store manure for less than 180 days.

d. *Procedure for emergency application.* A person who is authorized to apply liquid manure on snow-covered ground or frozen ground when there is an emergency shall comply with all of the following:

(1) The person must notify the appropriate department field office by telephone prior to the application. The department will not consider the notification complete unless the owner's name, facility name, facility ID number, reason for emergency application, application date, estimated number of gallons of manure to be applied, and the application fields as listed in the manure management plan are given. In cases where the emergency is not easily confirmed by weather reports, the owner must make documentation of the emergency available to the field office upon request.

(2) The liquid manure must be applied on land identified for such application in the current manure management plan maintained by the owner of the confinement feeding operation as required in subrule 65.17(12). The land must be identified in the current manure management plan prior to the application, and that change must also be reflected in the next annual update or complete manure management plan submitted to the department and county boards of supervisors following the application as required in paragraph 65.16(3)*"b."*

(3) The liquid manure must be applied on a field with a phosphorus index rating of 2 or less.

(4) Any surface water drain tile intake that is on land in the owner's manure management plan and located downgradient of the application must be temporarily blocked beginning not later than the time that the liquid manure is first applied and ending not earlier than two weeks after the completion of the application.

(5) Additional measures to contain runoff may be necessary in order to prevent violation of federal effluent standards in 567—subrule 62.4(12).

e. Exceptions. Paragraphs 65.3(4)*"a"* through *"d"* do not apply to any of the following:

(1) The application of liquid manure originating from a small animal feeding operation.

(2) The application of liquid manure injected or incorporated into the soil on the same date.

65.3(5) *Recommended practices.* Except as required by rule in this chapter, the following practices are recommended:

a. Nitrogen application rates. To minimize the potential for leaching to groundwater or runoff to surface waters, nitrogen application from all sources, including manure, legumes, and commercial fertilizers, should not be in excess of the nitrogen use levels necessary to obtain optimum crop yields for the crop being grown.

b. Phosphorous application rates. To minimize phosphorous movement to surface waters, manure should be applied at rates equivalent to crop uptake when soil tests indicate adequate phosphorous levels. Phosphorous application more than crop removal can be used to obtain maximum crop production when soil tests indicate very low or low phosphorous levels.

c. Manure application on frozen or snow-covered cropland. Application of dry or liquid manure on frozen or snow-covered cropland should be avoided where possible. If manure application must take place in the winter time, the following are guidelines to minimize runoff and subsequent loss of nutrients.

(1) Apply manure to areas where land slopes are 4 percent or less or where control practices are sufficient to prevent runoff from reaching surface water or groundwater during winter.

(2) If applying manure on a terraced field or sloping field, avoid application to areas that drain to tile intakes that directly discharge to surface water or groundwater.

(3) Do not apply manure in grassed waterways.

(4) Apply manure early in winter prior to significant snowfall.

(5) Avoid application near tile intakes, ditches, gullies, areas of concentrated flow, creeks, streams, lakes, and other surface water.

(6) Avoid application near water wells, sinkholes, losing streams, areas with shallow bedrock, agricultural drainage wells, or other pathways to groundwater.

(7) Do not apply manure on top of deeper snow cover, especially in late winter.

(8) Applying manure on soybean stubble where less snow is captured is preferable to applying manure on standing cornstalks.

(9) In late winter, wait until the snow has melted before applying manure.

(10) Avoid application during active runoff events or when rainfall, snow, or warming conditions are predicted that could cause snowmelt or runoff.

(11) Fields and tiles should be observed during snowmelt and runoff events to identify and remediate any runoff that may occur. If discolored or odorous water is being discharged, immediate efforts should be taken to prevent the water from reaching surface water or groundwater and changes should be made to prevent the discharge from recurring. Sampling and analysis of runoff for nitrogen and phosphorus may be used to better evaluate management practices in order to avoid wasting valuable nutrients or causing water quality violations.

d. *Manure application on cropland subject to flooding.* Manure application on cropland subject to flooding more than once every ten years should be injected during application or incorporated into the soil after application. Manure should not be spread on such areas during frozen or snow-covered conditions.

e. *Manure application on land adjacent to water bodies.* Unless adequate erosion controls exist on the land and manure is injected or incorporated into the soil, manure application should not be done on land areas located within 200 feet of and draining into a stream or surface intake for a tile line or other buried conduit. No manure should be spread on waterways except for the purpose of establishing seedings.

f. *Manure application on steeply sloping cropland.* Manure application on tilled cropland with greater than 10 percent slopes should be limited to areas where adequate soil erosion control practices exist. Injection or soil incorporation of manure is recommended where consistent with the established soil erosion control practices.

65.3(6) *Certified manure applicator.* A confinement feeding operation that is required to submit a manure management plan to the department pursuant to rule 567—65.16(459,459B) must use a certified commercial manure service for land application of manure as provided in rule 567—65.19(459,459B). An operation subject to this subrule that applies its own manure must comply with certification requirements in rule 567—65.19(459,459B) pertaining to confinement site manure applicators.

[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 1627C**, IAB 9/17/14, effective 10/22/14; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.4(459,459B) Operation permit required. Rescinded **ARC 1627C**, IAB 9/17/14, effective 10/22/14.

567—65.5(459,459B) Departmental evaluation.

65.5(1) The department may evaluate any animal feeding operation to determine if any of the following conditions exist:

a. Manure from the operation is being discharged into a water of the state and the operation is not providing the applicable minimum level of manure control as specified in subrule 65.2(1), 65.2(2), or 65.2(3);

b. Manure from the operation is causing or may reasonably be expected to cause pollution of a water of the state; or

c. Manure from the operation is causing or may reasonably be expected to cause a violation of state water quality standards.

65.5(2) If departmental evaluation determines that any of the conditions listed in subrule 65.5(1) exist, the operation shall institute necessary remedial actions to eliminate the conditions if the operation receives a written notification from the department of the need to correct the conditions. This subrule shall apply to all permitted and unpermitted animal feeding operations, regardless of animal capacity.

[1]**65.5(3)** The department may evaluate any proposed confinement feeding operation or proposed expansion of a confinement feeding operation that requires a construction permit or manure management plan with respect to its potential adverse impacts on natural resources or the environment.

a. In conducting the evaluation, the department shall consider the following factors:

(1) The likelihood manure will be applied to frozen or snow-covered cropland.

(2) The proximity of the structures or manure application areas to sensitive areas, including but not limited to publicly owned land, designated areas, trout streams and karst terrain.

(3) Topography, slope, vegetation, potential means or routes of conveyance of manure spilled or land-applied. This factor includes but is not limited to whether the manure application areas involve

cropland with predominant slopes greater than 9 percent without a conservation plan approved by the local soil and water conservation district or its equivalent and whether manure for land application is hauled or otherwise transported more than five miles.

(4) Whether the operation or manure application area is or will be located in a two-year capture zone for a public water supply.

b. In addition to the requirements in rules 567—65.9(459,459B), 567—65.10(459,459B), 567—65.11(459,459B), 567—65.15(459,459B) and 567—65.17(459,459B), the department may deny a construction permit, disapprove a manure management plan or prohibit construction of the proposed operation at the proposed location if the director determines from the evaluation conducted pursuant to this subrule that the operation would reasonably be expected to result in any of the following impacts:

(1) Manure from the operation will cause pollution of a water of the state.

(2) Manure from the operation will cause a violation of state water quality standards.

(3) An adverse effect on natural resources or the environment will occur in a specific area due to the current concentration of animal feeding operations or the associated manure application areas.

c. The department also may establish permit conditions or require amendments to the manure management plan in addition to the minimum requirements established for such operations, on the location of structures or manure application, or other operational conditions necessary to avoid or minimize the adverse impacts.

d. A construction permit denial or condition, a manure management plan disapproval or required amendment, or a prohibition of construction pursuant to this subrule may be appealed according to the contested case procedures set forth in 561—Chapter 7.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 1627C**, IAB 9/17/14, effective 10/22/14]

[1] Objection to 65.5(3) filed by the Administrative Rules Review Committee October 10, 2006. See text of Objection at end of Chapter 65.

567—65.6(459,459B) Concentrated animal feeding operations; NPDES permits. Iowa Code subsection 459.311(2) requires a confinement feeding operation that is a concentrated animal feeding operation as defined in 40 CFR 122.23(b) to comply with applicable NPDES permit requirements pursuant to rules adopted by the commission. The following regulations are adopted by reference:

- 40 CFR 122.21, application for a permit.
- 40 CFR 122.23, concentrated animal feeding operations.
- 40 CFR 122.42(e), additional conditions applicable to specified categories of NPDES permits.
- 40 CFR 122.63(h), minor modification of permits.
- 40 CFR Part 412, concentrated animal feeding operations (CAFO) point source category.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 1627C**, IAB 9/17/14, effective 10/22/14; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.7(459,459B) Construction permits—required approvals, permits, determinations and declaratory orders. A person required to obtain a construction permit pursuant to subrule 65.7(1) or a construction approval letter pursuant to subrule 65.7(7) shall not begin construction, expansion or modification of a confinement feeding operation structure until the department issues a construction permit or a construction approval letter, as defined in 567—65.1(459,459B), for a proposed or existing confinement feeding operation. In addition, the owner of a small animal feeding operation with formed manure storage structures who is not required to obtain a construction permit pursuant to subrule 65.7(1) or a construction approval letter pursuant to subrule 65.7(7) shall comply with the applicable construction approval requirements pursuant to subrule 65.7(8).

65.7(1) *Confinement feeding operations required to obtain a construction permit.*

a. Rescinded IAB 9/17/14, effective 10/22/14.

b. Except as provided in subrule 65.7(2), a confinement feeding operation shall obtain a construction permit prior to any of the following:

(1) Constructing or modifying any unformed manure storage structure, or constructing, installing or modifying a confinement building that uses an unformed manure storage structure.

(2) Constructing, installing or modifying a confinement building or a formed manure storage structure at a confinement feeding operation if, after construction, installation or expansion, the animal unit capacity of the operation is 1,000 animal units or more. This subparagraph also applies to confinement feeding operations that store manure exclusively in a dry form.

(3) Initiating a change that would result in an increase in the volume of manure or a modification in the manner in which manure is stored in any unformed manure storage structure, even if no construction or physical alteration is necessary. Increases in the volume of manure due to an increase in animal capacity, animal weight capacity or animal unit capacity up to the limits specified in a previously issued construction permit do not require a new construction permit.

(4) Initiating a change, even if no construction or physical alteration is necessary, that would result in an increase in the volume of manure or a modification in the manner in which manure is stored in a formed manure storage structure if, after the change, the animal unit capacity of the operation is 1,000 animal units or more. Increases in the volume of manure due to an increase in animal capacity, animal weight capacity or animal unit capacity up to the limits specified in a previously issued construction permit do not require a new construction permit.

(5) Constructing or modifying any egg washwater storage structure or a confinement building at a confinement feeding operation that includes an egg washwater storage structure.

(6) Initiating a change that would result in an increase in the volume of egg washwater or a modification in the manner in which egg washwater is stored, even if no construction or physical alteration is necessary. Increases in the volume of egg washwater due to an increase in animal capacity, animal weight capacity or animal unit capacity up to the limits specified in a previously issued construction permit do not require a new construction permit.

(7) Repopulating a confinement feeding operation if it was closed for 24 months or more and if any of the following apply:

1. The confinement feeding operation uses an unformed manure storage structure or egg washwater storage structure;

2. The confinement feeding operation includes only confinement buildings and formed manure storage structures and has an animal unit capacity of 1,000 animal units or more.

(8) Installing a permanent manure transfer piping system, unless the department determines that a construction permit is not required.

(9) Initiating a remedial change, upgrade, replacement or construction when directed by the department as a result of departmental evaluation pursuant to paragraph 65.5(2)*"b"* or as required by an administrative order or court order pursuant to Iowa Code section 455B.112 or 455B.175.

Repairs to a confinement building or additions such as fans, slats, gates, roofs, or covers do not require a construction permit. In some instances, the department may determine that a construction permit is not required to increase the volume of manure or egg washwater or a modification in the manner in which manure or egg washwater is stored if the increase or modification is deemed insignificant. Plans for repairs or modifications to a manure storage structure shall be submitted to the department to determine if a permit is required.

65.7(2) *Confinement feeding operations not required to obtain a construction permit.*

a. A construction permit shall not be required for a formed manure storage structure or for a confinement building that uses a formed manure storage structure in conjunction with a small animal feeding operation. However, this paragraph shall not apply to a small animal feeding operation that uses an unformed manure storage structure.

b. A construction permit shall not be required for a confinement feeding operation structure related to research activities and experiments performed under the authority and regulations of a research college.

c. A construction permit is not required to construct a formed manure storage structure at a confinement feeding operation having an animal unit capacity of more than 500 but less than 1,000 animal units; however, a construction approval letter is required from the department pursuant to subrule 65.7(8) and 567—65.9(459,459B).

d. A construction permit is not required for a confinement feeding operation that exclusively confines fish and elects to comply with the permitting requirements of Iowa Code section 455B.183.

65.7(3) *Operations that shall not be issued construction permits.*

a. The department shall not issue a construction permit to a person if an enforcement action by the department, relating to a violation of this chapter concerning a confinement feeding operation in which the person has an interest, is pending.

b. The department shall not issue a construction permit to a person for five years after the date of the last violation committed by a person or confinement feeding operation in which the person holds a controlling interest during which the person or operation was classified as a habitual violator under Iowa Code sections 459.317 and 459.604.

c. The department shall not issue a construction permit to expand or modify a confinement feeding operation for 120 days after completion of the last construction or modification at the operation, if a permit was not required for the last construction or modification.

d. The department shall not issue a construction permit for a confinement feeding operation structure that is proposed to be located on the one hundred year floodplain. Placing fill material on floodplain land to elevate the land above the one hundred year flood level will not be considered as removing the land from the one hundred year floodplain for the purpose of this subrule.

65.7(4) *Construction permit application plan review criteria.* Review of plans and specifications submitted with a construction permit application shall be conducted to determine the potential of the proposed manure control system to achieve the level of manure control being required of the confinement feeding operation. In conducting this review, applicable criteria contained in federal law, state law, these rules, NRCS design standards and specifications unless inconsistent with federal or state law or these rules, and U.S. Department of Commerce precipitation data shall be used. If the proposed facility plans are not adequately covered by these criteria, applicable criteria contained in current technical literature shall be used.

65.7(5) *Expiration of construction permits.* A construction permit shall expire if construction, as defined in rule 567—65.8(459,459B), is not begun within one year and completed within four years of the date of issuance. The director may grant an extension of time to begin or complete construction if it is necessary or justified, upon showing of such necessity or justification to the director, unless a person who has an interest in the proposed operation is the subject of a pending enforcement action or a person who has a controlling interest in the proposed operation has been classified as a habitual violator. If a permitted site has not completed all proposed permitted structures within the four-year limit, then the approved animal unit capacity in the construction permit shall be lowered to be equal to what was constructed and the department shall issue a construction permit amendment for what was constructed.

65.7(6) *Revocation of construction permits.* The department may revoke a construction permit or refuse to renew a permit expiring according to subrule 65.7(5) if it determines that the operation of the confinement feeding operation constitutes a clear, present and impending danger to public health or the environment.

65.7(7) *Confinement feeding operations required to obtain a construction approval letter.* A person planning to construct a confinement feeding operation, other than a small animal feeding operation as defined in rule 567—65.1(459,459B) or other than an operation required to obtain a construction permit pursuant to subrule 65.7(1), shall obtain from the department a construction approval letter as provided in subrule 65.9(3) prior to beginning construction of a formed manure storage structure or a confinement building. The construction approval letter shall expire if construction, as defined in subrule 65.8(1), is not begun within one year and completed within four years of the date of the construction approval letter.

65.7(8) *Small animal feeding operations.* The following requirements apply to small animal feeding operations, notwithstanding construction permit exemptions in subrule 65.7(2) and limited separation distance exemptions in rule 567—65.12(459,459B):

a. A person shall not construct a confinement feeding operation structure in the one hundred year floodplain. A person shall not begin construction of a confinement feeding operation structure located on alluvial soil until the department issues a declaratory order pursuant to subrule 65.7(9) that the proposed

location is not in the one hundred year floodplain. The AFO Siting Atlas may be a tool used to assist in the one hundred year floodplain and alluvial soil determinations.

b. A person shall not construct a confinement feeding operation structure on a floodplain as provided in rule 567—71.13(455B) until the department issues a floodplain development permit pursuant to 567—Chapters 70 to 76.

c. Confinement feeding operation structures must comply with applicable separation distance requirements in rule 567—65.11(459,459B) and the applicable manure storage structure design requirements in rule 567—65.15(459,459B).

65.7(9) *Declaratory orders and floodplain determinations.* A person shall not construct a confinement feeding operation structure in the one hundred year floodplain. The AFO Siting Atlas may be a tool used to assist in the one hundred year floodplain and alluvial soil determinations. If the location of any proposed confinement feeding operation structure contains soils classified as alluvial determined pursuant to subrule 65.9(4), the owner shall petition the department for a declaratory order or a determination that the confinement feeding operation structure is not in the one hundred year floodplain. To be considered complete, the petition shall include all information necessary, pursuant to 567—Chapters 70 to 76, for the department to determine: (1) if the confinement feeding operation is proposed to be located on a one hundred year floodplain; (2) if a floodplain development permit for the operation is required; and (3) if a floodplain development permit may be issued if one is required. This information may include land surveys to determine elevations of the land within the footprint of the planned operation as well as floodplain and channel geometry. The petition for a declaratory order or determination shall be submitted to the department according to either of the following:

a. If the person is not required to apply for a construction permit pursuant to subrule 65.7(1), the person must petition the department for a declaratory order pursuant to Iowa Code section 17A.9 and 561—Chapter 6. The department shall issue a declaratory order in response to a complete petition, notwithstanding any other provision provided in Iowa Code section 17A.9 to the contrary, within 30 days from the date that the complete petition is filed with the department. The declaratory order shall state whether or not the proposed location is on the one hundred year floodplain. If the proposed location of the confinement feeding operation structure is on the one hundred year floodplain, the department shall prohibit the construction. Exception to this subrule is provided in Iowa Code section 459.310, subsection 4. Even if the proposed location of the confinement feeding operation structure is not on the one hundred year floodplain, the department may require a floodplain development permit pursuant to 567—Chapters 70 to 76.

b. If the person is required to apply for a construction permit pursuant to subrule 65.7(1), the person must petition the department for a determination. The department shall determine if the confinement feeding operation structure is proposed to be located on the one hundred year floodplain. If the proposed location of the confinement feeding operation structure is on the one hundred year floodplain, the department shall disapprove the construction permit. Exception to this subrule is provided in Iowa Code section 459.310, subsection 4. Even if the department makes a determination that the proposed location of the confinement feeding operation structure is not on the one hundred year floodplain, the department may require a floodplain development permit pursuant to 567—Chapters 70 to 76.

65.7(10) *Compliance with permit conditions.* A person who constructs, modifies or expands a confinement feeding operation structure pursuant to a construction permit shall comply with all terms and conditions of the construction permit.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 1627C**, IAB 9/17/14, effective 10/22/14; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.8(459,459B) Construction. For purposes of these rules:

65.8(1) Construction of an animal feeding operation structure begins or an animal feeding operation structure is constructed when any of the following occurs:

a. Excavation for a proposed animal feeding operation structure, excavation for footings, or filling or compacting of the soil or soil amendments for a proposed animal feeding operation structure.

b. Installation of forms for concrete for an animal feeding operation structure.

c. Installation of piping for movement of manure within, from or between confinement feeding operation structures.

65.8(2) Construction does not begin upon occurrence of any of the following:

a. Removal of trees, brush, or other vegetative growth.

b. Construction of driveways or roads.

c. General earth moving for leveling at the site.

d. Installation of temporary utility services.

65.8(3) Prohibition on construction.

a. A person shall not construct or expand an animal feeding operation structure which is part of a confinement feeding operation, if the person is either of the following:

(1) A party to a pending action for a violation of this chapter concerning a confinement feeding operation in which the person has a controlling interest and the action is commenced in district court by the attorney general.

(2) A habitual violator.

b. A person shall not construct or expand a confinement feeding operation structure for five years after the date of the last violation committed by a person or a confinement feeding operation in which the person holds a controlling interest during which the person or operation was classified as a habitual violator under Iowa Code sections 459.317 and 459.604.

c. Paragraphs *"a"* and *"b"* shall not prohibit a person from completing the construction or expansion of an animal feeding operation structure, if either of the following applies:

(1) The person has an unexpired permit for the construction or expansion of the animal feeding operation structure.

(2) The person is not required to obtain a permit for the construction or expansion of the animal feeding operation structure.

d. A confinement feeding operation structure shall not be constructed on the one hundred year floodplain in a major water source. Placing fill material on floodplain land to elevate the land above the one hundred year flood level will not be considered as removing the land from the one hundred year floodplain for the purpose of this paragraph. A person shall not construct a confinement feeding operation structure on a floodplain outside of a major water source, as provided in 567—71.13(455B) until the department issues a floodplain development permit pursuant to 567—Chapters 70 to 76.

e. A person shall not construct a confinement feeding operation structure on land that contains alluvial soils, according to the Soil Survey published by the NRCS, and determined according to subrule 65.9(4), unless the person has received a declaratory order or a determination from the department that the proposed location of the structure is not on the one hundred year floodplain, pursuant to subrule 65.7(9).

f. A person shall not construct or expand an unformed manure storage structure within an agricultural drainage well area as specified in Iowa Code sections 459.310 and 460.205.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.9(459,459B) Preconstruction submittal requirements. Prior to beginning construction, expansion or modification of a confinement feeding operation structure, a person shall obtain from the department a construction permit pursuant to subrule 65.7(1), a construction approval letter pursuant to subrule 65.7(7) or approval of a secondary containment barrier design pursuant to subrule 65.9(8), according to procedures established in this rule:

65.9(1) *Construction permit application.* Application for a construction permit for a confinement feeding operation shall be made on a form provided by the department. The application shall include all of the information required in the form. At the time the department receives a complete application, the department shall make a determination regarding the approval or denial of the permit in accordance with subrule 65.10(5). A construction permit application for a confinement feeding operation shall be filed as instructed on the form and shall include the following:

a. The name of the applicant and the name of the confinement feeding operation, including mailing address and telephone number.

b. The contact person for the confinement feeding operation, including mailing address and telephone number.

c. The location of the confinement feeding operation.

d. Whether the application is for the expansion of an existing operation or the construction of a proposed confinement feeding operation, and the date when it was first constructed if an existing operation.

e. The animal unit capacity by animal species of the current confinement feeding operation to be expanded, if applicable, and of the proposed confinement feeding operation. If the confinement feeding operation includes a confinement feeding operation structure that was constructed prior to March 1, 2003, the animal weight capacity by animal species of the current confinement feeding operation to be expanded, if applicable, and of the proposed confinement feeding operation shall also be included.

f. Engineering documents. A confinement feeding operation that utilizes an unformed manure storage structure, an egg washwater storage structure or a formed manure storage structure at an operation that meets the threshold requirements for an engineer as defined in 567—65.1(459,459B) shall include an engineering report, construction plans and specifications. The engineering report, construction plans and specifications must be prepared and signed by a licensed professional engineer or by an NRCS qualified staff person, must detail the proposed structures, and must include a statement certifying that the manure storage structure complies with the requirements of Iowa Code chapter 459. In addition, a qualified soils or groundwater professional, licensed professional engineer or NRCS qualified staff shall submit a hydrogeologic report on soil corings in the area of the unformed manure storage structure or egg washwater storage structure as described in subrules 65.15(6) to 65.15(13).

g. Construction design statement or professional engineer design certification. A confinement feeding operation that uses a formed manure storage structure and that is below the threshold requirements for an engineer as defined in 567—65.1(459,459B) shall submit a construction design statement pursuant to subrule 65.9(6) or a professional engineer design certification pursuant to subrule 65.9(7).

h. Payment to the department of the indemnity fund fee as required in Iowa Code section 459.502.

i. If the construction permit application is for three or more confinement feeding operation structures, a drainage tile certification shall be submitted as follows:

(1) If the application is for an unformed manure storage structure, an egg washwater storage structure or a formed manure storage structure that meets the threshold requirements for an engineer as defined in 567—65.1(459,459B), a licensed professional engineer shall certify that either the construction of the structure will not impede the drainage through established drainage tile lines which cross property boundary lines or that if the drainage is impeded during construction, the drainage tile will be rerouted to reestablish the drainage prior to operation of the structure.

(2) If the application is for a formed manure storage structure that does not meet the threshold engineering requirements, a drainage tile certification shall be submitted as part of the construction design statement pursuant to subrule 65.9(6) or as part of the professional engineer design certification pursuant to subrule 65.9(7).

j. Information (e.g., maps, drawings, aerial photos) that clearly shows the proposed location of the confinement feeding operation structures, any existing confinement feeding operation structures, any locations or objects from which a separation distance is required by Iowa Code sections 459.202, 459.203 and 459.310, and that the structures will meet all applicable separation distances. For an unformed manure storage structure, an egg washwater storage structure or a formed manure storage structure that meets the threshold requirements for an engineer as defined in 567—65.1(459,459B), the maps, drawings or aerial photos must be signed by a professional engineer licensed in Iowa or be prepared by NRCS qualified staff. If applicable, a copy of a recorded separation distance waiver, pursuant to paragraph 65.12(1)*"b,"* must be included with the application. Also, if applicable, a secondary containment barrier design, pursuant to subrules 65.9(8) and 65.12(7), shall be included.

k. The names of all parties with an interest or controlling interest in the confinement feeding operation who also have an interest or controlling interest in at least one other confinement feeding operation in Iowa, and the names and locations of such other operations.

l. Copies of the manure management plan pursuant to 567—65.16(459,459B).

m. A construction permit application fee of $250 and, if applicable, the manure management plan filing fee of $250 as required in subrule 65.16(7).

n. Rescinded IAB 2/19/03, effective 3/1/03.

o. Soil information indicating whether the proposed location contains soils classified as alluvial, pursuant to subrule 65.9(4). If the proposed location contains soils classified as alluvial, a copy of the department's determination that the proposed location is not in a one hundred year floodplain, and a floodplain development permit pursuant to 567—Chapters 70 to 76, if required, shall be included.

p. A copy of any master matrix evaluation provided to the county.

q. Information indicating whether the proposed location is in karst terrain pursuant to subrule 65.9(5). If the proposed location is in karst terrain, a soils exploration study or a statement from qualified department staff that a soils exploration study is not needed shall be included.

r. A livestock odor mitigation evaluation certificate issued by Iowa State University as provided in Iowa Code section 266.49. The applicant is not required to submit the certificate if any of the following apply:

(1) The confinement feeding operation is twice the minimum separation distance required from the nearest object or location from which a separation distance is required pursuant to Iowa Code section 459.202 on the date of the application, not including a public thoroughfare.

(2) The owner of each object or location which is less than twice the minimum separation distance required pursuant to Iowa Code section 459.202 from the confinement feeding operation on the date of the application, other than a public thoroughfare, executes a document consenting to the construction.

(3) The applicant submits a document swearing that Iowa State University has failed to furnish a certificate to the applicant within 45 days after the applicant requested the University to conduct a livestock odor mitigation evaluation as provided in Iowa Code section 266.49.

(4) The application is for a permit to expand a confinement feeding operation, if the confinement feeding operation was first constructed before January 1, 2009.

(5) Iowa State University does not provide for a livestock odor mitigation evaluation effort as provided in Iowa Code section 266.49, for any reason, including because funding is not available.

s. Documentation that copies of all the construction permit application documents have been provided to the county board of supervisors or county auditor in the county where the operation or structure subject to the permit is to be located, and documentation of the date received by the county.

65.9(2) *Open feedlots.* Rescinded IAB 9/14/05, effective 9/14/05.

65.9(3) *Construction approval letter.* A confinement feeding operation that, pursuant to subrule 65.7(7), is required to obtain a construction approval letter as defined in 567—65.1(459,459B), but that is not required to obtain a construction permit pursuant to subrule 65.7(1), shall file with the department, at least 30 days prior to the date the proposed construction is scheduled to begin, all of the following:

a. A construction design statement pursuant to subrule 65.9(6). In lieu of a construction design statement, a professional engineer design certification pursuant to subrule 65.9(7) may be submitted.

b. The results of the alluvial soils information pursuant to subrule 65.9(4) or a copy of the department's declaratory order that the location is not in the one hundred year floodplain pursuant to paragraph 65.8(3)*"e"* and a copy of the department's floodplain development permit pursuant to 567—Chapters 70 to 76, if required.

c. The results of the karst terrain determination pursuant to subrule 65.9(5).

d. A copy of the manure management plan pursuant to 567—65.16(459,459B).

e. Information (e.g., maps, drawings, aerial photos) that clearly shows the intended location of the confinement feeding operation structures and animal weight capacities of any other confinement feeding operations within a distance of 2,500 feet in which the owner has an ownership interest or which the owner manages.

f. A fee of $250 for filing a manure management plan pursuant to subrule 65.16(7) and a manure storage indemnity fee pursuant to subrule 65.16(6).

g. Documentation that the board of supervisors or auditor of the county where the confinement feeding operation structure is proposed to be located received a copy of the manure management plan.

65.9(4) *One hundred year floodplain or alluvial soils submittal requirements.* Prior to beginning construction or expansion of a confinement feeding operation, the person planning the construction shall determine whether the proposed confinement feeding operation structure will be located in soils classified as alluvial as defined in 567—65.1(459,459B) and pursuant to paragraph 65.8(3)*"e."* The alluvial soils determination shall be obtained by consulting a qualified department staff person, a soils professional normally engaged in the practice of soil investigation, or NRCS qualified staff. The AFO Siting Atlas may be a tool used to assist in the alluvial soil determination. The one hundred year floodplain information or the alluvial soils determination shall be submitted to the department according to the following:

a. If the proposed location is not in the one hundred year floodplain or alluvial soils, the person planning the construction shall submit a printed map clearly showing the location of each proposed confinement feeding operation structure or a written statement from qualified department staff, a soils professional normally engaged in the practice of soil investigation or NRCS qualified staff, with the construction permit application documents as required in subrule 65.9(1) or with the construction design statement as required in subrule 65.9(3) if a construction permit is not required.

b. If one hundred year floodplain information is not available and the proposed location is in alluvial soils, the person planning the construction shall petition the department for a declaratory order or a determination according to procedures required in subrule 65.7(9). It is recommended that the person planning the construction consult with qualified department staff before petitioning for a declaratory order or a determination. The department's determination indicating that the location is not in the one hundred year floodplain and a copy of the department's floodplain development permit pursuant to 567—Chapters 70 to 76, if required, must be submitted with the construction permit application documents pursuant to subrule 65.9(1). If a construction permit is not required pursuant to subrule 65.7(1), the department's declaratory order indicating that the location is not in the one hundred year floodplain and a copy of the department's floodplain development permit pursuant to 567—Chapters 70 to 76, if required, must be submitted when a construction design statement is filed pursuant to subrules 65.9(3) and 65.9(6).

65.9(5) *Karst terrain submittal requirements.* Prior to beginning construction of a confinement feeding operation, the person planning the construction shall determine whether the proposed confinement feeding operation structure will be located in karst terrain, as defined in 567—65.1(459,459B). The karst terrain determination shall be obtained by consulting a qualified department staff person, a soils professional normally engaged in the practice of soil investigation or NRCS qualified staff. The AFO Siting Atlas may be a tool used to assist in the karst terrain determination. The results of the karst terrain determination shall be submitted to the department according to the following:

a. If the proposed location is not in karst terrain, the person planning the construction, other than a small animal feeding operation, shall submit a printed map from the AFO Siting Atlas clearly showing the location of each proposed confinement feeding operation structure or a written statement by a qualified department staff person, a soils professional normally engaged in the practice of soil investigation or NRCS qualified staff with the construction permit application documents pursuant to subrule 65.9(1) or with the construction design statement pursuant to subrule 65.9(3) if a construction permit is not required.

b. If the proposed location is in karst terrain, the person planning the construction shall submit a printed map from the AFO Siting Atlas clearly showing the location of each proposed confinement feeding operation structure and a copy of the soils exploration study required in paragraph 65.15(14)*"c"* with the construction permit application pursuant to subrule 65.9(1) or with the construction design statement pursuant to subrule 65.9(3) if a construction permit is not required. In lieu of a printed map, a statement from a qualified department staff person, a soils professional normally engaged in the practice of soil investigation or NRCS qualified staff explaining the karst terrain determination may be submitted.

It is recommended that the person planning the construction consult with a qualified staff person of the department before obtaining the soil borings. A formed manure storage structure, other than a small animal feeding operation, shall be constructed according to the upgraded concrete standards set forth in paragraph 65.15(14)*"c"* or Iowa Code section 459.307 if the structure is not constructed of concrete. Nonetheless, construction of an unformed manure storage structure in karst terrain is prohibited.

65.9(6) *Construction design statement.* Prior to beginning construction of a formed manure storage structure, a person planning construction at a confinement feeding operation, other than a small animal feeding operation, that is below the threshold requirements for an engineer as defined in 567—65.1(459,459B) shall file with the department a construction design statement, as follows:

a. A confinement feeding operation with an animal unit capacity of more than 500 but less than 1,000 animal units that is required to obtain a construction approval letter from the department pursuant to subrule 65.7(7) but that is not required to obtain a construction permit pursuant to subrule 65.7(1) shall file with the department a construction design statement, as required in subrule 65.9(3). Within 30 days after filing of a construction design statement, the department may issue a construction approval letter as defined in 567—65.1(459,459B) if the proposed formed manure storage structure meets the requirements of this chapter.

b. A confinement feeding operation that has an animal unit capacity of 1,000 animal units or more but that is below the threshold requirements for an engineer as defined in 567—65.1(459,459B) shall file a construction design statement as part of the construction permit application and as required in subrule 65.9(1).

c. The construction design statement shall be filed on a form provided by the department and shall include all of the following:

(1) The name of the person planning construction at the confinement feeding operation, the name of the confinement feeding operation, the location of the proposed formed manure storage structure, a detailed description of the type of confinement feeding operation structure being proposed, the dimensions of the structure, and whether the structure will be constructed of reinforced concrete or steel.

(2) A manure management plan pursuant to 567—65.16(459,459B).

(3) A certification signed by the person responsible for constructing the formed manure storage structure that the proposed formed manure storage structure will be constructed according to the minimum concrete standards set forth in subrule 65.15(14). Otherwise, if the formed manure storage structure is to be constructed of steel, including a Slurry Store tank, a certification signed by the person responsible for constructing the formed manure storage structure that the proposed formed manure storage structure will be constructed according to the requirements of Iowa Code chapter 459 and 567—Chapter 65.

(4) If the confinement feeding operation is also required to obtain a construction permit at a confinement feeding operation proposing three or more confinement feeding operation structures, the construction design statement shall include a drainage tile certification signed by the person responsible for constructing or excavating the formed manure storage structure, shall certify that construction will not impede established existing drainage, and shall verify that if existing drainage tiles are found, corrective actions will be implemented to immediately reestablish existing drainage.

d. The following operations are not required to file a construction design statement with the department:

(1) A small animal feeding operation that constructs a formed manure storage structure.

(2) A confinement feeding operation that submits a professional engineer design certification pursuant to subrule 65.9(6).

(3) A confinement feeding operation that meets or exceeds threshold requirements for an engineer as defined in 567—65.1(459,459B).

(4) A confinement feeding operation that utilizes an unformed manure storage structure or an egg washwater storage structure.

65.9(7) *Professional engineer design certification.* In lieu of a construction design statement prior to beginning construction of a formed manure storage structure, a confinement feeding operation, other than a small animal feeding operation, that is below the threshold requirements for an engineer pursuant

to 567—65.1(459,459B) may file with the department a professional engineer design certification and design plans signed by a professional engineer licensed in the state of Iowa or an NRCS qualified staff person. The professional engineer design certification shall be site-specific and shall be filed on a form provided by the department as follows:

a. A confinement feeding operation with an animal unit capacity of more than 500, but less than 1,000, animal units that is not required to obtain a construction permit pursuant to subrule 65.7(1) shall file with the department, at least 30 days before beginning construction of a formed manure storage structure, the professional engineer design certification as required in subrule 65.9(3). Within 30 days after filing of a professional engineer design certification, the department may issue a construction approval letter if the proposed formed manure storage structure meets the requirements of this chapter.

b. A confinement feeding operation with an animal unit capacity of 1,000 animal units or more that is required to obtain a construction permit pursuant to subrule 65.7(1) but that is below the threshold requirements for an engineer pursuant to 567—65.1(459,459B) shall file with the department the professional engineer design certification as part of the construction permit application and as required in subrule 65.9(1).

65.9(8) *Secondary containment barrier design submittal requirements.* The design for a secondary containment barrier to qualify any confinement feeding operation for the separation distance exemption provision in subrule 65.12(7) shall be filed with the department for approval prior to beginning construction of a formed manure storage structure that is part of a small animal feeding operation, shall accompany the construction design statement pursuant to subrule 65.9(3) if a construction permit is not required, or shall be filed as part of the construction permit application pursuant to subrule 65.9(1). The secondary containment barrier shall meet the design standards of subrule 65.15(17) and shall be prepared according to the following:

a. If a manure storage structure stores liquid or semiliquid manure, the secondary containment barrier design shall include engineering drawings prepared and signed by a professional engineer licensed in the state of Iowa or an NRCS qualified staff person. For purposes of this subrule only, semiliquid manure means manure that contains a percentage of dry matter that results in manure too solid for pumping, but too liquid for stacking.

b. If the manure storage structure will store only dry manure, the owner or a representative of a confinement feeding operation shall submit to the department detailed drawings of the design for a secondary containment barrier.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.10(459,459B) Construction permit application review process, site inspections and complaint investigations.

65.10(1) *Delivery of application to county.* The applicant for a construction permit for a confinement feeding operation or related animal feeding operation structure shall deliver in person or by certified mail a copy of the permit application and manure management plan to the county board of supervisors of the county where the confinement feeding operation or related animal feeding operation structure is proposed to be constructed. Receipt of the application and manure management plan by the county auditor or other county official or employee designated by the county board of supervisors is deemed receipt of the application and manure management plan by the county board of supervisors. Documentation of the delivery or mailing of the permit application and manure management plan shall be forwarded to the department.

65.10(2) *Public notice and county comment.*

a. *Public notice.* The county board of supervisors shall publish a notice that the board has received the construction permit application in a newspaper having general circulation in the county. The county board shall publish the notice as soon as possible but no later than 14 days after receiving instructions from the department that a complete application has been received. The notice shall include all of the following:

(1) The name of the person applying to receive the construction permit;

(2) The name of the township where the confinement feeding operation structure is to be constructed;

(3) Each type of confinement feeding operation structure proposed to be constructed;

(4) The animal unit capacity of the confinement feeding operation if the construction permit were to be approved;

(5) The time when and the place where the application may be examined as provided in Iowa Code section 22.2;

(6) Procedures for providing public comments to the board as provided by the board.

The county shall submit to the department, within 30 days of receipt of the construction permit application, proof of publication to verify that the county provided public notice as required in this paragraph.

b. County comment. Regardless of whether the county board of supervisors has adopted a construction evaluation resolution, the board may submit to the department comments by the board and the public regarding compliance of the construction permit application and manure management plan with the requirements in this chapter and Iowa Code chapter 459 for obtaining a construction permit. Comments may include, but are not limited to, the following:

(1) The existence of an object or location not included in the construction permit application which benefits from a separation distance requirement as provided in Iowa Code section 459.202 or 459.310.

(2) The suitability of soils and the hydrology of the site where construction or expansion of a confinement feeding operation or related animal feeding operation structure is proposed.

(3) The availability of land for the application of manure originating from the confinement feeding operation.

(4) Whether the construction or expansion of a proposed animal feeding operation structure will impede drainage through established tile lines, laterals, or other improvements which are constructed to facilitate the drainage of land not owned by the person applying for the construction permit.

65.10(3) *Master matrix.* A county board of supervisors may adopt a construction evaluation resolution relating to the construction of a confinement feeding operation structure. The board must submit such resolution to the director of the department for filing. Adoption and filing of a construction evaluation resolution authorizes a county board of supervisors to conduct an evaluation of a construction permit application using the master matrix as follows:

a. Enrollment periods.

(1) The county board of supervisors must file an adopted construction evaluation resolution with the department between January 1 and January 31 of each year to evaluate construction permit applications received by the department between February 1 of that year and January 31 of the following year.

(2) Filed construction evaluation resolutions shall remain in effect until the applicable enrollment period expires or until such time as the county board of supervisors files with the department a resolution rescinding the construction evaluation resolution, whichever is earlier.

(3) Filing of an adopted construction evaluation resolution requires a county board of supervisors to conduct an evaluation of a construction permit application using the master matrix. However, if the board fails to submit an adopted recommendation to the department or fails to comply with the evaluation requirements in paragraph 65.10(3)*"b,"* the department shall disregard any adopted recommendation from that board until the board timely submits a new construction evaluation resolution.

b. Use of the master matrix. If a county board of supervisors has adopted and filed with the department a construction evaluation resolution, as provided in paragraph 65.10(3)*"a,"* the board shall evaluate all construction permit applications filed during the applicable period using the master matrix as follows:

(1) In completing the master matrix, the board shall not score criteria on a selective basis. The board must score all criteria which are part of the master matrix according to the terms and conditions relating to construction as specified in the application or commitments for manure management that are to be incorporated into a manure management plan as provided in Iowa Code section 459.312.

(2) The board shall include with the adopted recommendation a copy of the master matrix analysis, calculations, and scoring for the application. The board's adopted recommendation submitted to the

department may be based on the master matrix or on comments received by the board. The adopted recommendation shall include the specific reasons and any supporting documentation for the decision to recommend approval or disapproval of the application.

(3) The board shall not use the master matrix to evaluate a construction permit application for the construction or expansion of a confinement feeding operation structure if the construction is for expansion of a confinement feeding operation structure constructed prior to April 1, 2002, and, after the expansion of the confinement feeding operation, its animal unit capacity is 1,666 animal units or less. The board may still submit comments regarding the application.

65.10(4) *Inspection of proposed construction site.* The department may conduct an inspection of the site on which construction of the confinement feeding operation is proposed after providing a minimum of 24 hours' notice to the construction permit applicant or sooner with the consent of the applicant. If the county in which the proposed facility is located has adopted and submitted a construction evaluation resolution pursuant to subrule 65.10(3) and has not failed subsequently to submit an adopted recommendation, the county may designate a county employee to accompany a department official during the site inspection. In such cases, the department shall notify the county board of supervisors or county designee at least three days prior to conducting an inspection of the site where construction of the confinement feeding operation is proposed. The county designee shall have the same right to access to the site's real estate on which construction of the confinement feeding operation is proposed as the departmental official conducting the inspection during the period that the county designee accompanies the departmental official. The departmental official and the county designee shall comply with standard biosecurity requirements customarily required by the owner of the confinement feeding operation that are necessary in order to control the spread of disease among an animal population.

65.10(5) *Determination by the department.* The department must receive the county board of supervisors' comments or evaluation for approval or disapproval of an application for a construction permit not later than 30 days following the applicant's delivery of a complete application to the department. Regardless of whether the department receives comments or an evaluation by a county board of supervisors, the department must render a determination or a preliminary determination to approve or disapprove an application for a construction permit within 60 days following the applicant's delivery of a complete application to the department. However, the applicant may deliver a notice requesting a continuance. Upon receipt of a notice, the time required for the county or department to act upon the application shall be suspended for the period provided in the notice, but for not more than 30 days after the department's receipt of the notice. The applicant may submit more than one notice. However, the department may terminate an application if no action is required by the department for one year following delivery of the application to the board. The department may also provide for a continuance when it considers the application. The department shall provide notice to the applicant and the board of the continuance. The time required for the department to act upon the application shall be suspended for the period provided in the notice, but for not more than 30 days. However, the department shall not provide for more than one continuance. If review of the application is delayed because the application is incomplete, and the applicant fails to supply requested information within a reasonable time prior to the deadline for action on the application, the permit may be denied and a new application will be required if the applicant wishes to proceed. The department will approve or disapprove an application as follows:

a. If the county board of supervisors does not submit a construction evaluation resolution to the department, fails to submit an adopted recommendation, submits only comments, or fails to submit comments, the department shall approve the application if the application meets the requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B. The department will disapprove the application if it does not meet such requirements.

b. If the board of supervisors for the county in which the confinement feeding operation is proposed to be constructed has filed a county construction evaluation resolution and submits an adopted recommendation to approve the construction permit application, which may be based on a satisfactory rating produced by the master matrix, to the department, the department shall preliminarily approve an application for a construction permit if the department determines that the application meets the

requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B. The department shall preliminarily disapprove an application that does not satisfy the requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B regardless of the adopted recommendation of the board of supervisors. The department shall consider any timely filed comments made by the board as provided in this subrule to determine if an application meets the requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B.

c. If the board submits to the department an adopted recommendation to disapprove an application for a construction permit that is based on a rating produced by the master matrix, the department shall first determine if the application meets the requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B. The department shall preliminarily disapprove an application that does not satisfy the requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B, regardless of any result produced by using the master matrix. If the application meets the requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B, the department shall conduct an independent evaluation of the application using the master matrix. The department shall preliminarily approve the application if it achieves a satisfactory rating according to the department's evaluation. The department shall preliminarily disapprove the application if it produces an unsatisfactory rating regardless of whether the application satisfies the requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B. The department shall consider any timely filed comments made by the board as provided in this subrule to determine if an application meets the requirements of this chapter and Iowa Code chapters 455B, 459, 459A and 459B.

65.10(6) *Departmental notification of permit application decision.* Within three days following the department's determination or preliminary determination to approve or disapprove the application for a construction permit, the department shall deliver a notice of the decision to the applicant.

a. If the county board of supervisors has submitted to the department an adopted recommendation for the approval or disapproval of a construction permit application, the department shall notify the board of the department's preliminary decision to approve or disapprove the application at the same time. For a preliminary decision to approve an application, the notice shall consist of a copy of the draft construction permit. For a preliminary decision to disapprove an application, the notice shall consist of a copy of the department's letter of preliminary denial. The preliminary decision to approve or disapprove an application becomes final without further proceedings if neither the county board of supervisors nor the applicant demands a hearing before the commission or appeals pursuant to 65.10(7) and 65.10(8).

b. If the county board of supervisors has not submitted to the department an adopted recommendation for the approval or disapproval of a construction permit application, the department notice shall include the construction permit or letter of denial. The applicant may appeal the permit or denial as provided in 65.10(8).

65.10(7) *County board of supervisors' demand for hearing.*

a. A county board of supervisors that has submitted an adopted recommendation to the department may contest the department's preliminary decision to approve or disapprove an application for permit by filing a written demand for a hearing before the commission. Due to the need for expedited scheduling, the county board of supervisors shall, as soon as possible but not later than 14 days following receipt of the department's notice of preliminary decision, notify the department in writing that the board intends to file a demand for hearing. The demand for hearing shall be sent to the director of the department and must be postmarked no later than 30 days following the board's receipt of the department's notice of preliminary decision.

b. The demand for hearing shall include a statement setting forth all of the county board of supervisors' reasons why the application for a permit should be approved or disapproved, including legal briefs and all supporting documentation, and a further statement indicating whether an oral presentation before the commission is requested.

65.10(8) *Applicant's demand for hearing.* The applicant may contest the department's preliminary decision to approve or disapprove an application for permit by filing a written demand for a hearing. The applicant may elect, as part of the written demand for hearing, to have the hearing conducted before the commission pursuant to paragraph 65.10(8)*"a"* or before an administrative law judge pursuant to

paragraph 65.10(8)*"b."* If no such election is made, the demand for hearing shall be considered to be a request for hearing before the commission. If both the applicant and the county board of supervisors are contesting the department's preliminary decision, the applicant may request that the commission conduct the hearing on a consolidated basis.

a. Applicant demand for hearing before the commission. Due to the need for expedited scheduling, the applicant shall, as soon as possible but not later than 14 days following receipt of the department's notice of preliminary decision, notify the department in writing that the applicant intends to file a demand for hearing. The demand for hearing shall be sent to the director of the department and must be postmarked no later than 30 days following the applicant's receipt of the department's notice of preliminary decision. If the county board of supervisors has filed a demand for hearing, the times for facsimile notification and filing a demand for hearing are extended an additional 3 business days. It is the responsibility of the applicant to communicate with the department to determine if a county demand for hearing has been filed. The demand for hearing shall include a statement setting forth all of the applicant's reasons why the application for permit should be approved or disapproved, including legal briefs and all supporting documentation, and a further statement indicating whether an oral presentation before the commission is requested.

b. Applicant contested case appeal before an administrative law judge. The applicant may contest the department's preliminary decision to approve or disapprove an application according to the contested case procedures set forth in 561—Chapter 7; however, if the county board of supervisors has demanded a hearing pursuant to subrule 65.10(7), the applicant shall provide facsimile notification to the department within the time frame set forth in 65.10(8)*"a"* that the applicant intends to contest the department's preliminary decision according to contested case procedures. In that event, the applicant may request that the hearings be consolidated and conducted as a contested case.

65.10(9) *Hearing and decision by the commission.*

a. Hearing before the commission.

(1) All hearings before the commission requested pursuant to subrules 65.10(7) and 65.10(8) shall be handled as other agency action and not as a contested case.

(2) Upon receipt of a timely demand for a hearing before the commission pursuant to subrule 65.10(7) or subrule 65.10(8), the director shall set a hearing during a regular meeting of the commission scheduled no more than 35 days from the date the director receives the first such request. However, if the next regular meeting of the commission will take place more than 35 days after receipt of the demand for hearing, the director shall schedule a special in-person meeting or an electronic meeting of the commission pursuant to Iowa Code section 21.8.

(3) No later than 5 days from the date the director receives a demand for hearing, the director shall post on the department's website the demand for hearing and associated documents, letters notifying the parties of the hearing date, and the department's complete file on the application under review. The director shall provide hard copies of these documents to members of the commission as requested by each member. The director shall contact the applicant and the county board of supervisors and provide copies of documents they request.

(4) No later than 15 days from the date set for hearing, the applicant, the county board of supervisors and the department shall, if any chooses to do so, send one copy of a reply brief to respond to issues raised in the demand for hearing and any supporting documentation to the department. The director shall post the briefs and associated written documents on the department's website and provide hard copies to members of the commission as requested by each member. No further briefs or documents shall be permitted except upon request and permission of the commission.

(5) No later than 15 days from the date set for hearing, any person may submit written material for the commission to review. Whether such material is accepted into the record will be the decision of the chairperson of the commission depending on whether the chairperson deems it relevant to the appeal.

(6) The commission shall use the following hearing procedures:

1. All written material accepted by the chairperson of the commission for inclusion in the record at the hearing shall be marked as coming from the person or entity presenting the document.

2. Objections to submitted written material shall be noted for the record.

3. Oral participation before the commission shall be limited to time periods specified by the chairperson of the commission and, unless otherwise determined by the commission, to presentations by representatives for the applicant, the county board of supervisors and the department and by technical consultants or experts designated by the commission. Representatives of the department shall not advocate for either the county board of supervisors or the applicant but may summarize the basis for the department's preliminary decision and respond to questions by members of the commission.

4. Members of the commission, and the commission's legal counsel, may ask questions of the representatives for the applicant, the county board of supervisors and the department and of technical consultants or experts designated by the commission. The members and counsel may also ask questions of any other person or entity appearing or in attendance at the hearing. Representatives for the applicant and the county board of supervisors may ask questions of technical consultants or experts designated by the commission. No other persons or entities may ask questions of anyone making a presentation or comment at the hearing except upon request and permission by the chairperson of the commission.

(7) The commission shall use the following hearing format:

1. Announcement by the chairperson of the commission of the permit application under review.

2. Receipt into the hearing record of the demand or demands for hearing, a copy of the department's complete file on the application under review and the briefs and written documents previously provided by the applicant and county board of supervisors pursuant to subparagraph 65.10(9)*"a"*(4).

3. Oral presentation, if any, by the applicant if that party timely requested the hearing. If the applicant did not timely request the hearing, then the county board of supervisors shall make the first presentation.

4. Oral presentation, if any, by the applicant or county board of supervisors, whichever party did not have the opportunity to make the first presentation.

5. Oral presentation, if any, by the department.

6. Oral presentation, if any, by technical consultants or experts designated by the commission to assist in its establishment of a record at the hearing. No later than seven days prior to the hearing, the commission shall notify the applicant and the board of the names, addresses and professional capacity of any such technical experts or consultants.

7. Discussion by the commission, motion and final decision on whether the application for permit is approved or disapproved.

(8) Only the issues submitted by the parties in the demand for hearing and responses shall be considered by the commission as a basis for its decision.

b. Decision by the commission. The decision by the commission shall be stated on the record and shall be final agency action pursuant to Iowa Code chapter 17A. If the commission reverses or modifies the department's decision, the department shall issue the appropriate permit or letter of denial to the applicant. The letter of decision shall contain the reasons for the action regarding the permit.

65.10(10) *Complaint investigations.* Complaints of violations of Iowa Code chapters 455B, 459, 459A and 459B and this rule, which are received by the department or are forwarded to the department by a county, following a county board of supervisors' determination that a complainant's allegation constitutes a violation, shall be investigated by the department if it is determined that the complaint is legally sufficient and an investigation is justified.

a. If after evaluating a complaint to determine whether the allegation may constitute a violation, without investigating whether the facts supporting the allegation are true or untrue, the county board of supervisors shall forward its finding to the department director.

b. A complaint is legally sufficient if it contains adequate information to investigate the complaint and if the allegation constitutes a violation, without investigating whether the facts supporting the allegation are true or untrue, of rules adopted by the department, Iowa Code chapters 455B, 459, 459A and 459B or environmental standards in regulations subject to federal law and enforced by the department.

c. The department in its discretion shall determine the urgency of the investigation, and the time and resources required to complete the investigation, based upon the circumstances of the case, including the severity of the threat to the quality of surface water or groundwater.

d. The department shall notify the complainant and the alleged violator if an investigation is not conducted specifying the reason for the decision not to conduct an investigation.

e. The department will notify the county board of supervisors where the violation is alleged to have occurred before doing a site investigation unless the department determines that a clear, present and impending danger to the public health or environment requires immediate action.

f. The county board of supervisors may designate a county employee to accompany the department on the investigation of any site as a result of a complaint.

g. A county employee accompanying the department on a site investigation has the same right of access to the site as the department official conducting the investigation during the period that the county designee accompanies the department official. The county shall not have access to records required in subrule 65.17(12) or the current manure management plan maintained at the facility.

h. Upon completion of an investigation, the department shall notify the complainant of the results of the investigation, including any anticipated, pending or complete enforcement action arising from the investigation. The department shall deliver a copy of the notice to the animal feeding operation that is the subject of the complaint, any alleged violators if different from the animal feeding operation and the county board of supervisors of the county where the violation is alleged to have occurred.

i. When a person who is a department official, an agent of the department, or a person accompanying the department official or agent enters the premises of an animal feeding operation, both of the following shall apply:

(1) The person may enter at any reasonable time in and upon any private or public property to investigate any actual or possible violation of this chapter or the rules or standards adopted under this chapter. However, the owner or person in charge shall be notified.

1. If the owner or occupant of any property refuses admittance to the operation, or if prior to such refusal the director demonstrates the necessity for a warrant, the director may make application under oath or affirmation to the district court of the county in which the property is located for the issuance of a search warrant.

2. In the application the director shall state that an inspection of the premises is mandated by the laws of this state or that a search of certain premises, areas, or things designated in the application may result in evidence tending to reveal the existence of violations of public health, safety, or welfare requirements imposed by statutes, rules or ordinances established by the state or a political subdivision thereof. The application shall describe the area, premises, or thing to be searched, give the date of the last inspection if known, give the date and time of the proposed inspection, declare the need for such inspection, recite that notice of desire to make an inspection has been given to affected persons and that admission was refused if that be the fact, and state that the inspection has no purpose other than to carry out the purpose of the statute, ordinance, or regulation pursuant to which inspection is to be made. If an item of property is sought by the director, it shall be identified in the application.

3. If the court is satisfied from the examination of the applicant, and of other witnesses, if any, and of the allegations of the application of the existence of the grounds of the application, or that there is probable cause to believe their existence, the court may issue such search warrant.

4. In making inspections and searches pursuant to the authority of this rule, the director must execute the warrant:

- Within ten days after its date.
- In a reasonable manner, and any property seized shall be treated in accordance with the provisions of Iowa Code chapters 808, 809, and 809A.
- Subject to any restrictions imposed by the statute, ordinance or regulation pursuant to which inspection is made.

(2) The person shall comply with standard biosecurity requirements customarily required by the animal feeding operation which are necessary in order to control the spread of disease among an animal population.

[**ARC 8517B**, IAB 2/10/10, effective 3/17/10; **ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.11(459,459B) Confinement feeding operation and stockpile separation distance requirements. All confinement feeding operation structures, stockpiles and qualified stockpile structures shall be separated from locations and objects as specified in this rule regardless of whether a construction permit is required. The separation distance requirements of this rule shall apply to all confinement feeding operation structures, unless specifically stated otherwise. If two or more confinement feeding operations are considered one operation as provided in 567—65.1(459,459B), definitions of "Adjacent—air quality" and "Adjacent—water quality," the combined animal unit capacities of the individual operations shall be used for the purpose of determining the required separation. Exemptions to the following requirements are allowed to the extent provided in 567—65.12(459,459B).

65.11(1) *Separation distance from residences, businesses, churches, schools and public use areas for new confinement feeding operations.* Separation from residences, businesses, churches, schools and public use areas shall be as specified in Iowa Code section 459.202 and summarized in Table 6 at the end of this chapter. The residence, business, church, school or public use area must exist at the time an applicant submits an application for a construction permit to the department, at the time a manure management plan or construction design statement is filed with the department if a construction permit is not required, or at the time construction of the confinement feeding operation structure begins if a construction permit or construction approval letter is not required.

65.11(2) *Separation distance from residences, businesses, churches, schools and public use areas for the expansion of prior constructed operations.* Except as provided in 567—65.12(459,459B) or as specified in Iowa Code section 459.203, an existing confinement feeding operation may be expanded if any of the following applies:

a. For a confinement feeding operation constructed prior to January 1, 1999, any construction or expansion of a confinement feeding operation structure complies with the distance requirements applying to that structure as provided in Iowa Code section 459.202, subsections 1 and 3, and summarized in Tables 6c (for swine, sheep, horses and poultry) and 6d (for beef and dairy cattle) at the end of this chapter.

b. For a confinement feeding operation constructed on or after January 1, 1999, but prior to March 1, 2003, any construction or expansion of a confinement feeding operation structure complies with the distance requirements applying to that structure as provided in Iowa Code section 459.202, subsections 2 and 3, and summarized in Tables 6a (for swine, sheep, horses and poultry) and 6b (for beef and dairy cattle) at the end of this chapter.

c. For a confinement feeding operation constructed on or after March 1, 2003, any construction or expansion of a confinement feeding operation structure complies with the distance requirements applying to that structure as provided in Iowa Code section 459.202, subsections 4 and 5, and summarized in Table 6 at the end of this chapter.

65.11(3) *Separation distance from water sources, major water sources, known sinkholes and agricultural drainage wells.* Separation distances specified in this subrule shall apply to any confinement feeding operation structure, including a small animal feeding operation. Separation distances from any confinement feeding operation structure to surface intakes, wellheads or cisterns of agricultural drainage wells, known sinkholes, water sources and major water sources shall be as specified in Iowa Code section 459.310 and summarized in Tables 6 to 6d at the end of this chapter. For the required separation distance to a major water source to apply, the major water source must be included in Table 1 at the end of this chapter at the time an applicant submits an application for a construction permit to the department, at the time a manure management plan or construction design statement is filed with the department if a construction permit is not required, or at the time construction of the animal feeding

operation structure begins (as defined in 65.8(1)) if a construction permit, manure management plan or construction design statement is not required.

65.11(4) *Separation distance from designated wetlands.* Separation distances specified in this subrule shall apply to any confinement feeding operation structure, including a small animal feeding operation. A confinement feeding operation structure shall not be constructed closer than 2,500 feet away from a "designated wetland" as defined and referenced in rule 567—65.1(459,459B). This requirement shall not apply to a confinement feeding operation structure if any of the following occur before the wetland is included in "Designated Wetlands in Iowa," effective August 23, 2006:

a. The confinement feeding operation structure already exists. This exemption also applies to additional confinement feeding operation structures constructed at the site of such an existing confinement feeding operation structure after a wetland is included in "Designated Wetlands in Iowa," effective August 23, 2006.

b. Construction of a confinement feeding operation structure has begun as provided in subrule 65.8(1).

c. An application for a permit to construct a confinement feeding operation structure has been submitted to the department.

d. A manure management plan concerning a proposed confinement feeding operation structure for which a construction permit is not required has been submitted to the department.

65.11(5) *Separation distance from water wells.* For a confinement feeding operation structure constructed after March 20, 1996, the separation distance to water wells shall be as specified in Tables 6 to 6d at the end of this chapter.

65.11(6) *Separation distance from public thoroughfares.* A confinement feeding operation structure shall not be constructed or expanded within 100 feet from a public thoroughfare.

65.11(7) *Stockpile and qualified stockpile structures—separation distance from residences.* A stockpile or qualified stockpile structure shall not be placed closer than 1,250 feet from a residence not owned by the titleholder of the land where the stockpile is located, a commercial enterprise, a bona fide religious institution, an educational institution, or a public use area.

65.11(8) *Stockpile and qualified stockpile structures—separation distance from tile inlets, designated areas, high-quality water resources, agricultural drainage wells and known sinkholes.* A stockpile or qualified stockpile structure shall not be placed within the following distances from any of the following:

a. A terrace tile inlet or surface tile inlet, 200 feet, unless the dry manure is stockpiled in a manner that does not allow precipitation-induced runoff to drain from the stockpile to the terrace tile inlet or surface tile inlet. A terrace tile inlet or surface tile inlet does not include a tile inlet that is not directly connected to a tile line that discharges directly into a water of the state.

b. Designated area, 400 feet. However, an increased separation distance of 800 feet shall apply to all of the following:

(1) A high-quality water resource.

(2) An agricultural drainage well (400 feet for dry bedded manure).

(3) A known sinkhole (400 feet for dry bedded manure).

c. Paragraph 65.11(8)*"b"* does not apply if dry manure is stockpiled in a manner that does not allow precipitation-induced runoff to drain from the stockpile to the designated area.

65.11(9) *Measurement of separation distances.* Except as provided in paragraph 65.11(9)*"f,"* the distance between confinement feeding operation structures and locations or objects from which separation is required shall be measured horizontally by standard survey methods between the closest point of the location or object (not a property line) and the closest point of the confinement feeding operation structure. The department may require that a separation distance be measured and certified by a licensed land surveyor, a professional engineer licensed in the state of Iowa, or NRCS qualified staff in cases where the department cannot confirm a separation distance. For purposes of this subrule, structure shall not include areas that do not house animals or store manure or litter.

a. Measurement to an unformed manure storage structure shall be to the point of maximum allowable level of manure pursuant to paragraph 65.2(3)*"b."*

b. Measurement to a public use area shall be to the facilities which attract the public to congregate and remain in the area for significant periods of time, not to the property line.

c. Measurement to a major water source or water source shall be to the top of the bank of the stream channel of a river or stream or the ordinary high-water mark of a lake, reservoir or designated wetland.

d. Measurement to a public thoroughfare shall be to the closest point of the right-of-way.

e. The separation distance for a confinement feeding operation structure qualifying for the exemption to separation distances under paragraphs 65.12(4)*"b"* and *"c"* shall be measured from the closest point of the confinement feeding operation structure.

f. Measurement to a cemetery shall be to the closest point of its property line.

g. Measurement to a stockpile shall be to the closest point of the stockpile.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.12(459,459B) Exemptions and variances to confinement feeding operation and stockpile separation distance requirements and prohibition of construction on the one hundred year floodplain.

65.12(1) *Exemptions to separation distance requirements from a residence, business, church, school and public use area.* As specified in Iowa Code section 459.205, the separation distances required from residences, businesses, churches, schools and public use areas specified in Iowa Code sections 459.202 and 459.204B and required in subrules 65.11(1), 65.11(2) and 65.11(7), including Tables 6 to 6d at the end of this chapter, shall not apply to the following:

a. A confinement feeding operation structure, other than an unformed manure storage structure, if the structure is part of a small animal feeding operation or if the stockpile consists of dry manure originating from a small animal feeding operation.

b. A confinement feeding operation structure which is constructed or expanded, if the titleholder of the land benefiting from the distance separation requirement executes a written waiver with the titleholder of the land where the structure, stockpile or qualified stockpile structure is located, under such terms and conditions that the parties negotiate. The waiver shall be specific to the construction or expansion project for which it is submitted. The waiver may include specific language to include future projects or expansions. The written waiver becomes effective only upon the recording of the waiver in the office of the recorder of deeds of the county in which the benefited land is located. The benefited land is the land upon which is located the residence, business, church, school or public use area from which separation is required. The filed waiver shall preclude enforcement by the department of the separation distance requirements of Iowa Code section 459.202. A copy of the recorded waiver shall be submitted with the construction design statement pursuant to subrule 65.9(3) if a construction permit is not required or as part of the construction permit application documents pursuant to subrule 65.9(1).

c. A confinement feeding operation structure which is constructed or expanded closer than the separation distances required in subrules 65.11(1) and 65.11(2), including Tables 6 to 6d at the end of this chapter, if the residence, business, church or school was constructed or expanded after the date that the confinement feeding operation commenced operating or if the boundaries of the public use area or the city expanded after the date that the confinement feeding operation commenced operating. A confinement feeding operation commences operating when it is first occupied by animals. A change in ownership or expansion of the confinement feeding operation does not change the date the operation commenced operating.

d. The stockpile consists of dry manure originating exclusively from a confinement feeding operation that was constructed before January 1, 2006, unless the confinement feeding operation is expanded after that date.

65.12(2) *Exemptions to separation distance requirements from public thoroughfares.* As specified in Iowa Code section 459.205, the separation required from thoroughfares specified in Iowa Code section 459.202 and summarized in Tables 6 to 6d at the end of this chapter shall not apply to any of the following:

a. A confinement building or a formed manure storage structure that is part of a small animal feeding operation. However, the exemptions of this subrule shall not apply if the confinement feeding operation structure is an unformed manure storage structure.

b. If the state or a political subdivision constructing or maintaining the public thoroughfare executes a written waiver with the titleholder of the land where the confinement feeding operation structure is located. The written waiver becomes effective only upon the recording of the waiver in the office of the recorder of deeds of the county in which the benefited land is located. The recorded waiver shall be submitted with the construction design statement pursuant to subrule 65.9(3) if a construction permit is not required, or as part of the construction permit application documents pursuant to subrule 65.9(1).

65.12(3) *Exemptions to separation distance requirements for prior constructed operations and for operations that expand based on prior separation distance requirements.* As specified in Iowa Code section 459.203, a confinement feeding operation constructed or expanded prior to the date that a distance requirement became effective under Iowa Code section 459.202 and which does not comply with the statute's distance requirement may continue to operate regardless of the distance requirement and may expand as provided in subrule 65.11(2).

65.12(4) *Exemptions to separation distance requirements for prior constructed operations that expand and cannot comply with prior separation distance requirements.* As specified in Iowa Code section 459.203, a confinement feeding operation constructed or expanded prior to the date that a distance requirement became effective under Iowa Code section 459.202 and which does not comply with the distance requirements established in 567—65.11(459,459B) and the exemption in subrule 65.12(3) may be expanded if all of the following apply to the expansion:

a. No portion of the confinement feeding operation after expansion is closer than before expansion to a location or object for which separation is required in Iowa Code section 459.202.

b. For a confinement feeding operation that includes a confinement feeding operation structure constructed prior to March 1, 2003, the animal weight capacity of the confinement feeding operation as expanded is not more than the lesser of the following:

(1) Double its animal weight capacity on the following dates:

1. May 31, 1995, for a confinement feeding operation that includes a confinement feeding operation structure constructed prior to January 1, 1999.

2. January 1, 1999, for a confinement feeding operation that only includes a confinement feeding operation structure constructed on or after January 1, 1999, but does include a confinement feeding operation structure constructed prior to March 1, 2003.

(2) Either of the following:

1. An animal weight capacity of 625,000 pounds for animals other than cattle.

2. An animal weight capacity of 1,600,000 pounds for cattle.

c. For a confinement feeding operation that does not include a confinement feeding operation structure constructed prior to March 1, 2003, the animal unit capacity of the confinement feeding operation as expanded is not more than the lesser of the following:

(1) Double its animal unit capacity on March 1, 2003.

(2) 1,000 animal units.

65.12(5) *Exemptions to separation distance requirements for prior constructed operations that replace an unformed manure storage structure.* As specified in Iowa Code section 459.203, a confinement feeding operation that includes a confinement feeding operation structure that is constructed prior to March 1, 2003, may be expanded by replacing one or more unformed manure storage structures with one or more formed manure storage structures if all of the following apply:

a. The animal weight capacity or animal unit capacity, whichever is applicable, is not increased for that portion of the confinement feeding operation that utilizes all replacement formed manure storage structures.

b. Use of each replaced unformed manure storage structure is discontinued within one year after the construction of the replacement formed manure storage structure.

c. The capacity of all replacement formed manure storage structures does not exceed the amount required to store manure produced by that portion of the confinement feeding operation utilizing the formed manure storage structures during any 14-month period.

d. No portion of the replacement formed manure storage structure is closer to an object or location for which separation is required under Iowa Code section 459.202 than any other confinement feeding operation structure which is part of the operation.

65.12(6) *Exemption to separation distance requirements from cemeteries.* As specified in Iowa Code section 459.205, the separation distance required between a confinement feeding operation structure and a cemetery shall not apply if any of the following apply:

a. The confinement feeding operation structure was constructed or expanded prior to January 1, 1999.

b. The construction or expansion of the confinement feeding operation structure began prior to January 1, 1999.

65.12(7) *Exemptions to separation distance requirements from water sources, major water sources, known sinkholes, agricultural drainage wells and designated wetlands and secondary containment.* As specified in Iowa Code section 459.310, subsection 3, the separation distance required from surface intakes, wellheads or cisterns of agricultural drainage wells, known sinkholes, water sources, major water sources and designated wetlands, specified in Iowa Code section 459.310 and summarized in Tables 6 to 6d at the end of this chapter, shall not apply to a farm pond or privately owned lake as defined in Iowa Code section 462A.2, or to a confinement building, a manure storage structure or an egg washwater storage structure constructed with a secondary containment barrier according to subrule 65.15(17). To qualify for this separation distance exemption, the design of the secondary containment barrier shall be filed in accordance with subrule 65.9(8) prior to beginning construction of the confinement feeding operation structure.

65.12(8) *Exemptions to prohibition on one hundred year floodplain construction and separation distance requirements from water sources, major water sources, known sinkholes, agricultural drainage wells and designated wetlands—replacement formed manure storage structures.* As specified in Iowa Code section 459.310, subsection 4, a separation distance required in subrules 65.11(3) and 65.11(4) or the prohibition against construction of a confinement feeding operation structure on a one hundred year floodplain as provided in paragraph 65.8(3)*"e"* shall not apply to a confinement feeding operation that includes a confinement feeding operation structure that was constructed prior to March 1, 2003, if any of the following apply:

a. One or more unformed manure storage structures that are part of the confinement feeding operation are replaced with one or more formed manure storage structures on or after April 28, 2003, and all of the following apply:

(1) The animal weight capacity or animal unit capacity, whichever is applicable, is not increased for that portion of the confinement feeding operation that utilizes all replacement formed manure storage structures.

(2) The use of each replaced unformed manure storage structure is discontinued within one year after the construction of the replacement formed manure storage structure.

(3) The capacity of all replacement formed manure storage structures does not exceed the amount required to store manure produced by that portion of the confinement feeding operation utilizing the replacement formed manure storage structures during any 18-month period.

(4) No portion of the replacement formed manure storage structure is closer to the location or object from which separation is required under subrules 65.11(3) and 65.11(4) than any other confinement feeding operation structure which is part of the operation.

(5) The replacement formed manure storage structure meets or exceeds the requirements of Iowa Code section 459.307 and subrule 65.15(14).

b. A replacement formed manure storage structure that is part of the confinement feeding operation is constructed on or after April 28, 2003, pursuant to a variance granted by the department. In granting the variance, the department shall make a finding of all of the following:

(1) The replacement formed manure storage structure replaces the confinement feeding operation's existing manure storage and handling facilities.

(2) The replacement formed manure storage structure complies with standards adopted pursuant to Iowa Code section 459.307 and subrule 65.15(14).

(3) The replacement formed manure storage structure more likely than not provides a higher degree of environmental protection than the confinement feeding operation's existing manure storage and handling facilities. If the formed manure storage structure will replace any existing manure storage structure, the department shall, as a condition of granting the variance, require that the replaced manure storage structure be properly closed.

65.12(9) *Variances.* Variances to the water well separation requirements in subrule 65.11(5) may be granted by the director if the petitioner complies with the procedures and criteria in 561—Chapter 10 and provides an alternative that is substantially equivalent to the required separation distance or provides improved or greater protection for the water well. Petition for a variance shall be made in writing at the time an application is submitted. The denial of a petition for variance may be appealed to the environmental protection commission.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.13(455B) Separation distances from certain lakes, rivers and streams. Rescinded IAB 4/7/99, effective 5/12/99.

567—65.14(455B) Well separation distances for open feedlots. Rescinded IAB 4/12/06, effective 5/17/06.

567—65.15(459,459B) Manure storage structure design requirements. The requirements in this rule apply to all confinement feeding operation structures unless specifically stated otherwise.

65.15(1) *Drainage tile removal for new construction of a manure storage structure.* Prior to constructing a manure storage structure, other than storage of manure in an exclusively dry form, the site for the animal feeding operation structure shall be investigated for drainage tile lines as provided in this subrule. All applicable records of known drainage tiles shall be examined for the existence of drainage tile lines.

a. One of the following procedures shall be performed prior to excavation for an unformed manure storage structure:

(1) An inspection trench of at least ten inches wide shall be dug around the structure to a depth of at least 6 feet below the original grade and at least 50 feet beyond the structure's projected outside liquid surface at the high-water level.

(2) A core trench shall be dug to a depth of at least 6 feet below the original grade at the projected center of the berm. After investigation for tile lines and any discovered tile lines are removed, an additional containment barrier shall be constructed underneath the center of the berm. The additional containment barrier shall meet the same percolation standards as the structure with the lateral flow potential restricted to one-sixteenth of an inch per day.

b. Drainage tile lines discovered within the projected site of an unformed manure storage structure and within 50 feet of the projected structure's liquid surface at the high-water level shall be removed and rerouted to at least 50 feet beyond the projected structure's liquid surface at the high-water level. Drainage tile lines installed at the time of construction to lower a groundwater table may remain where located, provided that the tile lines are outside of the proposed berm. All other drainage tile lines discovered shall be rerouted, capped, or plugged with concrete, Portland cement concrete grout or similar materials.

c. The applicant for a construction permit for a formed manure storage structure shall investigate for tile lines during excavation for the structure. Drainage tile lines discovered upgrade from the structure shall be rerouted around the formed manure storage structure to continue the flow of drainage. All other drainage tile lines discovered shall be rerouted, capped, plugged with concrete, Portland cement concrete

grout or similar materials. Drainage tile lines installed at the time of construction to lower a groundwater table may remain where located.

d. A confinement feeding operation required to obtain a construction permit pursuant to subrule 65.7(1) or to follow the upgraded concrete standards set forth in paragraph 65.15(14)*"c"* shall install a sample port device to allow monitoring of the water in the drainage tile lines installed to lower the groundwater table. In addition, a device to allow shutoff of the drainage tile lines shall be installed if the drainage tile lines do not have a surface outlet accessible on the property where the formed manure storage structure is located.

e. Other proven methods approved by the department may be utilized to discover drainage tile lines.

f. Variances to this subrule may be granted by the director if the petitioner complies with the procedures and criteria in 561—Chapter 10 and provides an alternative that is substantially equivalent to this subrule or provides improved effectiveness or protection as required by this subrule. Petition for a variance shall be made in writing at the time the application is submitted or prior to investigating for drainage tile, whichever is earlier. The denial of a variance may be appealed to the commission.

g. The requirements of this subrule do not apply if sufficient information is provided that allows the department to conclude that the location does not have a history of drainage tile.

65.15(2) *Drainage tile removal around an existing manure storage structure.* The owner of an aerobic structure, anaerobic lagoon or earthen manure storage basin or earthen waste slurry storage basin, other than an egg washwater storage structure, that is part of a confinement feeding operation with a construction permit granted before March 20, 1996, but after December 31, 1992, shall inspect for drainage tile lines as provided in this subrule, and all applicable records of known drainage tiles shall be examined. The owner of an aerobic structure, anaerobic lagoon, earthen manure storage basin or earthen waste slurry storage basin, other than an egg washwater storage structure, that is part of a confinement feeding operation with a construction permit granted before January 1, 1993, but after May 31, 1985, shall inspect for drainage tiles as provided in this subrule, and all applicable records of known drainage tiles shall be examined. Drainage tile lines shall not be installed within the separation distance provided in paragraph 65.15(1)*"b"* once the basin has been constructed.

a. Inspection shall be by digging an inspection trench of at least ten inches wide around the structure to a depth of at least 6 feet from the original grade and at least 50 feet from the outside edge of the berm. The owner first shall inspect the area where trenching is to occur and manure management records to determine if there is any evidence of leakage and, if so, shall contact the department for further instructions as to proper inspection procedures. The owner of a confinement feeding operation shall either obtain permission from an adjoining property owner or trench up to the boundary line of the property if the distance of 50 feet would require the inspection trench to go onto the adjoining property.

b. The owner of the confinement feeding operation may utilize other proven methods approved by the department to discover drainage tile lines.

c. The drainage tile lines discovered near an aerobic structure, anaerobic lagoon, earthen manure storage basin or earthen waste slurry storage basin, other than an egg washwater storage structure, shall be removed within 50 feet of the outside edge of the berm. Drainage tile lines discovered upgrade from the aerobic structure, anaerobic lagoon or earthen manure storage basin shall be rerouted outside of 50 feet from the berm to continue the flow of drainage. All other drainage tile lines discovered shall be rerouted, capped, plugged with concrete, Portland cement concrete grout or similar materials, or reconnected to upgrade tile lines. Drainage tile lines that were installed at the time of construction to lower a groundwater table may either be avoided if the location is known or may remain at the location if discovered.

d. The owner of an aerobic structure, anaerobic lagoon, earthen manure storage structure or an earthen waste slurry storage basin with a tile drainage system to artificially lower the groundwater table shall have a device to allow monitoring of the water in the drainage tile lines that lower the groundwater table and to allow shutoff of the drainage tile lines if the drainage tile lines do not have a surface outlet accessible on the property where the aerobic structure, anaerobic lagoon, earthen manure storage basin or earthen waste slurry storage basin is located.

e. If the owner of the confinement feeding operation discovers drainage tile that projects underneath the berm, it shall follow one of the following options:

(1) Contact the department to obtain permission to remove the drainage tile under the berm. The manure in the structure must be lowered to a point below the depth of the tile prior to removing the drainage tile from under the berm. Prior to using the structure, a new percolation test must be submitted to the department and approval received from the department.

(2) Grout the length of the tile under the berm to the extent possible. The material used to grout shall include concrete, Portland cement concrete grout or similar materials.

f. Variances to this subrule may be granted by the director if the applicant provides an alternative that is substantially equivalent to the subrule or provides improved effectiveness or protection as required by the subrule. A request for a variance shall be made in writing. The denial of a variance may be appealed to the commission.

g. A waiver to this subrule may be granted by the director if sufficient information is provided that the location does not have a history of drainage tile.

h. A written record describing the actions taken to determine the existence of tile lines, the findings, and actions taken to comply with this subrule shall be prepared and maintained as part of the manure management plan records.

65.15(3) *Guidelines for drainage tile removal around an existing manure storage structure.*

a. It is recommended that a manure storage structure, other than the storage of manure in an exclusively dry form, that is part of a confinement feeding operation with a construction permit granted before May 31, 1985, be inspected for drainage tile lines as provided in this subrule, and all applicable records of known drainage tiles may be examined. For an aerobic structure, anaerobic lagoon, earthen manure storage basin or earthen waste slurry storage basin, inspection may be by digging an inspection trench of at least ten inches wide around the structure at a depth of at least 6 feet from the original grade and at least 50 feet from the projected outside edge of the berm. The owner first should inspect the area where trenching is to occur and manure management records to determine if there is any evidence of leakage and, if so, shall contact the department for further instructions as to proper inspection procedures.

b. The drainage tile lines discovered may be removed within 50 feet of the outside edge of the berm. Drainage tile lines discovered upgrade from the structure may be rerouted outside of 50 feet from the berm to continue the flow of drainage. Drainage tile lines that were installed at the time of construction to lower a groundwater table may either be avoided if the location is known or may remain at the location if discovered. All other drainage tile lines discovered may be rerouted, capped, plugged with concrete, Portland cement concrete grout or similar materials or reconnected to upgrade tile lines. The owner of a confinement feeding operation should either obtain permission from an adjoining property owner or trench up to the boundary line of the property if the distance of 50 feet would require the inspection trench to go onto the adjoining property.

c. If the owner of a confinement feeding operation discovers drainage tile that projects underneath the berm, it may follow one of the following options:

(1) Contact the department to obtain permission to remove the drainage tile under the berm. The manure in the structure must be lowered to a point below the depth of the tile prior to removing the drainage tile from under the berm. Prior to using the structure, a new percolation test must be submitted to the department and approval received from the department.

(2) Grout the length of the tile under the berm to the extent possible. The material used to grout may include concrete, Portland cement concrete grout or similar materials.

d. The owner of a confinement feeding operation with a formed manure storage structure other than dry manure storage may inspect for tile lines. Drainage tile lines discovered upgrade from the structure may be rerouted around the formed manure storage structure to continue the flow of drainage. Drainage tile lines put in place during or after construction of the formed manure storage structure to relieve hydrologic pressure may remain where located. All other drainage tile lines discovered may

be rerouted, capped, plugged with concrete, Portland cement concrete grout or similar materials or reconnected to upgrade tile line.

65.15(4) *Earthen waste slurry storage basins.* An earthen waste slurry storage basin shall have accumulated manure removed at least twice each year unless there is sufficient basin capacity to allow removal of manure once each year and maintain freeboard as determined pursuant to 65.2(3)*"b."*

65.15(5) *Earthen manure storage basins.* An earthen manure storage basin shall have accumulated manure removed at least once each year. An earthen manure storage basin may have enough manure storage capacity to contain the manure from the confinement feeding operation for up to 14 months and maintain freeboard as determined pursuant to 65.2(3)*"b."*

65.15(6) *Soil testing for earthen structures.* Applicants for construction permits for earthen manure storage structures shall submit soils information according to this subrule for the site of the proposed structure. All subsurface soil classification shall be based on American Society for Testing and Materials Designations D 2487-92 or D 2488-90. Soil corings shall be taken to determine subsurface soil characteristics and groundwater elevation and direction of flow of the proposed site for an anaerobic lagoon, aerobic structure, earthen egg washwater storage structure, or earthen manure storage basin. Soil corings shall be conducted by a qualified person normally engaged in soil testing activities. Data from the soil corings shall be submitted with a construction permit application and shall include a description of the geologic units encountered, a discussion of the effects of the soil and groundwater elevation and direction of flow on the construction and operation of the anaerobic lagoon, aerobic structure, earthen egg washwater storage structure, or earthen manure storage basin and a discussion that addresses the suitability of the proposed structure at the site. All soil corings shall be taken by a method that identifies the continuous soil profile and does not result in the mixing of soil layers. The number and location of the soil corings will vary on a case-by-case basis as determined by the designing engineer and accepted by the department. The following are minimum requirements:

a. A minimum of four soil corings reflecting the continuous soil profile is required for each anaerobic lagoon, aerobic structure, earthen egg washwater storage structure, or earthen manure storage basin. Corings which are intended to represent soil conditions at the corner of the structure must be located within 50 feet of the bottom edge of the structure and spaced so that one coring is as close as possible to each corner. Should there be no bottom corners, corings shall be equally spaced around the structure to obtain representative soil information for the site. An additional coring will be required if necessary to ensure that one coring is at the deepest point of excavation. For an anaerobic lagoon, aerobic structure, earthen egg washwater storage structure, or earthen manure storage basin larger than 4 acres water surface area, one additional coring per acre is required for each acre above 4 acres surface area.

b. All corings shall be taken to a minimum depth of ten feet below the bottom elevation of the anaerobic lagoon, aerobic structure, earthen egg washwater storage structure, or earthen manure storage basin.

c. At least one coring shall be taken to a minimum depth of 25 feet below the bottom elevation of the anaerobic lagoon, aerobic structure, earthen egg washwater storage structure, or earthen manure storage basin or into bedrock, whichever is shallower.

d. Upon abandonment of the soil core holes, all soil core holes including those developed as temporary water level monitoring wells shall be plugged with concrete, Portland cement concrete grout, bentonite, or similar materials.

65.15(7) *Hydrology.*

a. *Groundwater table.* A minimum separation of four feet between the top of the liner for any unformed manure storage structure or earthen egg washwater storage structure and the groundwater table is recommended; however, in no case shall the top of the liner for an unformed manure storage structure or earthen egg washwater storage structure be below the groundwater table. If the groundwater table is less than two feet below the top of the liner for an unformed manure storage structure or earthen egg washwater storage structure, the unformed manure storage structure or earthen egg washwater storage structure shall be provided with a synthetic liner as described in paragraph 65.15(12)*"f."*

b. *Permanent artificial lowering of groundwater table.*

(1) Unformed structures. The groundwater table around an unformed manure storage structure or earthen egg washwater storage structure may be artificially lowered to levels required in paragraph 65.15(7)*"a"* by using a gravity flow tile drainage system or other permanent nonmechanical system for artificial lowering of the groundwater table. Detailed engineering and soil drainage information shall be provided with a construction permit application for an unformed manure storage structure or earthen egg washwater storage structure if a drainage system for artificially lowering the groundwater table will be installed. The level to which the groundwater table will be lowered will be considered to represent the seasonal high-water table. If a drainage tile around the perimeter of the basin is installed a minimum of two feet below the top of the basin liner to artificially lower the seasonal high-water table, the top of the basin's liner may be a maximum of four feet below the seasonal high-water table which existed prior to installation of the perimeter tile system. Drainage tile lines shall be installed between the outside of the proposed toe of the berm and within 25 feet of the outside of the toe of the berm. Drainage tile lines shall be placed in a vertical trench and encased in granular material which extends upward to the level of the seasonal high-water table which existed prior to installation of the perimeter tile system. A device to allow monitoring of the water in the drainage tile lines installed to lower the groundwater table and a device to allow shutoff of the drainage tile lines shall be installed if the drainage tile lines do not have a surface outlet accessible on the property where the unformed manure storage structure is located.

(2) Formed structures. For a formed manure storage structure or a formed egg washwater storage structure, partially or completely constructed below the normal soil surface, a tile drainage system or other permanent system for artificial lowering of groundwater levels shall be installed around the structure if the groundwater table is above the bottom of the structure. (See 65.15(7)*"b"*(1) for monitoring and shutoff requirements for drainage tile lines installed to lower the groundwater table.)

c. Determination of groundwater table. For purposes of this rule, groundwater table is the seasonal high-water table determined by a licensed professional engineer, a groundwater professional certified pursuant to 567—Chapter 134, or qualified staff from the department or NRCS. If a construction permit is required, the department must approve the groundwater table determination.

(1) Current groundwater levels shall be measured using at least one of the following for either formed or unformed structures:

1. Temporary monitoring wells. A minimum of three temporary monitoring wells shall be installed. The top of the well screen shall be within 5 feet of the ground surface. Each well shall be extended to at least 2 feet below the bottom of the liner of an unformed manure storage structure, or to at least 2 feet below the footings of a formed manure storage structure.

- Unformed structures. For an unformed manure storage structure, each monitoring well may be installed in the existing boreholes resulting from the corings required in subrule 65.15(6).
- Formed structures. For a formed manure storage structure, at least three temporary monitoring wells shall be installed as close as possible to three corners of the structure, with one of the wells close to the corner of deepest excavation. If the formed structure is circular, the three monitoring wells shall be equally spaced and one well shall be placed at the point of deepest excavation.

2. Test pits. The department may allow use of test pits in lieu of temporary monitoring wells if seasonal variation in climatic patterns, soil and geologic conditions prevent accurate determination of the seasonal high-water table or prior to the construction of an unformed manure storage structure liner to ensure that the required separation distance to the groundwater table is being met. The bottom of each test pit shall be at least 2 feet below the floor of the manure storage structure or egg washwater storage structure. Each pit shall be allowed to remain open and unaltered for a minimum of seven days for viewing by the department or NRCS qualified staff for the determination of soil characteristics and related groundwater influence. Adequate protection (temporary berms and covers) shall be provided to prevent surface runoff from entering the test pits. One test pit shall be located in each corner and one in the center of the proposed manure control structure, unless otherwise specified by the department. Test pits shall be backfilled and compacted to achieve the seepage loss as outlined in subrule 65.15(11). A description of the materials present in the test pit shall be documented by all of the following:

- Digital photos;
- Description of soils including mottling;

- Construction specifications; and
- Weather conditions both prior to and during the period in which test pits are open.

(2) The seasonal high-water table shall be determined by measuring the groundwater level in the temporary monitoring wells not earlier than seven days following installation and shall include consideration of NRCS soil survey information, soil characteristics such as color and mottling, other existing water table data, and other pertinent information. If a drainage system for artificially lowering the groundwater table will be installed in accordance with the requirements of paragraph 65.15(7)*"b,"* the level to which the groundwater table will be lowered will be considered to represent the seasonal high-water table.

65.15(8) *Karst terrain and alluvial aquifer areas.*

a. An unformed manure storage structure or unformed egg washwater storage structure shall not be located on karst terrain.

b. Dry bedded confinement feeding operation structures constructed on karst terrain or in an alluvial aquifer area shall comply with all of the following:

(1) A minimum 5-foot layer of low permeability soil or rock between the bottom of the floor of the dry bedded confinement feeding operation structure and the underlying limestone, dolomite or other soluble rock in karst terrain or the underlying sand and gravel aquifer in an alluvial aquifer area is required. A professional engineer licensed in Iowa, NRCS qualified staff or a qualified organization shall submit a soil report, based on the results from soil borings or test pits, describing the subsurface materials and vertical separation distance from the proposed bottom of the dry bedded confinement feeding operation structure and the underlying limestone, dolomite or soluble rock. A minimum of two soil borings or test pits, at each end of the proposed structure, are required if acceptable well data are not available. After soil exploration is complete, each boring or test pit shall be properly plugged with concrete grout, bentonite or similar materials and documented in the soil report.

(2) The dry bedded confinement feeding operation structure shall be constructed with a floor consisting of reinforced concrete at least five inches thick conforming to the requirements of 65.15(14)*"a"*(2), numbered paragraphs "1," "3," "4," "6," "8" and "12."

65.15(9) *Bedrock separation.* A minimum of four feet of separation between an unformed manure storage structure bottom and any bedrock formation is required. A ten-foot separation is recommended. A synthetic liner is required if the unformed structure is to be located less than ten feet above a carbonate or limestone formation.

65.15(10) *Flooding protection.*

a. A confinement feeding operation structure proposed to be constructed on land that would be inundated by Q100 shall meet requirements as specified in 567—Chapters 70 to 76, unless otherwise prohibited according to paragraph 65.15(10)*"b."*

b. A confinement feeding operation structure shall not be constructed on the one hundred year floodplain.

65.15(11) *Seals for unformed manure storage structures and unformed egg washwater storage structures.* An unformed manure storage structure or egg washwater storage structure shall be sealed such that seepage loss through the seal shall not exceed 1/16 inch per day at the design depth of the structure. Following construction of the structure, the results of a testing program which indicates the adequacy of the seal shall be provided to this department in writing prior to start-up of a permitted operation.

65.15(12) *Unformed manure storage structure and unformed egg washwater storage structure liner design and construction standards.* An unformed manure storage structure or unformed egg washwater storage structure which receives a construction permit after January 21, 1998, shall comply with the following minimum standards in addition to subrule 65.15(11).

a. If the location of the proposed unformed manure storage structure or unformed egg washwater storage structure contains suitable materials as determined by the soil corings taken pursuant to subrule 65.15(6), those materials shall be compacted to establish a minimum of a 12-inch liner. A minimum initial overexcavation of 6 inches of material shall be required. The underlying material shall be scarified,

reworked and compacted to a depth of 6 inches. The overexcavated materials shall be replaced and compacted.

b. If the location of the proposed unformed manure storage structure or unformed egg washwater storage structure does not contain suitable materials as determined by the soil corings taken pursuant to subrule 65.15(6), suitable materials shall be obtained from another location approved by the department and shall be compacted to establish a minimum of a 24-inch liner.

c. Where sand seams, gravel seams, organic soils or other materials that are not suitable are encountered during excavation, the area where they are discovered shall be overexcavated a minimum of 24 inches and replaced with suitable materials and compacted.

d. All loose lift material must be placed in lifts of nine inches or less and compacted. The material shall be compacted at or above optimum moisture content and meet a minimum of 95 percent of the maximum density as determined by the Standard Proctor test after compaction.

e. For purposes of this rule, suitable materials means soil, soil combinations or other similar material that is capable of meeting the permeability and compaction requirements. Sand seams, gravel seams, organic soils or other materials generally not suitable for unformed manure storage structure or unformed egg washwater storage structure construction are not considered suitable liner materials.

f. As an alternative to the above standards, a synthetic liner may be used. If the use of a synthetic liner is planned for an unformed manure storage structure or unformed egg washwater storage structure, the permit application shall outline how the site will be prepared for placement of the liner, the physical, chemical, and other pertinent properties of the proposed liner, and information on the procedures to be used in liner installation and maintenance. In reviewing permit applications which involve use of synthetic liners, the department will consider relevant synthetic liner standards adopted by industry, governmental agencies, and professional organizations as well as technical information provided by liner manufacturers and others.

65.15(13) *Anaerobic lagoon design standards.* An anaerobic lagoon shall meet the requirements of this subrule.

a. General.

(1) Depth. Liquid depth shall be at least 8 feet but 15 to 20 feet is preferred if soil and other site conditions allow.

(2) Inlet. One subsurface inlet at the center of the lagoon or dual (subsurface and surface) inlets are preferred to increase dispersion. If a center inlet is not provided, the inlet structure shall be located at the center of the longest side of the anaerobic lagoon.

(3) Shape. Long, narrow anaerobic lagoon shapes decrease manure dispersion and should be avoided. Anaerobic lagoons with a length-to-width ratio of greater than 3:1 shall not be allowed.

(4) Aeration. Aeration shall be treatment as an "add-on process" and shall not eliminate the need for compliance with all anaerobic lagoon criteria contained in these rules.

(5) Manure loading frequency. The anaerobic lagoon shall be loaded with manure and dilution water at least once per week.

(6) Design procedure. Total anaerobic lagoon volume shall be determined by summation of minimum stabilization volume; minimum dilution volume (not less than 50 percent of minimum stabilization volume); manure storage between periods of disposal; and storage for 8 inches of precipitation.

(7) Manure storage period. Annual or more frequent manure removal from the anaerobic lagoon, preferably prior to May 1 or after September 15 of the given year, shall be practiced to minimize odor production. Design manure storage volume between disposal periods shall not exceed the volume required to store 14 months' manure production. Manure storage volume shall be calculated based on the manure production values found in Table 5 at the end of this chapter.

b. Minimum stabilization volume and loading rate.

(1) For all animal species other than beef cattle, there shall be 1000 cubic feet minimum design volume for each 5 pounds of volatile solids produced per day if the volatile solids produced per day are 6000 pounds or fewer and for each 4 pounds if the volatile solids produced per day are more than 6000

pounds. For beef cattle, there shall be 1000 cubic feet minimum design volume for each 10 pounds of volatile solids produced per day.

(2) In Lyon, Sioux, Plymouth, Woodbury, Osceola, Dickinson, Emmet, Kossuth, O'Brien, Clay, Palo Alto, Cherokee, Buena Vista, Pocahontas, Humboldt, Ida, Sac, Calhoun, and Webster Counties for all animal species other than beef there shall be 1000 cubic feet minimum design volume for each 4.5 pounds of volatile solids per day if the volatile solids produced per day are 6000 pounds or fewer. However, if a water analysis as required in 65.15(13)*"c"*(2) below indicates that the sulfate level is below 500 milligrams per liter, then the rate is 1000 cubic feet for each 5.0 pounds of volatile solids per day.

(3) Credit shall be given for removal of volatile solids from the manure stream prior to discharge to the lagoon. The credit shall be in the form of an adjustment to the volatile solids produced per day. The adjustments shall be at the rate of 0.50 pound for each pound of volatile solids removed. For example, if a swine facility produces 7000 pounds of volatile solids per day, and if 2000 pounds of volatile solids per day are removed, the volatile solids produced per day would be reduced by 1000 pounds, leaving an adjusted pounds of volatile solids produced per day of 6000 pounds (for which the loading rate would be 5 pounds according to subparagraph (1) above).

(4) Credit shall be given for mechanical aeration if the upper one-third of the lagoon volume is mixed by the aeration equipment and if at least 50 percent of the oxygen requirement of the manure is supplied by the aeration equipment. The credit shall be in the form of an increase in the maximum loading rate (which is the equivalent of a decrease in the minimum design volume) in accordance with Table 8.

(5) If a credit for solids removal is given in accordance with subparagraph (3) above, the credit for qualified aeration shall still be given. The applicant shall submit evidence of the five-day biochemical oxygen demand (BOD5) of the manure after the solids removal so that the aeration credit can be calculated based on an adjustment rate of 0.50 pound for each pound of solids removed.

(6) American Society of Agricultural Engineers (ASAE) standards, "Manure Production and Characteristics," D384.1, or Midwest Plan Service-18 (MWPS-18), Table 2-1, shall be used in determining the BOD5 production and volatile solid production of various animal species.

c. Water supply.

(1) The source of the dilution water discharged to the anaerobic lagoon shall be identified.

(2) The sulfate concentration of the dilution water to be discharged to the anaerobic lagoon shall be identified. The sulfate concentration shall be determined by standard methods as defined in 567—60.2(455B).

(3) A description of available water supplies shall be provided to prove that adequate water is available for dilution. It is recommended that, if the sulfate concentration exceeds 250 mg/l, then an alternate supply of water for dilution should be sought.

d. Initial lagoon loading. Prior to the discharge of any manure to the anaerobic lagoon, the lagoon shall be filled to a minimum of 50 percent of its minimum stabilization volume with fresh water.

e. Lagoon manure and water management during operation. Following initial loading, the manure and water content of the anaerobic lagoon shall be managed according to either of the following:

(1) For single cell lagoons or multicell lagoons without a site-specific lagoon operation plan. The total volume of fresh water for dilution added to the lagoon annually shall equal one-half the minimum stabilization volume. At all times, the amount of fresh water added to the lagoon shall equal or exceed the amount of manure discharged to the lagoon.

(2) For a two or three cell anaerobic lagoon. The manure and water content of the anaerobic lagoon may be managed in accordance with a site-specific lagoon operation plan approved by the department. The lagoon operation plan must describe in detail the operational procedures and monitoring program to be followed to ensure proper operation of the lagoon. Operational procedures shall include identifying the amounts and frequencies of planned additions of manure, fresh water and recycle water, and amount and frequencies of planned removal of solids and liquids. Monitoring information shall include locations and intervals of sampling, specific tests to be performed, and test parameter values used to indicate proper lagoon operation. As a minimum, annual sampling and testing of the first lagoon cell for electrical

conductivity (EC) and either chemical oxygen demand (COD) or total ammonia (NH3 + NH4) shall be required.

f. *Manure removal.* If the anaerobic lagoon is to be dewatered once a year, manure should be removed to approximate the annual manure volume generated plus the dilution water used. If the anaerobic lagoon is to be dewatered more frequently, the anaerobic lagoon liquid level should be managed to maintain adequate freeboard.

65.15(14) *Concrete standards.* A formed manure storage structure which is constructed of concrete on or after March 24, 2004, that is part of a confinement feeding operation other than a small animal feeding operation shall meet the following minimum standards. For the purpose of this subrule, a "PE" is a professional engineer licensed in the state of Iowa and an "NRCS engineer" is an engineer working for the NRCS. (CAVEAT : These standards are not intended to address other site-related engineering and construction considerations beyond the department's jurisdiction.)

a. *Nondry manure storage.* The following minimum concrete standards are required for a formed manure storage structure other than that used for the storage of manure exclusively in a dry form. A formed manure storage structure must be designed in accordance with one of the following design methods:

(1) Engineering report, plans and specifications prepared and sealed by a PE or an NRCS engineer. Design considerations shall be in conformance with the American Concrete Institute (ACI) Building Code ACI 318, ACI 360 or ACI 350; or Portland Cement Association (PCA) publication EB075, EB001 or IS072; or MidWest Plan Service (MWPS) publication MWPS-36 or MWPS TR-9, and shall include all of the following:

1. The floors shall be a minimum of 5 inches thick. Nondestructive methods to verify the floor slab thickness may be required by the department. The results shall indicate that at least 95 percent of the floor slab area meets the minimum required thickness. In no case shall the floor slab thickness be less than 4½ inches.

2. Wire mesh shall not be used as primary reinforcement for a formed manure storage structure with a depth of 4 feet or more. Fiber shall not be used as reinforcement.

3. Waterstops shall be installed in all areas where fresh concrete meets hardened concrete. Waterstops shall be made of plastic, rolled bentonite or similar materials approved by the department.

4. The vertical steel of all walls shall be extended into the footing and be bent at 90° or a separate dowel shall be installed. As an alternate to the 90° bend, the dowel may be extended at least 12 inches into the footing, with a minimum concrete cover of 3 inches at the bottom. In lieu of dowels, mechanical means or alternate methods may be used as anchorage of interior walls to footings.

(2) If a formed manure storage structure is not designed and sealed by a PE or an NRCS engineer, the design and specifications shall be in conformance with MWPS-36 (for a belowground rectangular tank) or MWPS TR-9 (for a circular tank); or in accordance with Appendix D at the end of this chapter (for a belowground, laterally braced rectangular tank). In addition, all of the following concrete standards shall apply:

1. The finished subgrade of a formed manure storage structure shall be graded and compacted to provide a uniform and level base and shall be free of vegetation, manure and debris. For the purpose of this subrule, "uniform" means a finished subgrade with similar soils.

2. When the groundwater table, as determined in 65.15(7)*"c,"* is above the bottom of the formed structure, a drain tile shall be installed along the footings to artificially lower the groundwater table pursuant to 65.15(7)*"b."* The drain tile shall be placed within 3 feet of the footings as indicated in Appendix D, Figure D-1, at the end of this chapter and shall be covered with a minimum of 2 inches of gravel, granular material, fabric or a combination of these materials to prevent plugging the drain tile.

3. All concrete shall have the following minimum as-placed compressive strengths and shall meet American Society for Testing and Materials (ASTM) standard ASTM C 94:

- 4,000 pounds per square inch (psi) for walls, floors, beams, columns and pumpouts;
- 3,000 psi for the footings.

The average concrete strength by testing shall not be below design strength. No single test result shall be more than 500 psi less than the minimum compressive strength.

4. Cementitious materials shall consist of portland cement conforming to ASTM C 150. Aggregates shall conform to ASTM C 33. Blended cements in conformance with ASTM C 595 are allowed only for concrete placed between March 15 and October 15. Portland-pozzolan cement or portland blast furnace slag blended cements shall contain at least 75 percent, by mass, of portland cement.

5. All concrete placed for walls shall be consolidated or vibrated, by manual or mechanical means, or a combination, in a manner which meets ACI 309.

6. All rebar used shall be a minimum of grade 40 steel. All rebar, with the exception of rebar dowels connecting the walls to the floor or footings, shall be secured and tied in place prior to the placing of concrete.

7. All wall reinforcement shall be placed so as to have a rebar cover of 2 inches from the inside face of the wall for a belowground manure storage structure. Vertical wall reinforcement should be placed closest to the inside face. Rebar placement shall not exceed tolerances specified in ACI 318.

8. The floor slab shall be a minimum of 5 inches thick. The floor slab of any formed manure storage structure with a depth of 4 feet or more shall have primary reinforcement consisting of a minimum of #4 rebar placed a maximum of 18 inches on center in each direction placed in a single mat. The floor slab of any formed manure storage structure with a depth less than 4 feet shall have shrinkage reinforcement consisting of a minimum of 6 × 6-W1.4 × W1.4 welded wire fabric. Floor slab reinforcement shall be located in the middle of the thickness of the floor slab. Nondestructive methods to verify the floor slab thickness may be required by the department. The results shall indicate that at least 95 percent of the floor slab area meets the minimum required thickness. In no case shall the floor slab thickness be less than 4½ inches.

9. The footing or the area where the floor comes in contact with the walls and columns shall have a thickness equal to the wall thickness, but in no case be less than 8 inches, and the width shall be at least twice the thickness of the footing. All exterior walls shall have footings below the frostline. Tolerances shall not exceed -½ inch of the minimum footing dimensions.

10. The vertical steel of all walls shall be extended into the footing, and be bent at 90° or a separate dowel shall be installed as a #4 rebar that is bent at 90° with at least 20 inches of rebar in the wall and extended into the footing within 3 inches of the bottom of the footing and extended at least 3 inches horizontally, as indicated in Appendix D, Figure D-1, at the end of this chapter. As an alternative to the 90° bend, the dowel may be extended at least 12 inches into the footing, with a minimum concrete cover of 3 inches at the bottom. Dowel spacing (bend or extended) shall be the same as the spacing for the vertical rebar. In lieu of dowels, mechanical means or alternate methods may be used as anchorage of interior walls to footings.

11. All walls shall be formed with rigid forming systems and shall not be earth-formed. Form ties shall be nonremovable to provide a liquid-tight structure. No conduits or pipes shall be installed through an outside wall below the maximum liquid level of the structure.

12. All concrete shall be cured for at least seven days after placing, in a manner which meets ACI 308, by maintaining adequate moisture or preventing evaporation. Proper curing shall be done by ponding, spraying or fogging water; or by using a curing compound that meets ASTM C 309; or by using wet burlap, plastic sheets or similar materials.

13. All construction joints in exterior walls shall be constructed to prevent discontinuity of steel and have properly spliced rebar placed through the joint. Waterstops shall be installed in all areas where fresh concrete will meet hardened concrete as indicated in Appendix D, Figures D-1 and D-2, at the end of this chapter. The waterstops shall be made of plastic, rolled bentonite or similar materials approved by the department.

14. Backfilling of the walls shall not start until the floor slats or permanent bracing has been installed and grouted. Backfilling shall be performed with material free of vegetation, large rocks or debris.

15. A formed manure storage structure with a depth greater than 12 feet shall be designed by a PE or an NRCS engineer.

b. Dry manure storage. A formed structure for the storage of manure exclusively in a dry form shall be designed and constructed in accordance with one of the following:

(1) Engineering report, plans and specifications prepared and sealed by a PE or an NRCS engineer. Design considerations shall be in conformance with the American Concrete Institute (ACI) Building Code ACI 318 or ACI 360; or Portland Cement Association (PCA) publication EB075, EB001 or IS072; or MidWest Plan Service (MWPS) publication MWPS-36.

(2) If a formed manure storage structure that stores manure exclusively in a dry form is to be constructed aboveground and the design is not prepared and sealed by a PE or an NRCS engineer, the requirements set forth in 65.15(14)*"a"*(2), numbered paragraphs "1," "3," "4," "5," "6," "8" and "12," shall apply. Consideration shall be given to internal and external loads including, but not limited to, wind loads, building load, manure pile and equipment vehicle loads.

(3) If the formed structure that stores manure exclusively in a dry form is to be constructed below or partially below the ground and the design is not prepared and sealed by a PE or an NRCS engineer, the requirements set forth in 65.15(14)*"a"*(2), numbered paragraphs "1" through "15," shall apply. Wall design shall be in accordance with Appendix D at the end of this chapter or in accordance with MWPS-36. Consideration shall be given to internal and external loads including, but not limited to, lateral earth pressures, hydrostatic pressures, wind loads, manure pile and equipment vehicle loads.

c. Karst terrain—upgraded standards. If the site of the proposed formed manure storage structure is located in karst terrain or an area that drains into a known sinkhole, the minimum concrete standards set forth in paragraph 65.15(14)*"a"* or *"b"* shall apply. In addition, the following requirements apply to all formed manure storage structures that store nondry or dry manure:

(1) In an area that exhibits karst terrain or an area that drains into a known sinkhole, a PE, NRCS qualified staff or a qualified organization shall submit a soil exploration study based on the results from soil borings or test pits to determine the vertical separation between the bottom of the formed structure and limestone, dolomite, or other soluble rock. A minimum of two soil borings equally spaced within each formed structure or two test pits located within 5 feet of the outside of the formed structure are required. After soil exploration is completed, each soil boring and test pit shall be properly plugged with concrete grout, bentonite, or similar materials.

(2) A minimum 5-foot layer of low permeability soil (1×10^{-6} cm/sec) or rock between the bottom of a formed manure storage structure and limestone, dolomite, or other soluble rock is required if the formed manure storage structure is not designed by a PE or NRCS qualified staff.

(3) If the vertical separation distance between the bottom of the proposed formed manure storage structure and limestone, dolomite, or other soluble rock is less than 5 feet, the structure shall be designed and sealed by a PE or NRCS qualified staff person who certifies the structural integrity of the structure. A 2-foot-thick layer of compacted clay liner material shall be constructed underneath the floor of the formed manure storage structure. However, it is recommended that any formed manure storage structure be constructed aboveground if the vertical separation distance between the bottom of the structure and the limestone, dolomite, or other soluble rock is less than 5 feet.

(4) Groundwater monitoring shall be performed as specified by the department.

(5) Backfilling shall not start until the floor slats have been placed or permanent bracing has been installed and grouted, and shall be performed with material free of vegetation, large rocks, or debris.

d. Cold and hot weather concreting recommendations. If air temperature is below 40 degrees Fahrenheit, the ACI Standard 306, "Recommended Practice for Cold Weather Concreting," should be followed. If ready-mix concrete temperature is above 90 degrees Fahrenheit, the ACI Standard 305, "Recommended Practice for Hot Weather Concreting," should be followed.

65.15(15) *Berm erosion control.*

a. The following requirements apply to unformed manure storage structures and unformed egg washwater storage structures constructed after May 12, 1999.

(1) Concrete, riprap, synthetic liners or similar erosion control materials or measures shall be used on the berm surface below pipes where manure will enter the structure.

(2) Concrete, riprap, synthetic liners or similar erosion control materials or measures of sufficient thickness and area to accommodate manure removal equipment and to protect the integrity of the liner shall be placed at all locations on the berm, side slopes, and base of the structure where agitation or pumping may cause damage to the liner.

(3) Erosion control materials or measures shall be used at the corners of the structure.

(4) To control erosion, perennial (grass) vegetation must be maintained on the outer, top and inner dikes up to the two-foot freeboard level of the unformed storage structure or earthen egg washwater storage structure, unless covered by concrete, riprap, synthetic liners or similar erosion control materials or measures.

b. The owner of a confinement feeding operation with an unformed manure storage structure or an unformed egg washwater storage structure shall inspect the structure berms at least semiannually for evidence of erosion. Erosion problems found which may impact either structural stability or liner integrity shall be corrected in a timely manner.

65.15(16) *Agricultural drainage wells.* After May 29, 1997, a person shall not construct a new or expand an existing unformed manure storage structure or an unformed egg washwater storage structure within an agricultural drainage well area.

65.15(17) *Secondary containment barriers for manure storage structures.* Secondary containment barriers used to qualify any confinement feeding operation for the exemption provision in subrule 65.12(7) shall be filed with the department according to subrule 65.9(8) and shall meet the following design standards:

a. A secondary containment barrier shall consist of a structure surrounding or downslope of a manure storage structure and shall be designed according to either of the following:

(1) If the manure storage structure is used to store liquid or semiliquid manure, the secondary containment barrier shall be designed to contain 120 percent of the volume of manure stored above the manure storage structure's final grade or 50 percent of the volume of manure stored belowground or partially belowground, whichever is greater. Engineering drawings prepared by a professional engineer licensed in Iowa or NRCS qualified staff must be submitted according to procedures set forth in subrule 65.9(8) and must show compliance with 65.15(17)*"a"* to *"d"* or *"e."* If the containment barrier does not surround the manure storage structure, upland drainage must be diverted. For purposes of this subrule only, semiliquid manure means manure that contains a percentage of dry matter that results in manure too solid for pumping, but too liquid for stacking.

(2) If the manure storage structure is used for the storage of only dry manure, the secondary containment barrier shall be designed to contain at least 10 percent of the volume of manure stored. Detailed drawings prepared by the owner or a representative must be submitted according to procedures set forth in subrule 65.9(8) and must show compliance with 65.15(17)*"a"* to *"c"* or *"e."* If the containment barrier does not surround the manure storage structure, upland drainage must be diverted. Any dry manure retained by the secondary containment barrier shall be removed and properly disposed of within 14 days.

b. The barrier may be constructed of earth, concrete, or a combination of both. If a relief outlet or valve is installed, the relief outlet or valve shall remain closed. Any accumulated liquid due to an overflow shall be land-applied as stated in the operation's manure management plan.

c. The base shall slope to a collecting area where storm water can be pumped out. If storm water is contaminated with manure, it shall be land-applied at normal fertilizer application rates in compliance with rule 567—65.3(459,459B).

d. Secondary containment barriers constructed entirely or partially of earth shall comply with the following requirements:

(1) The soil surface, including dike, shall be constructed to prevent downward water movement at rates greater than 1×10^{-6} cm/sec and shall be maintained to prevent downward water movement at rates greater than 1×10^{-5} cm/sec.

(2) Dikes shall not be steeper than 45 degrees and shall be protected against erosion. If the slope is 19 degrees or less, grass can be sufficient protection, provided it does not interfere with the required soil seal.

(3) The top width of the dike shall be no less than 3 feet.

e. Secondary containment barriers constructed of concrete shall be watertight and comply with the following requirements:

(1) The base of the containment structure shall be designed to support the manure storage structure and its contents.

(2) The concrete shall be routinely inspected for cracks, which shall be repaired with a suitable sealant.

f. In lieu of the construction of the secondary containment barrier, the manure control structure can be designed to retain the manure and direct the manure back into the storage structure.

65.15(18) *Human sanitary waste.* Human sanitary waste shall not be discharged to a manure storage structure or egg washwater storage structure.

65.15(19) *Requirements for qualified operations.* A confinement feeding operation that meets the definition of a qualified operation shall only use an aerobic structure for manure storage and treatment. This requirement does not apply to a confinement feeding operation that only handles dry manure or to an egg washwater storage structure or to a confinement feeding operation which was constructed before May 31, 1995, and does not expand.

65.15(20) *Aboveground formed manure storage structures with external outlet or inlet below the liquid level.* A formed manure storage structure which is constructed to allow the storage of manure wholly or partially above ground and which has an external outlet or inlet below the liquid level shall have all of the following:

a. Two or more shutoff valves on any external outlet or inlet below the liquid level. At least one shutoff valve shall be located inside the structure and be operable if the external valve becomes inoperable or broken off.

b. All external outlets or inlets below the liquid level shall be barricaded, encased in concrete, or otherwise protected to minimize accidental destruction.

c. Construction shall be in compliance with the manufacturer's requirements.

d. An emergency response plan for retaining manure at the site and cleanup if the manure storage structure fails or there is any other type of accidental discharge. The plan shall consist of telephone numbers to comply with 65.2(9) and list of contractors, equipment, equipment technical support, and alternative manure storage or land application sites which can be used during inclement weather.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.16(459,459B) Manure management plan requirements.

65.16(1) In accordance with Iowa Code section 459.312, the following persons are required to submit manure management plans to the department, including an original manure management plan and an updated manure management plan, as required by this rule:

a. An applicant for a construction permit for a confinement feeding operation. However, a manure management plan shall not be required of an applicant for an egg washwater storage structure or for a small animal feeding operation.

b. The owner of a confinement feeding operation, other than a small animal feeding operation, if one of the following applies:

(1) The confinement feeding operation was constructed or expanded after May 31, 1985, regardless of whether the confinement feeding operation structure was required to have a construction permit.

(2) The owner constructs a manure storage structure, regardless of whether the person is required to be issued a permit for the construction pursuant to Iowa Code section 459.303, or whether the person has submitted a prior manure management plan.

c. A person who applies manure in Iowa that was produced in a confinement feeding operation, other than a small operation, located outside of Iowa.

d. A new owner of a confinement feeding operation may apply manure under the most recent owner's manure management plan until the new owner develops and submits an original manure management plan. The new owner must develop and submit an original manure management plan within 60 days after acquiring the operation.

e. A research college is exempt from this subrule and the manure management plan requirements of rule 567—65.17(459,459B) for research activities and experiments performed under the authority of the research college and related to confinement feeding operations.

f. An animal feeding operation otherwise required to submit an updated manure management plan and pay an annual compliance fee may make an election to be considered a small animal feeding operation for purposes of filing updated manure management plans and annual compliance fees if the confinement feeding operation maintains an animal unit capacity of 500 or fewer animal units. The election shall automatically terminate when more than 500 animal units are housed at the confinement feeding operation at any one time. If the confinement feeding operation exceeds more than 500 animal units, a manure management plan shall be submitted.

65.16(2) The owner of a proposed confinement feeding operation who is not required to obtain a construction permit pursuant to subrule 65.7(1) but who is required to file a manure management plan pursuant to paragraph 65.16(1)*"b"* shall file a construction design statement and provide the information required in subrule 65.9(3), including the confinement feeding operation's manure management plan, to the department at least 30 days before the construction of an animal feeding operation structure begins, as defined in subrules 65.8(1) and 65.8(2).

65.16(3) Scope of manure management plan; updated plans; annual compliance fee.

a. Each confinement feeding operation required to submit a manure management plan shall be covered by a separate manure management plan.

b. The owner of a confinement feeding operation who is required to submit a manure management plan under this rule shall submit an updated manure management plan on an annual basis to the department. The updated manure management plan may be submitted by hard copy or by electronic submittal. The updated plan must reflect all amendments made during the period of time since the previous manure management plan submission.

(1) If the plan is submitted by hard copy, the submittal process shall be as follows: The owner of the animal feeding operation shall also submit the updated manure management plan on an annual basis to the board of supervisors of each county where the confinement feeding operation is located and to the board of supervisors of each county where manure from the confinement feeding operation is land-applied. If the owner of the animal feeding operation has not previously submitted a manure management plan to the board of supervisors of each county where the confinement feeding operation is located and each county where manure is land-applied, the owner must submit a complete manure management plan to each required county. The county auditor or other county official or employee designated by the county board of supervisors may accept the updated plan on behalf of the board. The updated plan shall include documentation that the county board of supervisors or other designated county official or employee received the manure management plan update.

(2) If the plan is submitted electronically, the submittal process shall be as follows: The owner of the animal feeding operation shall submit the updated manure management plan to the department through the department's electronic web application. Once the submittal has been completed, the department shall provide electronic access of the updated manure management plan to the board of supervisors of each county where the confinement feeding operation is located and each county where manure is land-applied.

(3) The department will stagger the dates by which the updated manure management plans are due and will notify each confinement feeding operation owner of the date on which the updated manure management plan is due. To satisfy the requirements of an updated manure management plan, an owner of a confinement feeding operation must submit one of the following:

1. A complete manure management plan;

2. A department-approved document stating that the manure management plan submitted in the prior year has not changed; or

3. A department-approved document listing all the changes made since the previous manure management plan was submitted and approved.

c. An annual compliance fee of $0.15 per animal unit at the animal feeding operation shall accompany an annual manure management plan update submitted to the department for approval. The annual compliance fee is based on the animal unit capacity of the confinement feeding operation stated in the updated annual manure management plan submission. If the person submitting the manure

management plan is a contract producer, as provided in Iowa Code chapter 202, the active contractor shall pay the annual compliance fee.

65.16(4) The department shall review and approve or disapprove all complete manure management plans within 60 days of the date they are received.

65.16(5) Manure shall not be removed from a manure storage structure which is part of a confinement feeding operation required to submit a manure management plan until the department has approved the plan. Manure shall be applied in compliance with rule 567—65.2(459,459B).

65.16(6) Manure storage indemnity fee. All persons required to submit a manure management plan to the department shall also pay to the department an indemnity fee as required in Iowa Code section 459.503 except those operations constructed prior to May 31, 1995, which were not required to obtain a construction permit.

65.16(7) Filing fee. Any person submitting an original manure management plan must also pay to the department a manure management plan filing fee of $250. This fee shall be included with each original manure management plan being submitted. If the confinement feeding operation is required to obtain a construction permit and to submit an original manure management plan as part of the construction permit requirements, the applicant must pay the manure management plan filing fee together with the construction permit application fee, which total $500.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16; **ARC 3388C**, IAB 10/11/17, effective 11/15/17]

567—65.17(459,459B) Manure management plan content requirements. All manure management plans are to be submitted on forms or electronically as prescribed by the department. The plans shall include all of the information specified in Iowa Code section 459.312 and as described below.

65.17(1) *General.*

a. A confinement feeding operation that is required to submit a manure management plan to the department shall not apply manure in excess of the nitrogen use levels necessary to obtain optimum crop yields. A confinement feeding operation shall not apply manure in excess of the rates determined in conjunction with the phosphorus index. Information to complete the required calculations may be obtained from the tables in this chapter, actual testing samples or from other credible sources reviewed and approved by the department including, but not limited to, Iowa State University, the United States Department of Agriculture (USDA), a licensed professional engineer, or an individual certified as a crop consultant under the American Registry of Certified Professionals in Agronomy, Crops, and Soils (ARCPACS) program, the Certified Crop Advisors (CCA) program, or the Registry of Environmental and Agricultural Professionals (REAP) program.

b. Manure management plans shall comply with the minimum manure control requirements of 567—65.2(459,459B) and the requirements for land application of manure in 567—65.3(459,459B).

c. Manure management plans shall include all of the following:

(1) The name of the owner and the name of the confinement feeding operation, including mailing address and telephone number.

(2) The name of the contact person for the confinement feeding operation, including mailing address and telephone number.

(3) The location of the confinement feeding operation identified by county, township, section, 1/4 section and, if available, the 911 address.

(4) The animal unit capacity of the confinement feeding operation and, if applicable, the animal weight capacity.

d. A person who submits a manure management plan shall include a phosphorus index as part of the manure management plan as required in subrule 65.17(17).

e. For persons who anticipate the need to apply liquid manure on frozen or snow-covered ground, manure management plans shall include a description of land identified for the application of liquid manure due to an emergency if allowed pursuant to subrule 65.3(4). The phosphorus index for each potential emergency application field must be calculated, and application rates should be calculated appropriately. Locations of downgradient surface water drain tile intakes within all fields included in

the plan should be identified by map or coordinates. Future applications of liquid manure must take the nutrients added during emergencies into consideration.

65.17(2) *Manure management plans for sales of manure.* Selling manure means the transfer of ownership of the manure for monetary or other valuable consideration. Selling manure does not include a transaction where the consideration is the value of the manure, or where an easement, lease or other agreement granting the right to use the land only for manure application is executed.

a. Confinement feeding operations that will sell dry manure as a commercial fertilizer or soil conditioner regulated by the Iowa department of agriculture and land stewardship (IDALS) under Iowa Code chapter 200 or 200A shall submit a copy of their site-specific IDALS license or documentation that manure will be sold pursuant to Iowa Code chapter 200 or 200A, along with the department-approved manure management plan form for sales of dry manure. Operations completely covered by this paragraph are not required to meet other manure management plan requirements in this rule.

b. A confinement feeding operation not fully covered by paragraph *"a"* above and that has an established practice of selling manure, or a confinement feeding operation that contains an animal species for which selling manure is a common practice, shall submit a manure management plan that includes the following:

(1) An estimate of the number of acres required for manure application calculated by one of the following methods:

1. Dividing the total phosphorus (as P_2O_5) available to be applied from the confinement feeding operation by the corn crop removal of phosphorus. The corn crop removal of phosphorus may be estimated by using the phosphorus removal rate in Table 4a at the end of this chapter and an estimate of the optimum crop yield for the property in the vicinity of the operation.

2. Totaling the quantity of manure that can be applied to each available field based on application rates determined in conjunction with the phosphorus index in accordance with 65.17(17), and ensuring that the total quantity that can be applied is equal to or exceeds the manure annually generated at the operation.

(2) The total nitrogen available to be applied from the confinement feeding operation.

(3) The total phosphorus (as P_2O_5) available to be applied from the confinement feeding operation if the phosphorus index is required in accordance with paragraph 65.17(1)*"d."*

(4) An estimate of the annual animal production and manure volume or weight produced.

(5) A manure sales form. If manure will be sold, the manure sales form shall include the following information:

1. A place for the name and address of the buyer of the manure.

2. A place for the quantity of manure purchased.

3. The planned crop schedule and optimum crop yields.

4. A place for the manure application methods and the timing of manure application.

5. A place for the location of the field including the number of acres where the manure will be applied.

6. A place for the manure application rate.

7. A place for a phosphorus index of each field receiving manure, as defined in paragraph 65.17(17)*"a,"* including the factors used in the calculation. A copy of the NRCS phosphorus index detailed report shall satisfy the requirement to include the factors used in the calculation.

(6) Statements of intent if the manure will be sold. The number of acres indicated in the statements of intent shall be sufficient according to the manure management plan to apply the manure from the confinement feeding operation. The permit holder for an existing confinement feeding operation with a construction permit may submit past records of manure sales instead of statements of intent. The statements of intent shall include the following information:

1. The name and address of the person signing the statement.

2. A statement indicating the intent of the person to purchase the confinement feeding operation's manure.

3. The location of the farm where the manure can be applied including the total number of acres available for manure application.

4. The signature of the person who may purchase the confinement feeding operation's manure.

(7) The owner shall maintain in the owner's records a current manure management plan and copies of all of the manure sales forms; the sales forms must be completed and signed by each buyer of the manure and the applicant, and the copies must be maintained in the owner's records for three years after each sale. The owner shall maintain in the owner's records copies of all of the manure sales forms for five years after each sale. An owner of a confinement feeding operation shall not be required to maintain current statements of intent as part of the manure management plan.

65.17(3) *Manure management plan for nonsales of manure.* Confinement feeding operations that will not sell all of their manure shall submit the following for that portion of the manure which will not be sold:

a. Calculations to determine the land area required for manure application.

b. The total nitrogen and total phosphorus (as P_2O_5) available to be applied from the confinement feeding operation.

c. The planned crop schedule and optimum crop yields.

d. Manure application methods and timing of the application.

e. The location of manure application.

f. An estimate of the annual animal production and manure volume or weight produced.

g. Methods, structures or practices that will be used to reduce soil loss and prevent surface water pollution.

h. Methods or practices that will be utilized to reduce odor if spray irrigation equipment is used to apply manure.

i. A phosphorus index of each field in the manure management plan, as defined in paragraph 65.17(17)*"a,"* including the factors used in the calculation. A copy of the NRCS phosphorus index detailed report shall satisfy the requirement to include the factors used in the calculation.

65.17(4) *Manure management plan calculations to determine land area required for manure application.*

a. The number of acres needed for manure application for each year of the crop schedule shall be determined as required in subrule 65.17(17).

b. Operations evaluated with the master matrix pursuant to 65.10(3) that claim points for additional separation distance for the land application of manure must maintain those distances for each year of the manure management plan.

65.17(5) *Total nitrogen and total phosphorus (as P_2O_5) available from the confinement feeding operation.*

a. To determine the nitrogen available to be applied per year, the factors in Table 3, "Annual Pounds of Nitrogen Per Space of Capacity," multiplied by the number of spaces shall be used. To determine total phosphorus (as P_2O_5) available to be applied per year, the factors in Table 3a, "Annual Pounds of Phosphorus Per Space of Capacity," multiplied by the number of spaces shall be used. If the tables are not used to determine the nitrogen or phosphorus available to be applied, other credible sources for standard table values or the actual nitrogen and phosphorus content of the manure may be used. The actual nitrogen and phosphorus content shall be determined by a laboratory analysis along with measured volume or weight of manure from the manure storage structure or from a manure storage structure with design and management similar to the confinement feeding operation's manure storage structure.

b. If an actual sample is used to represent the nutrient content of manure, the sample shall be taken in accordance with Iowa State University extension publication PM 1558, "Management Practices: How to Sample Manure for Nutrient Analysis." The department may require documentation of the manure sampling protocol or take a split sample to verify the nutrient content of the operation's manure.

65.17(6) *Optimum crop yield and crop schedule.*

a. To determine the optimum crop yield, the applicant may either exclude the lowest crop yield for the period of the crop schedule in the determination or allow for a crop yield increase of 10 percent. In using these methods, adjustment to update yield averages to current yield levels may be made if it can be

shown that the available yield data is not representative of current yields. The optimum crop yield shall be determined using any of the following methods for the cropland where the manure is to be applied:

(1) Soil survey interpretation record. The plan shall include a map showing soil map units for the fields where manure will be applied. The optimum crop yield for each field shall be determined by using the weighted average of the soil interpretation record yields for the soils on the cropland where the manure is to be applied. Soil interpretation records from NRCS shall be used to determine yields based on soil map units.

(2) USDA county crop yields. The plan shall use the county yield data from the USDA Iowa Agricultural Statistics Service.

(3) Proven yield methods. Proven yield methods may only be used if a minimum of the most recent three years of yield data for the crop is used. These yields can be proven on a field-by-field or farm-by-farm basis. To be considered a farm-by-farm basis, the fields must be owned, rented or leased for crop production by the person required to keep records pursuant to subrule 65.17(13) or included in a manure application agreement in that person's manure management plan. Crop disaster years may be excluded when there is a 30 percent or more reduction in yield for a particular field or farm from the average yield over the most recent five years. Excluded years shall be replaced by the most recent nondisaster years. Proven yield data used to determine application rates shall be maintained with the current manure management plan. Any of the following proven yield methods may be used:

1. Proven yields for USDA Farm Service Agency. The plan shall use proven yield data or verified yield data for Farm Service Agency programs.

2. Proven yields for multiperil crop insurance. Yields established for the purpose of purchasing multiperil crop insurance shall be used as proven yield data.

3. Proven yields from other methods. The plan shall use the proven yield data and indicate the method used in determining the proven yield.

b. Crop schedule. Crop schedules shall include the name and total acres of the planned crop on a field-by-field or farm-by-farm basis where manure application will be made. A map may be used to indicate crop schedules by field or farm. The planned crop schedule shall name the crop(s) planned to be grown for the length of the crop rotation beginning with the crop planned or actually grown during the year this plan is submitted or the first year manure will be applied. The confinement feeding operation owner shall not be penalized for exceeding the nitrogen or phosphorus application rate for an unplanned crop, if crop schedules are altered because of weather, farm program changes, market factor changes, or other unforeseeable circumstances. However, the penalty preclusion in the previous sentence does not apply to a confinement feeding operation owner subject to the NPDES permit program.

65.17(7) *Manure application methods and timing.*

a. The manure management plan shall identify the methods that will be used to land-apply the confinement feeding operation's manure. Methods to land-apply the manure may include, but are not limited to, surface-apply dry with no incorporation, surface-apply liquids with no incorporation, surface-apply liquid or dry with incorporation within 24 hours, surface-apply liquid or dry with incorporation after 24 hours, knifed in or soil injection of liquids, or irrigated liquids with no incorporation.

b. The manure management plan shall identify the approximate time of year that land application of manure is planned. The time of year may be identified by season or month.

65.17(8) *Location of manure application.*

a. The manure management plan shall identify each farm where the manure will be applied, the number of acres that will be available for the application of manure from the confinement feeding operation, and the basis under which the land is available.

b. A copy of each written agreement executed with the owner of the land where manure will be applied shall be maintained with the current manure management plan. The written agreement shall indicate the number of acres on which manure from the confinement feeding operation may be applied and the length of the agreement. A written agreement is not required if the land is owned or rented for crop production by the owner of the confinement feeding operation. Owners of dry bedded confinement feeding operations required to have a manure management plan may execute a written agreement with

the landowner or the person renting the land for crop production where the dry bedded manure will be applied.

c. If a present location becomes unavailable for manure application, additional land for manure application shall be identified in the current manure management plan prior to the next manure application period.

65.17(9) *Estimate of annual animal production and manure volume or weight produced.* Volumes or weights of manure produced shall be estimated based on the numbers of animals, species, and type of manure storage used. The plan shall list the annually expected number of production animals by species. The volume of manure may be estimated based on the values in Table 5 at the end of this chapter and submitted as a part of the plan. If the plan does not use the table to determine the manure volume, other credible sources for standard table values or the actual manure volume from the confinement feeding operation may be used.

65.17(10) *Methods to reduce soil loss and potential surface water pollution.* The manure management plan shall indicate for each field in the plan the crop rotation, tillage practices and supporting practices used to calculate sheet and rill erosion for the phosphorus index. A copy of an NRCS RUSLE2 erosion calculation record shall satisfy this requirement. The plan shall also identify the highly erodible cropland where manure will be applied.

65.17(11) *Spray irrigation.* Requirements contained in subrules 65.3(2) and 65.3(3) regarding the use of spray irrigation equipment to apply manure shall be followed. A plan which has identified spray irrigation equipment as the method of manure application shall identify any additional methods or practices to reduce potential odor, if any other methods or practices will be utilized.

65.17(12) *Current manure management plan.* The owner of a confinement feeding operation who is required to submit a manure management plan shall maintain a current manure management plan at the site of the confinement feeding operation or at a residence or office of the owner or operator of the operation within 30 miles of the site. The plan shall include completed manure sales forms for a confinement feeding operation from which manure is sold. If manure management practices change, a person required to submit a manure management plan shall make appropriate changes consistent with this rule. If values other than the standard table values are used for manure management plan calculations, the source of the values used shall be identified.

65.17(13) *Record keeping.* Records shall be maintained by the owner of a confinement feeding operation who is required to submit a manure management plan. Records shall be maintained for five years following the year of application or for the length of the crop rotation, whichever is greater. Records shall be maintained at the site of the confinement feeding operation or at a residence or office of the owner or operator of the facility within 30 miles of the site. Records to demonstrate compliance with the manure management plan shall include the following:

a. Factors used to calculate the manure application rate:

(1) Optimum yield for the planned crop.

(2) Types of nitrogen credits and amounts.

(3) Remaining crop nitrogen needed.

(4) Nitrogen content and first-year nitrogen availability of the manure.

(5) Phosphorus content of the manure if required in accordance with 65.17(3)*"i."* If an actual sample is used, documentation shall be provided.

b. If phosphorus-based application rates are used, the following shall be included:

(1) Crop rotation.

(2) Phosphorus removed by crop harvest of that crop rotation.

c. Maximum allowable manure application rate.

d. Actual manure application information:

(1) Methods of application when manure from the confinement feeding operation was applied.

(2) Date(s) when the manure from the confinement feeding operation was applied.

(3) Location of the field where the manure from the confinement feeding operation was applied, including the number of acres.

(4) The manure application rate.

e. The date(s) and application rate(s) of commercial nitrogen and phosphorus on fields that received manure. However, if the date and application rate information is for fields which are not owned for crop production or which are not rented or leased for crop production by the person required to keep records pursuant to this subrule, an enforcement action for noncompliance with a manure management plan or the requirements of this subrule shall not be pursued against the person required to keep records pursuant to this subrule or against any other person who relied on the date and application rate in records required to be kept pursuant to this subrule, unless that person knew or should have known that nitrogen or phosphorus would be applied in excess of maximum levels set forth in paragraph 65.17(1)*"a."* If manure is applied to fields not owned, rented or leased for crop production by the person required to keep records pursuant to this subrule, that person shall obtain from the person who owns, rents or leases those fields a statement specifying the planned commercial nitrogen and phosphorus fertilizer rates to be applied to each field receiving the manure.

f. A copy of the current soil test lab results for each field in the manure management plan.

g. For sales of manure under 65.17(2)*"b,"* record-keeping requirements of 65.17(2)*"b"*(7) shall be followed.

65.17(14) *Record inspection.* The department may inspect a confinement feeding operation at any time during normal working hours and may inspect the manure management plan and any records required to be maintained. As required in Iowa Code section 459.312(12), Iowa Code chapter 22 shall not apply to the records which shall be kept confidential by the department and its agents and employees. The contents of the records are not subject to disclosure except as follows:

a. Upon waiver by the owner of the confinement feeding operation.

b. In an action or administrative proceeding commenced under this chapter. Any hearing related to the action or proceeding shall be closed.

c. When required by subpoena or court order.

65.17(15) *Enforcement action.* An owner required to provide the department a manure management plan pursuant to this rule who fails to provide the department a plan or who is found in violation of the terms and conditions of the plan shall not be subject to an enforcement action other than assessment of a civil penalty pursuant to Iowa Code section 455B.191.

65.17(16) *Soil sampling requirements for fields where the phosphorus index must be used.* Soil samples shall be obtained from each field in the manure management plan, and the soil samples shall be four years old or less. Each soil sample shall be analyzed for phosphorus and pH. The soil sampling protocol shall meet all of the following requirements:

a. Acceptable soil sampling strategies include, but are not limited to, grid sampling, management zone sampling, and soil type sampling. Procedural details can be taken from Iowa State University extension publication PM 287, "Take a Good Soil Sample to Help Make Good Decisions," NCR-13 Report 348, "Soil Sampling for Variable-Rate Fertilizer and Lime Application," or other credible soil sampling publications.

b. Each soil sample must be a composite of at least ten soil cores from the sampling area, with each core containing soil from the top six inches of the soil profile.

c. Each soil sample shall represent no more than ten acres. For fields less than or equal to 15 acres, only one soil sample is necessary.

d. Soil analysis must be performed by a lab enrolled in the IDALS soil testing certification program.

e. The soil phosphorus test method must be an appropriate method for use with the phosphorus index. If soil pH is greater than or equal to 7.4, soil phosphorus data from the Bray-1 extraction method is not acceptable for use with the phosphorus index.

65.17(17) *Use of the phosphorus index.* Manure application rates shall be determined in conjunction with the use of the Iowa Phosphorus Index as specified by NRCS Iowa Technical Note No. 25.

a. The phosphorus index shall be used on each individual field in the manure management plan. The fields must be contiguous and shall not be divided by a public thoroughfare or a water source as each is defined in this chapter. Factors to be considered when a field is defined may include, but are not

limited to, cropping system, erosion rate, soil phosphorus concentration, nutrient application history, and the presence of site-specific soil conservation practices.

b. When sheet and rill erosion is calculated for the phosphorus index, the soil type used for the calculation shall be the most erosive soil map unit that is at least 10 percent of the total field area. In all manure management plans submitted to the department for approval, the dominant critical soil map unit consistent with NRCS conservation planning guidelines shall be used to calculate sheet and rill erosion for the phosphorus index. (See NRCS Technical Note No. 29.)

c. The average (arithmetic mean) soil phosphorus concentration of a field shall be used in the phosphorus index.

d. Soil phosphorus concentration data is considered valid for use in the phosphorus index if the data is four years old or less and meets the requirements of 65.17(16).

e. For an original manure management plan, previous soil sampling data that does not meet the requirements of subrule 65.17(16) may be used in the phosphorus index if the data is four years old or less. In the case of fields for which soil sampling data is used that does not meet the requirements of subrule 65.17(16), the fields must be soil-sampled according to the requirements of subrule 65.17(16) no more than one year after the original manure management plan is approved and a new manure management plan shall be submitted with the results of the new samples.

f. The following are the manure application rate requirements for fields that are assigned the phosphorus index site vulnerability ratings below as determined by the NRCS Iowa Technical Note No. 25 to the NRCS 590 standard rounded to the nearest one-hundredth:

(1) Very Low (0-1).

1. Manure shall not be applied in excess of a nitrogen-based rate in accordance with 65.17(18).

2. If, pursuant to 65.17(19), manure is applied at phosphorus-based rates within soil sampling periods on fields in the Very Low risk category, each soil sample may represent up to 20 acres for the next required soil sampling.

(2) Low (>1-2).

1. Manure shall not be applied in excess of a nitrogen-based rate in accordance with 65.17(18).

2. If, pursuant to 65.17(19), manure is applied at phosphorus-based rates within soil sampling periods on fields in the Low risk category, each soil sample may represent up to 20 acres for the next required soil sampling.

(3) Medium (>2-5).

1. Manure may be applied at a nitrogen-based rate in accordance with 65.17(18) if current or planned soil conservation and phosphorus management practices predict the rating of the field to be not greater than 5 for the next determination of the phosphorus index as required by 65.17(17)*"h"*(3).

2. Manure shall not be applied in excess of two times the phosphorus removed with crop harvest over the period of the crop rotation.

3. If, pursuant to 65.17(19), manure is applied at phosphorus-based rates within soil sampling periods on fields in the Medium risk category, each soil sample may represent up to 20 acres for the next required soil sampling.

(4) High (>5-15). Manure shall not be applied on a field with a rating greater than 5 and less than or equal to 15 until practices are adopted which reduce the phosphorus index to at least the Medium risk category.

(5) Very High (>15). Manure shall not be applied on a field with a rating greater than 15.

g. Additional commercial fertilizer may be applied as follows on fields receiving manure:

(1) Phosphorus fertilizer may be applied in addition to phosphorus provided by the manure up to amounts recommended by soil tests and Iowa State University extension publication PM 1688, "General Guide for Crop Nutrient Recommendations in Iowa."

(2) Nitrogen fertilizer may be applied in addition to nitrogen provided by the manure to meet the remaining nitrogen need of the crop as calculated in the current manure management plan. Additional nitrogen fertilizer may be applied up to the amounts indicated by soil test nitrogen results or crop nitrogen test results as necessary to obtain the optimum crop yield.

h. Updating the phosphorus index.

(1) When any inputs to the phosphorus index change, an operation shall recalculate the phosphorus index and adjust the application rates if necessary.

(2) If additional land becomes available for manure application, the phosphorus index shall be calculated to determine the manure application rate before manure is applied.

(3) An operation must submit a complete manure management plan using a new phosphorus index, including soil sampling as required in subrule 65.17(16), for each field in the manure management plan a minimum of once every four years.

65.17(18) *Requirements for application of a nitrogen-based manure rate to a field.*

a. Nitrogen-based application rates shall be based on the total nitrogen content of the manure unless the calculations are submitted to show that nitrogen crop usage rates based on plant-available nitrogen have not been exceeded for the crop schedule submitted.

b. The correction factor for nitrogen losses shall be determined for the method of application by the following or from other credible sources for nitrogen volatilization correction factors.

Knifed in or soil injection of liquids	0.98
Surface-apply liquid or dry with incorporation within 24 hours	0.95
Surface-apply liquid or dry with incorporation after 24 hours	0.80
Surface-apply liquids with no incorporation	0.75
Surface-apply dry with no incorporation	0.70
Irrigated liquids with no incorporation	0.60

c. Nitrogen-based application rates shall be based on the optimum crop yields as determined in 65.17(6) and crop nitrogen usage rate factor values in Table 4 at the end of this chapter or other credible sources. However, subject to the prohibition in 65.17(20), liquid manure applied to land that is currently planted to soybeans or to land where the current crop has been harvested and that will be planted to soybeans the next crop season shall not exceed 100 pounds of available nitrogen per acre. Further, the 100 pounds per acre application limitation in the previous sentence does not apply on or after June 1 of each year; in that event 65.17(6) and Table 4 would apply as provided in the first sentence of this paragraph.

d. A nitrogen-based manure rate shall account for legume production in the year prior to growing corn or other grass crops and shall account for any planned commercial fertilizer application.

65.17(19) *Requirements for application of a phosphorus-based manure rate to a field.*

a. Phosphorus removal by harvest for each crop in the crop schedule shall be determined using the optimum crop yield as determined in 65.17(6) and phosphorus removal rates of the harvested crop from Table 4a at the end of this chapter or other credible sources. Phosphorus crop removal shall be determined by multiplying optimum crop yield by the phosphorus removal rate of the harvested crop.

b. Phosphorus removal by the crop schedule shall be determined by summing the phosphorus crop removal values determined in 65.17(19)*"a"* for each crop in the crop schedule.

c. The phosphorus applied over the duration of the crop schedule shall be less than or equal to the phosphorus removed with harvest during that crop schedule as calculated in 65.17(19)*"b"* unless additional phosphorus is recommended by soil tests and Iowa State University extension publication PM 1688, "General Guide for Crop Nutrient Recommendations in Iowa."

d. Additional requirements for phosphorus-based rates.

(1) No single manure application shall exceed the nitrogen-based rate of the planned crop receiving the particular manure application.

(2) No single manure application shall exceed the rate that applies to the expected amount of phosphorus removed with harvest by the next four anticipated crops in the crop schedule.

e. If the actual crop schedule differs from the planned crop schedule, then any surplus or deficit of phosphorus shall be accounted for in the subsequent manure application.

f. Phosphorus in manure should be considered 100 percent available unless soil phosphorus concentrations are below optimum levels for crop production. If soil phosphorus concentrations are

below optimum levels for crop production phosphorus availability, values suggested in Iowa State University extension publication PMR 1003, "Using Manure Nutrients for Crop Production" or other credible sources shall be used.

65.17(20) *Liquid manure on land planted to soybeans.* Rescinded IAB 11/9/16, effective 12/14/16.
[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.18(459,459B) Construction certification. A confinement feeding operation which obtains a construction permit after March 20, 1996, shall submit to the department a construction certification according to the following:

65.18(1) For a confinement feeding operation that is below the threshold requirements for an engineer as defined in 567—65.1(459,459B), prior to using a permitted confinement feeding operation structure, the person responsible for constructing a formed manure storage structure or the permittee shall submit to the department a construction certification, as specified in the construction permit.

65.18(2) For a confinement feeding operation that uses an unformed manure storage structure or an egg washwater storage structure, or an operation that meets or exceeds the threshold requirements for an engineer as defined in 567—65.1(459,459B), a certification from a licensed professional engineer that the confinement feeding operation structure was:

a. Constructed in accordance with the design plan. Any changes to the approved plans must first be authorized by the department and must include a certification that the proposed changes are consistent with the standards of these rules or statute;

b. Supervised by the licensed professional engineer or a designee of the engineer during critical points of the construction. A designee shall not be the permittee, owner of the confinement feeding operation, a direct employee of the permittee or owner, or the contractor or an employee of the contractor;

c. Inspected by the licensed professional engineer after completion of construction and before commencement of operation; and

d. Constructed in accordance with the drainage tile removal standards of subrule 65.15(1), and including a report of the findings and actions taken to comply with subrule 65.15(1).
[**ARC 8998B**, IAB 8/11/10, effective 9/15/10]

567—65.19(459,459B) Manure applicators certification.

65.19(1) A commercial manure service or a commercial manure service representative shall not transport, handle, store or apply dry or liquid manure to land unless the person is certified. A confinement site manure applicator shall not apply dry or liquid manure to land unless the person is certified. A person is not required to be certified as a confinement site manure applicator if the person applies manure which originates from a manure storage structure which is part of a small animal feeding operation. Certification of a commercial manure service representative under this rule will also satisfy the commercial license requirement under 567—Chapter 68 only as it applies to manure removal and application. Each person who operates a manure applicating vehicle or equipment must be certified individually except as allowed in subrule 65.19(7).

65.19(2) Fees.

a. *Commercial manure service.* The fee for a new or renewed certification of a service is $200. The commercial manure service shall designate one manager for the service and shall provide the department with documentation of the designation.

b. *Commercial manure service representative.* The fee for a new or renewed representative certification is $75. The manager of a commercial manure service must be certified as a commercial manure service representative, but is exempt from paying the $75 certification fee.

c. *Confinement site manure applicator.* The fee for a new or renewed certification is $100. However, the fee is not required if all of the following apply:

(1) The person indicates that the person is a family member as defined in this chapter by submitting a completed form provided by the department;

(2) The person is certified as a confinement site manure applicator within one year of the date another family member was certified or whose certification as a confinement site manure applicator was renewed;

(3) The other family member certified as a confinement site manure applicator has paid the certification fee.

d. *Educational fee.* Commercial manure service representatives, managers and confinement site manure applicators shall pay an educational fee to be determined annually by the department.

e. *Late fee.* Renewal applications received after March 1 require that an additional $12.50 fee be paid before the certification is renewed. An application is considered to be received on the date it is postmarked.

f. *Duplicate certificate.* The fee for a duplicate certificate is $15.

65.19(3) Certification requirements. To be certified by the department as a commercial manure service, a commercial manure service representative or a confinement site manure applicator, a person must do all of the following:

a. Apply for certification on a form provided by the department.

b. Pay the required fees set forth in subrule 65.19(2).

c. Pass the examination given by the department or, in lieu of the examination, attend continuing instruction courses as described in subrule 65.19(6).

65.19(4) Certification term, renewal and grace period.

a. *Certification term.* Certification for a commercial manure service and commercial manure service representative shall be for a period of one year and shall expire on March 1 of each year. Certification for a confinement site manure applicator shall be for a period of three years and shall expire on December 31 of the third year. The expiration dates of confinement site manure applicator certifications that currently expire on a date other than December 31 are automatically extended to December 31 of the year the certification expires.

b. *Renewal.* Application for renewal of a commercial manure service certification or a commercial manure service representative certification must be received by the department no later than March 1 of the year the certification expires. Application for renewal of a confinement site manure applicator certification must be received by the department or postmarked no later than March 1 after the year the certification expires. Application shall be on forms provided by the department and shall include:

(1) Certification renewal and educational fees.

(2) A passing grade on the certification examination or proof of attending the required hours of continuing instructional courses.

c. *Substitution of employees.* If a commercial manure service pays the certification fee for a representative, the service may substitute representatives. The substituted representative must be certified pursuant to 65.19(3). The service shall provide documentation to the department, on forms provided by the department, that the substitution is valid.

d. *Grace period.* Except as provided in this paragraph, a commercial manure service, a commercial manure service representative or a confinement site manure applicator may not continue to apply manure after expiration of a certificate. A confinement site manure applicator may continue to apply manure until March 1 following the year the certification expires, provided a complete renewal application, as provided in paragraph *"b,"* is postmarked or received by the department prior to March 1. Commercial manure services and representatives must submit an application for certification renewal by March 1 of each year.

65.19(5) Examinations.

a. A person wishing to take the examination required to become a certified commercial manure service representative or certified confinement site manure applicator may request an appointment. The applicant must have a photo identification card at the time of taking the examination.

b. If a person fails the examination, the person may retake the examination, but not on the same business day.

c. Upon written request by an applicant, the director will consider the presentation of an oral examination on an individual basis when the applicant has failed the written examination at least twice;

and the applicant has shown difficulty in reading or understanding written questions but may be able to respond to oral questioning.

65.19(6) Continuing instruction courses in lieu of examination.

a. To establish or maintain certification, between March 1 and March 1 of the next year, a commercial manure service representative must each year either pass an examination or attend three hours of continuing instructional courses.

b. To establish or maintain certification, a confinement site manure applicator must either pass an examination every three years or attend two hours of continuing instructional courses each year. A confinement site manure applicator who chooses to attend instructional courses but fails to attend instructional courses each year must pass an examination as provided in subrule 65.19(5) to maintain certification.

65.19(7) Exemption from certification.

a. Certification as a commercial manure service representative is not required of a person who is any of the following:

(1) Actively engaged in farming and who trades work with another such person.

(2) Employed by a person actively engaged in farming not solely as a manure applicator but who applies manure as an incidental part of the person's general duties.

(3) Engaged in applying manure as an incidental part of a custom farming operation.

(4) Engaged in applying manure as an incidental part of the person's duties.

(5) Applying, transporting, handling or storing manure within a period of 30 days from the date of initial employment as a commercial manure service representative if the person applying the manure is acting under direct instructions and control of a certified commercial manure service representative who is physically present at the manure application site by being in sight or immediate communication distance of the supervised person where the certified commercial service representative can communicate with the supervised person at all times.

(6) Employed by a research college to apply manure from animal feeding operations that are part of the research activities or experiments of the research college.

b. Certification as a confinement site manure applicator is not required of a person who is either of the following:

(1) A part-time employee or family member of a confinement site manure applicator and is acting under direct instruction and control of a certified confinement site manure applicator who is physically present at the manure application site by being in sight or hearing distance of the supervised person where the certified confinement site manure applicator can physically observe and communicate with the supervised person at all times.

(2) Employed by a research college to apply manure from an animal feeding operation that is part of the research activities or experiments of the research college.

65.19(8) Certified commercial manure services have the following obligations:

a. Maintain the following records of manure disposal operations for a period of three years:

(1) A copy of instructions for manure application provided by the owner of the animal feeding operation.

(2) Dates that manure was applied or sold.

(3) The manure application rate.

(4) Location of fields where manure was applied.

b. Comply with the provisions of the manure management plan (MMP) prepared for the confinement feeding operation and the requirements of 567—65.2(459,459B) and 567—65.3(459,459B). If a manure management plan does not exist, the requirements of 567—65.2(459,459B) and 567—65.3(459,459B) must still be met.

c. Any tanks or equipment used for hauling manure shall not be used for hauling hazardous or toxic wastes, as defined in 567—Chapter 131, or other wastes detrimental to land application and shall not be used in a manner that would contaminate a potable water supply or endanger the food chain or public health.

d. Pumps and associated piping on manure handling equipment shall be installed with watertight connections to prevent leakage.

e. Any vehicle used by a certified commercial manure service or commercial manure service representative to transport manure on a public road shall display the certification number of the commercial manure service with three-inch or larger letters and numbers on the side of the tank or vehicle. The name and address of the certified commercial manure service representative designated as the manager shall also be prominently displayed on the side of the tank or vehicle.

f. Direct connection shall not be made between a potable water source and the tank or equipment on the vehicle.

65.19(9) Discipline of certified applicators.

a. Disciplinary action may be taken against a certified commercial manure service, a commercial manure service representative or a confinement site manure applicator on any of the following grounds:

(1) Violation of state law or rules applicable to a certified commercial manure service, a commercial manure service representative, or a confinement site manure applicator or the handling or application of manure.

(2) Failure to maintain required records of manure application or other reports required by this rule.

(3) Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

b. Disciplinary sanctions allowable are:

(1) Revocation of a certificate.

(2) Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional training or reexamination may be required as a condition of probation.

c. The procedure for discipline is as follows:

(1) The director shall initiate disciplinary action.

(2) Written notice shall be given to an applicator against whom disciplinary action is being considered. The notice shall state the informal and formal procedures available for determining the matter. The applicator shall be given 20 days to present any relevant facts and indicate the person's position in the matter and to indicate whether informal resolution of the matter may be reached.

(3) An applicator who receives notice shall communicate verbally or in writing or in person with the director, and efforts shall be made to clarify the respective positions of the applicator and director.

(4) Failure to communicate facts and position relevant to the matter by the required date may be considered when determining appropriate disciplinary action.

(5) If agreement as to appropriate disciplinary sanction, if any, can be reached with the applicator and the director, a written stipulation and settlement between the department and the applicator shall be entered. The stipulation and settlement shall recite the basic facts and violations alleged, any facts brought forth by the applicator, and the reasons for the particular sanctions imposed.

(6) If an agreement as to appropriate disciplinary action, if any, cannot be reached, the director may initiate formal hearing procedures. Notice and formal hearing shall be in accordance with 561—Chapter 7 related to contested and certain other cases pertaining to license discipline.

65.19(10) Revocation of certificates.

a. Upon revocation of a certificate, application for commercial manure service representative or confinement site applicator certification may be allowed after two years from the date of revocation. Any such applicant must successfully complete an examination and be certified in the same manner as a new applicant.

b. Upon revocation of a certificate, application for a commercial manure service certification may be allowed after three years from the date of revocation. Any such applicant must successfully complete an examination and be certified in the same manner as a new applicant.

65.19(11) Record inspection. The department may inspect, with reasonable notice, the records maintained by a commercial manure service. If the records are for an operation required to maintain records to demonstrate compliance with a manure management plan, the confidentiality provisions

of subrule 65.17(14) and Iowa Code section 459.312 shall extend to the records maintained by the commercial manure service.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.20(459,459B) Manure storage indemnity fund. The manure storage indemnity fund created in Iowa Code section 459.501 will be administered by the department. Moneys in the fund shall be used for the exclusive purpose of administration of the fund and the cleanup of eligible facilities at confinement feeding operation sites.

65.20(1) *Eligible facility site.* The site of a confinement feeding operation which contains one or more animal feeding operation structures is an eligible site for reimbursement of cleanup costs if one of the following conditions exists:

a. A county has acquired title to real estate containing the confinement feeding operation following nonpayment of taxes and the site includes a manure storage structure which contains stored manure or site contamination originating from the confinement feeding operation.

b. A county or the department determines that the confinement feeding operation has caused a clear, present and impending danger to the public health or environment.

65.20(2) *Site cleanup.* Site cleanup includes the removal and land application or disposal of manure from an eligible facility site according to manure management procedures approved by the department. Cleanup may include remediation of documented contamination which originates from the confinement feeding operation. Cleanup may also include demolishing and disposing of animal feeding operation structures if their existence or further use would contribute to further environmental contamination and their removal is included in a cleanup plan approved by the department. Buildings and equipment must be demolished or disposed of according to rules adopted by the department in 567—Chapter 101 which apply to the disposal of farm buildings or equipment by an individual or business organization.

65.20(3) *Claims against the fund.* Claims for cleanup costs may be made by a county which has acquired real estate containing an eligible facility site pursuant to a tax deed. A county claim shall be signed by the chairperson of the county board of supervisors. Cleanup may be initiated by the department or may be authorized by the department based on a claim by a county.

a. *Advance notice of claim.* Prior to or after acquiring a tax deed to an eligible facility site, a county shall notify the department in writing of the existence of the facility and the title acquisition. The county shall request in this notice that the department evaluate the site to determine whether the department will order or initiate cleanup pursuant to its authority under Iowa Code chapter 455B.

b. *Emergency cleanup condition.* If a county determines that there exists at a confinement feeding operation site a clear, present and impending danger to the public health or environment, the county shall notify the department of the condition. The danger should be documented as to its presence and the necessity to avoid delay due to its increasing threat. If no cleanup action is initiated by the department within 24 hours after being notified of an emergency condition requiring cleanup, the county may provide cleanup and submit a claim against the fund.

65.20(4) *Contents of a claim against the fund.*

a. A county claim against the fund for an eligible site acquired by a county following nonpayment of taxes shall be submitted to the department for approval prior to the cleanup action and shall contain the following information:

(1) A copy of the advance notice of claim as described in paragraph 65.20(3)*"a."*

(2) A copy of a bid by a qualified person, other than a governmental entity, to perform a site cleanup. The bid shall include a summary of the qualifications of the bidder including but not limited to prior experience in removal of hazardous substances or manure, experience in construction of confinement feeding operation facilities or manure storage structures, equipment available for conducting the cleanup, or any other qualifications bearing on the ability of the bidder to remove manure from a site. The bid must reference complying with a cleanup plan. The bid shall include a certification that the bidder has liability insurance in an amount not less than $1 million.

(3) A copy of the tax deed to the real estate containing the eligible facility site.

(4) Name and address, if known, of the former owner(s) of the site. The claim shall also include a description of any efforts to contact the former owner regarding the removal of manure and any other necessary cleanup at the site.

(5) A response to the request in the advance notice described in paragraph 65.20(3)*"a"* that the department will not initiate cleanup action at the site, or that 60 days have passed from the advance notice and request.

(6) A proposed cleanup plan describing all necessary activity including manure to be removed, application rates and sites, any planned remediation of site contamination, and any structure demolition and justification.

b. A county claim against the fund for an emergency cleanup condition may be submitted following the cleanup and shall contain the following information:

(1) A copy of a bid as described in subparagraph 65.20(4)*"a"*(2).

(2) Name and address of the owner(s), or former owner(s), of the site or any other person who may be liable for causing the condition.

(3) Information on the response from the department to the notice given as described in paragraph 65.20(3)*"b,"* or if none was received, documentation of the time notice was given to the department.

(4) A cleanup plan or description of the cleanup activities performed.

65.20(5) *Department processing of claims against the fund.*

a. Processing of claims. The department will process claims in the order they are received.

b. The cleanup plan will be reviewed for acceptability to accomplish necessary actions according to subrule 65.20(2).

c. Review of bid. Upon receipt of a claim, the department will review the bid accompanying the claim. The department may consult with any person in reviewing the bid. Consideration will be given to the experience of the bidder, the bid amount, and the work required to perform the cleanup plan. If the department is satisfied that the bidder is qualified to perform the cleanup and costs are reasonable, the department will provide written approval to the county within 60 days from the date of receipt of the claim.

d. Obtaining a lower bid. If the department determines that it should seek a lower bid to perform the cleanup, it may obtain the names of qualified persons who may be eligible to perform the cleanup. One or more of those persons will be contacted and invited to view the site and submit a bid for the cleanup. If a lower bid is not received, the original bid may be accepted. If a bid is lower than the original bid submitted by the county, the department will notify the county that it should proceed to contract with that bidder to perform the cleanup.

65.20(6) *Certificate of completion.* Upon completion of the cleanup, the county shall submit a certificate of completion to the department. The certificate of completion shall indicate that the manure has been properly land-applied according to the cleanup plan and that any site contamination identified in the approved cleanup plan has been remediated and any approved structure demolition has been performed.

65.20(7) *Payment of claims.* Upon receipt of the certificate of completion, the department shall promptly authorize payment of the claim as previously approved. Payments will be made for claims in the order of receipt of certificates of completion.

65.20(8) *Subrogation.* The fund is subrogated to all county rights regarding any claim submitted or paid as provided in Iowa Code section 459.505.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10]

567—65.21(459,459B) Transfer of legal responsibilities or title. If title or legal responsibility for a permitted confinement feeding operation and its confinement feeding operation structure is transferred, the person to whom title or legal responsibility is transferred shall be subject to all terms and conditions of the construction permit and these rules. The person to whom the construction permit was issued and the person to whom title or legal responsibility is transferred shall notify the department of the transfer of legal responsibility or title of the operation within 30 days of the transfer. Within 30 days of receiving a written request from the department, the person to whom legal responsibility is transferred shall submit

to the department all information needed to modify the construction permit to reflect the transfer of legal responsibility. A person who has been classified as a habitual violator under Iowa Code section 459.604 shall not acquire legal responsibility or a controlling interest to any additional permitted confinement feeding operations for the period that the person is classified as a habitual violator. A person who has an interest in a confinement feeding operation that is the subject of a pending enforcement action shall not acquire legal responsibility or an interest to any additional permitted confinement feeding operations for the period that the enforcement action is pending.
[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.22(459,459B) Validity of rules. If any part of these rules is declared unconstitutional or invalid for any reason, the remainder of said rules shall not be affected thereby and shall remain in full force and effect, and to that end, these rules are declared to be severable.
[**ARC 8998B**, IAB 8/11/10, effective 9/15/10]

These rules are intended to implement Iowa Code sections 455B.101, 455B.103, 455B.134(3)*"f,"* and 455B.171; Iowa Code chapter 459; and 2009 Iowa Acts, House File 735 and Senate File 432.

567—65.23 to **65.99** Reserved.

DIVISION II
OPEN FEEDLOT OPERATIONS

567—65.100(459A) Definitions and incorporation by reference. In addition to the definitions in Iowa Code sections 455B.101, 455B.171 and 459A.102, the following definitions shall apply to Division II of this chapter:

65.100(1) *Definitions.*

"Abandoned" means an open feedlot operation structure that has been razed, removed from the site of an open feedlot operation, filled in with earth, or converted to uses other than an open feedlot operation structure so that it cannot be used as an open feedlot operation structure without significant reconstruction.

"Adjacent." Two or more open feedlot operations are defined as adjacent if both of the following occur:

1. At least one open feedlot operation structure is constructed on or after July 17, 2002.
2. An open feedlot operation structure which is part of one open feedlot operation is separated by less than 1,250 feet from an open feedlot operation structure which is part of the other open feedlot operation.

"Alternative technology settled open feedlot effluent control system" or *"AT system"* means use of an open feedlot effluent control technology other than a conventional runoff containment system to control and dispose of settled open feedlot effluent. The department may allow an open feedlot operation covered by the NPDES permit application requirements of 567—65.102(459A) or 567—65.103(455B,459A) to use an AT system, provided the open feedlot operation satisfactorily demonstrates the AT system will provide an equivalent level of performance to that achieved by a runoff containment system that is designed and operated as required by statute, 567—subrule 62.4(12) and Division II of this chapter. Demonstration of equivalent performance must include submitting results of computer modeling which compares the predicted performance of the proposed system with that of a conventional runoff containment system over the same period. The specific requirements which must be met for an open feedlot operation to qualify for use of an AT system and the information which must be submitted to the department are outlined in rule 567—65.110(459A).

Design requirements have been established for two types of AT systems. These are a vegetative infiltration basin (VIB) followed by a vegetative treatment area (VTA) and a stand-alone vegetative treatment area (VTA). If other AT systems are developed that meet the equivalent performance standard established under EPA's CAFO rules, the department will consider their acceptance on a case-by-case basis.

"Animal" means cattle, swine, horses, sheep, chickens, turkeys, goats, fish, or ducks.

"Animal capacity" means the maximum number of animals which the owner or operator will confine in an open feedlot operation at any one time.

"Animal feeding operation" or *"AFO"* means a lot, yard, corral, building, or other area in which animals are confined and fed and maintained for 45 days or more in any 12-month period, and all structures used for the storage of manure from animals in the operation. Except as required for an NPDES permit required pursuant to the Act, an animal feeding operation does not include a livestock market.

"Animal unit" means a unit of measurement based upon the product of multiplying the number of animals of each category by a special equivalency factor, as follows:

1. Slaughter and feeder cattle	1.000
2. Immature dairy cattle	1.000
3. Mature dairy cattle	1.400
4. Butcher or breeding swine weighing more than 55 pounds	0.400
5. Swine weighing 15 pounds or more but not more than 55 pounds	0.100
6. Sheep or lambs	0.100
7. Horses	2.000
8. Turkeys weighing 7 pounds or more	0.018
9. Turkeys weighing less than 7 pounds	0.0085
10. Broiler or layer chickens weighing 3 pounds or more	0.010
11. Broiler or layer chickens weighing less than 3 pounds	0.0025
12. Goats	0.100
13. Ducks	0.040
14. Fish	0.001

"Animal unit capacity" means a measurement used to determine the maximum number of animal units that may be maintained as part of an open feedlot operation. Only for purposes of determining whether an open feedlot operation must obtain an NPDES permit, the animal unit capacity of the animal feeding operation shall include the animal unit capacities of both the open feedlot operation and the confinement feeding operation if all of the following occur:

1. The animals in the open feedlot operation and the confinement feeding operation are all in the same category of animals as used in the definitions of "large CAFO" and "medium CAFO" in 40 CFR Part 122.
2. The closest open feedlot operation structure is separated by less than 1,250 feet from the closest confinement feeding operation structure.
3. The open feedlot operation and the confinement feeding operation are under common ownership or management.

"Common management" means significant control by an individual of the management of the day-to-day operations of each of two or more open feedlot operations. "Common management" does not include control over a contract livestock facility by a contractor as defined in Iowa Code section 202.1.

"Common ownership" means to hold an interest in each of two or more open feedlot operations as any of the following:

1. A sole proprietor.
2. A joint tenant or tenant in common.
3. A holder of a majority equity interest in a business association as defined in Iowa Code section 202B.102, including as a shareholder, partner, member, beneficiary, or other equity interest holder.

An interest in an open feedlot operation under "2" or "3" above is a common ownership interest when it is held directly or indirectly through a spouse or dependent child, or both.

"Concentrated animal feeding operation" or *"CAFO"* means an AFO that is defined as a large CAFO, a medium CAFO, or a designated CAFO.

"Deep well" means a well located and constructed in such a manner that there is a continuous layer of low permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Designated area" means a known sinkhole, or a cistern, abandoned well, unplugged agricultural drainage well, agricultural drainage well surface tile inlet, drinking water well, designated wetland, lake, or water source. A designated area does not include a terrace tile inlet or surface tile inlet other than an agricultural drainage well surface tile inlet.

"Designated CAFO" means an AFO that has been designated as a CAFO pursuant to rule 567—65.103(455B,459A).

"Discontinued open feedlot operation" means an open feedlot operation in which the open feedlot operation structures have been abandoned or the use of the open feedlot operation structures has been discontinued as evidenced by the removal of all animals, and the owner or operator has no immediate plans to repopulate the structures.

"Feed storage runoff basin" means a covered or uncovered impoundment with the primary function to collect and store runoff from a feed storage area.

"Formed settled open feedlot effluent basin" means a settled open feedlot effluent basin which has walls and a floor constructed of concrete, concrete block, wood, steel, or similar materials. Similar materials may include, but are not limited to, plastic, rubber, fiberglass, or other synthetic materials. Materials used in a formed settled open feedlot effluent basin shall have the structural integrity to withstand expected internal and external load pressures.

"Karst terrain" means land having karst formations that exhibit surface and subterranean features of a type produced by the dissolution of limestone, dolomite, or other soluble rock and characterized by closed depressions, sinkholes, losing streams, or caves. If a 25-foot vertical separation distance can be maintained between the bottom of an open feedlot operation structure and limestone, dolomite, or other soluble rock, then the structure is not considered to be in karst terrain.

"Livestock market" means any place where animals are assembled from two or more sources for public auction, private sale, or on a commission basis, which is under state or federal supervision, including a livestock sale barn or auction market, if such animals are kept for ten days or less.

"Manure" means animal excreta or other commonly associated wastes of animals including, but not limited to, bedding, compost, litter, feed losses, raw materials or other materials commingled with manure or set aside for disposal.

"NPDES permit" means a written permit of the department pursuant to the National Pollutant Discharge Elimination System (NPDES) program, to authorize and regulate the operation of a CAFO.

"Nutrient management plan" or *"NMP"* means a plan which provides for the management of manure, process wastewater, settled open feedlot effluent, settleable solids, open feedlot effluent, animal truck wash effluent, including the application of effluent, as provided in 567—65.112(459A).

"Open feedlot" means a lot, yard, corral, building, or other area used to house animals in conjunction with an open feedlot operation.

"Open feedlot effluent" means a combination of manure, precipitation-induced runoff, or other runoff from an open feedlot before its settleable solids have been removed. If an open feedlot operation structure or animal truck wash effluent structure contains effluent from both an open feedlot operation and an animal truck wash facility, the animal truck wash effluent shall be deemed to be open feedlot effluent.

"Open feedlot effluent basin" means an open feedlot basin which does not settle solids before the effluent goes to the basin.

"Open feedlot operation" means an unroofed or partially roofed animal feeding operation if crop, vegetation, or forage growth or residue is not maintained as part of the animal feeding operation during the period that animals are confined in the animal feeding operation. "Open feedlot operation" includes a "partially roofed animal feeding operation" as defined in this rule.

Iowa Code section 459A.103 provides that two or more open feedlot operations under common ownership or management are deemed to be a single open feedlot operation if they are adjacent or utilize a common area or system for open feedlot effluent disposal. To determine if two or more open feedlot operations are deemed to be one open feedlot operation, the first test is whether the open feedlot operations are under common ownership or management. If they are not under common ownership or management, they are not one open feedlot operation. The second test is whether the two open feedlot operations are adjacent or utilize a common area or system for open feedlot effluent disposal. If the two operations are not adjacent and do not use a common area or system for open feedlot effluent disposal, they are not one open feedlot operation.

"Open feedlot operation structure" means an open feedlot, a settled open feedlot effluent basin, a solids settling facility, or an AT system. "Open feedlot operation structure" does not include a manure storage structure as defined in Iowa Code section 459.102.

"Owner" means the person who has title to the property where the animal feeding operation or the animal truck wash facility is located or the person who has title to the animal feeding operation structures or the animal truck wash effluent structure which is part of an animal truck wash facility. "Owner" does not include a person who has a lease to use the land where the animal feeding operation or the animal truck wash facility is located or to use the animal feeding operation structures or the animal truck wash effluent structure which is part of an animal truck wash facility.

"Partially roofed animal feeding operation" means an animal feeding operation in which the animals have unrestricted access from any attached roofed structure and the square footage of the unroofed area is at least 10 percent of the square footage of any attached roofed area.

"Permanent vegetation cover" means land which is maintained in perennial vegetation cover consisting of grasses, legumes, or both, and includes, but is not limited to, pastures, grasslands or forages.

"Process wastewater" means water directly or indirectly used in the operation of the AFO for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing of pens, barns, manure pits, or other AFO facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Process wastewater also includes any water which comes into contact with any raw materials, products, or byproducts, including manure, litter, feed, milk, eggs or bedding.

"Production area" means that part of an AFO that includes the area in which animals are confined, the manure storage area, the raw materials storage area, egg washing and egg processing facilities, and the waste containment areas. The area in which animals are confined includes, but is not limited to, open lots, housed lots, feedlots, stall barns, free stall barns, milk rooms, milking centers, cow yards, barnyards, medication pens, walkers, animal walkways, confinement houses, and stables. The manure storage area includes, but is not limited to, lagoons, solids settling facilities, settled open feedlot effluent basins, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes, but is not limited to, feed silos, silage bunkers, and bedding materials. The waste containment area includes, but is not limited to, settling basins and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any area used in the storage, handling, treatment, or disposal of mortalities.

"Professional engineer" means a person engaged in the practice of engineering as defined in Iowa Code section 542B.2 who is issued a certificate of licensure as a professional engineer pursuant to Iowa Code section 542B.17.

"Release" means an actual, imminent or probable discharge of process wastewater, manure, open feedlot effluent, settled open feedlot effluent, or settleable solids from an open feedlot operation structure to surface water, groundwater, or an actual, imminent or probable discharge directly to a drainage tile line or intake resulting from storing, handling, transporting or land-applying process wastewater, manure, open feedlot effluent, settled open feedlot effluent or settleable solids.

"Settleable solids," "scraped solids," or *"solids"* means that portion of the effluent that meets all the following requirements:

1. The solids do not flow perceptibly under pressure.

2. The solids are not capable of being transported through a mechanical pumping device designed to move a liquid.

3. The constituent molecules of the solids do not flow freely among themselves but do show the tendency to separate under stress.

"Settled open feedlot effluent" means a combination of manure, precipitation-induced runoff, or other runoff originating from an open feedlot after its settleable solids have been removed.

"Settled open feedlot effluent basin" or *"runoff control basin"* means a covered or uncovered impoundment which is part of an open feedlot operation, if the primary function of the impoundment is to collect and store settled open feedlot effluent. An animal truck wash facility may be part of an open feedlot operation. An animal truck wash effluent structure may be the same as a settled open feedlot effluent basin that is part of the open feedlot operation, so long as the primary function of such impoundment is to collect and store effluent from both the animal truck wash facility and the open feedlot operation.

"Shallow well" means a well located and constructed in such a manner that there is not a continuous layer of low permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

"Solids settling facility" means a basin, terrace, diversion, or other structure or solids removal method which is part of an open feedlot operation and which is designed and operated to remove settleable solids from open feedlot effluent. A "solids settling facility" does not include a basin, terrace, diversion, or other structure or solids removal method which retains the liquid portion of open feedlot effluent for more than seven consecutive days following a precipitation event.

"Stockpile" means any accumulation of manure, scraped solids, settleable solids or combination of manure and solids located outside of the open feedlot or animal truck wash facility or outside of an area that drains to an open feedlot or animal truck wash facility, where the scraped manure or solids are stored for less than six months.

"Unformed settled open feedlot effluent basin" means a settled open feedlot effluent basin, other than a formed settled open feedlot effluent basin.

"Vegetative infiltration basin" or *"VIB"* means an open feedlot operation structure in which settled open feedlot effluent is discharged into a relatively flat basin area which is bermed to prevent entry or discharge of surface water flows and is planted to permanent vegetation. An extensive tile system installed at a depth of three to five feet is used to collect infiltrated settled open feedlot effluent from the VIB and discharge it into a VTA for further treatment. As opposed to wetlands, which are designed to maintain a permanent water level, a VIB is designed to maximize water infiltration into the soil and thus normally will have standing water for only short periods of time. Removal of settleable solids is required prior to discharge of open feedlot effluent into the VIB. Soil suitability is essential to ensure adequate filtration and treatment of pollutants. Periodic harvesting of vegetation is required.

"Vegetative treatment area" or *"VTA"* means an open feedlot operation structure in which settled open feedlot effluent is discharged into areas which are level in one dimension and have a slight slope (less than 5 percent) in the other dimension and are planted to relatively dense permanent vegetation. Settled open feedlot effluent must be discharged evenly across the top width of the VTA and allowed to slowly flow downslope through the VTA. Level spreaders or other practices may be required to maintain even flow throughout the length of the VTA. Management to maintain a dense vegetation cover is required, as is periodic harvesting of vegetation.

"Water of the state" means any stream, lake, pond, marsh, watercourse, waterway, well, spring, reservoir, aquifer, irrigation system, drainage system, and any other body or accumulation of water, surface or underground, natural or artificial, public or private, which are contained within, flow through or border upon the state or any portion thereof.

"Water well" means an excavation that is drilled, cored, bored, augered, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for groundwater, monitoring groundwater, utilizing the geothermal properties of the ground, or extracting water from or injecting water into the

aquifer. "Water well" does not include an open ditch or drain tiles or an excavation made for obtaining or prospecting for oil, natural gas, minerals, or products mined or quarried.

"Waters of the United States" means the same as defined in 40 CFR 122.2.

65.100(2) *Incorporation by reference.* The text of the following incorporated materials is not included in Division II of this chapter. The materials listed below are hereby made a part of Division II of this chapter. For material subject to change, only the specific version specified in this subrule is incorporated. Any amendment or revision to a reference document is not incorporated until this subrule has been amended to specify the new version.

a. *"Act"* means the federal Water Pollution Control Act as amended through January 1, 2015, 33 U.S.C. Chapter 26;

b. *"AFO Siting Atlas"* means a tool to assist in determining potential building sites that meet regulatory requirements. The AFO Siting Atlas is located on the department's website;

c. *"CFR"* or *"Code of Federal Regulations"* means the federal administrative rules adopted by the United States in effect as of January 1, 2015;

d. Designated Wetlands in Iowa – effective date August 23, 2006, located on the department's website; and

e. Spill line telephone number is (515)725-8694.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.101(459A) Minimum open feedlot effluent control requirements and reporting of releases. An open feedlot operation shall provide for the management of manure, process wastewater, settled open feedlot effluent, settleable solids, scraped solids, and open feedlot effluent by using an open feedlot control method as provided in subrules 65.101(1) to 65.101(8). A release shall be reported to the department as provided in subrule 65.101(9).

65.101(1) All settleable solids from open feedlot effluent shall be removed prior to discharge into a water of the state.

a. The settleable solids shall be removed by use of a solids settling facility. The construction of a solids settling facility is not required where existing site conditions provide for removal of settleable solids prior to discharge into a water of the state.

b. The removal of settleable solids shall be deemed to have occurred when the velocity of flow of the open feedlot effluent has been reduced to less than 0.5 feet per second for a minimum of five minutes. A solids settling facility shall have sufficient capacity to store settleable solids between periods of land application and to provide required flow-velocity reduction for open feedlot effluent flow volumes resulting from a precipitation event of less intensity than a ten-year, one-hour frequency event. A solids settling facility which receives open feedlot effluent shall provide a minimum of one square foot of surface area for each eight cubic feet of open feedlot effluent per hour resulting from a ten-year, one-hour frequency precipitation event.

65.101(2) This subrule shall apply to an open feedlot operation which has obtained an NPDES permit pursuant to 567—65.102(455B,459A) or 567—65.103(455B,459A).

a. An open feedlot operation may discharge manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent into any waters of the United States due to a precipitation event, if the open feedlot operation is designed, constructed, operated, and maintained to comply with the requirements of 567—subrule 62.4(12) and 40 CFR Part 412.

b. If the open feedlot operation is designed, constructed, and operated in accordance with the requirements of 567—subrule 62.4(12) and in accordance with any of the manure control alternatives listed in Appendix A of these rules or the AT system requirements in rule 567—65.110(459A), the operation shall be considered to be in compliance with this rule, unless a discharge from the operation causes a violation of state water quality standards. If water quality standards violations occur, the department may impose additional open feedlot effluent control requirements upon the operation, as specified in subrule 65.101(3).

65.101(3) An open feedlot operation which has an animal unit capacity of 1,000 animal units or more, or an open feedlot operation which is a large CAFO, or a medium CAFO, or a designated CAFO,

shall not discharge manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent from an open feedlot operation structure or production area into any waters of the United States, unless the discharge is pursuant to an NPDES permit. The control of manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent originating from the open feedlot operation may be accomplished by the use of a solids settling facility, settled open feedlot effluent basin, AT system, or any other open feedlot effluent control structure or practice approved by the department. The department may require the diversion of surface drainage prior to contact with an open feedlot operation structure. Settleable solids shall be settled from open feedlot effluent before the effluent enters a settled open feedlot effluent basin or AT system.

65.101(4) Alternative control practices. If, because of topography or other factors related to the site of an open feedlot operation, it is economically or physically impractical to comply with open feedlot effluent control requirements using an open feedlot control method in subrule 65.101(2), the department shall allow an open feedlot operation covered by the NPDES permit application requirements of 567—65.102(455B,459A) or 567—65.103(455B,459A) to use other open feedlot effluent control practices, provided the open feedlot operation satisfactorily demonstrates by appropriate methods that those practices will provide an equivalent level of open feedlot effluent control that would be achieved by using an open feedlot control method as provided in 65.101(2).

65.101(5) No direct discharge of open feedlot effluent shall be allowed from an open feedlot operation into a publicly owned lake, a known sinkhole, or an agricultural drainage well.

65.101(6) Land application.

a. General requirements. Open feedlot effluent shall be land-applied in a manner which will not cause pollution of surface water or groundwater. Application in accordance with the provisions of state law and the rules in this chapter shall be deemed as compliance with this requirement.

b. Designated areas. A person shall not apply manure on land within 200 feet from a designated area or, in the case of a high-quality water resource, within 800 feet, unless one of the following applies:

(1) The manure is land-applied by injection or incorporation on the same date as the manure was land-applied.

(2) An area of permanent vegetation cover, including filter strips and riparian forest buffers, exists for 50 feet surrounding the designated area other than an unplugged agricultural drainage well or surface intake to an unplugged agricultural drainage well, and the area of permanent vegetation cover is not subject to manure application.

c. CAFOs.

(1) Land application discharges from a CAFO are subject to NPDES permit requirements. The discharge of manure, process wastewater, settled open feedlot effluent, settleable solids and open feedlot effluent to waters of the United States from a CAFO as a result of the application of that manure, process wastewater, settled open feedlot effluent, settleable solids and open feedlot effluent by the CAFO to land areas under its control is a discharge from that CAFO subject to NPDES permit requirements, except where the discharge is an agricultural storm water discharge as provided in 33 U.S.C. 1362(14). For the purpose of this paragraph, where the manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent has been applied in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, process wastewater, settled open feedlot effluent, settleable solids and open feedlot effluent as specified in 65.112(8), a precipitation-related discharge of manure, process wastewater, settled open feedlot effluent, settleable solids and open feedlot effluent from land areas under the control of a CAFO is an agricultural storm water discharge.

(2) Setback requirements for open feedlot operations with NPDES permits. For open feedlot operations with NPDES permits, the following is adopted by reference: 40 CFR 412.4(a), (b) and (c)(5).

65.101(7) The owner of an open feedlot operation who discontinues the use of the operation shall remove and land-apply in accordance with state law all manure, process wastewater and open feedlot effluent from the open feedlot operation structures as soon as practical but not later than six months following the date the open feedlot operation is discontinued. The owner of a CAFO shall maintain

compliance with all requirements in the CAFO's NPDES permit until all manure, process wastewater and open feedlot effluent has been removed and land-applied pursuant to the CAFO's NMP.

65.101(8) Stockpiling of scraped solids and settleable solids. Stockpiles of solids scraped from open feedlot operations and stockpiles of settleable solids shall comply with the following requirements.

a. Stockpiles must be land-applied in accordance with subrule 65.101(6) as soon as possible but not later than six months after they are established.

b. Stockpiles shall not be located within 400 feet from a designated area or, in the case of a high-quality water resource, within 800 feet.

c. Stockpiles shall not be located in grassed waterways or areas where water ponds or has concentrated flow.

d. Stockpiles shall not be located within 200 feet of a terrace tile inlet or surface tile inlet or known sinkhole unless the stockpile is located so that any runoff from the stockpile will not reach the inlet or sinkhole.

e. Stockpiles shall not be located on land having a slope of more than 3 percent unless methods, structures or practices are implemented to contain the stockpiled solids, including but not limited to hay bales, silt fences, temporary earthen berms, or other effective measures, and to prevent or diminish precipitation-induced runoff from the stockpiled solids.

65.101(9) A release, as defined in rule 567—65.100(459A), shall be reported to the department as provided in this subrule. This subrule does not apply to the land application of manure, process wastewater, open feedlot effluent, settled open feedlot effluent, scraped solids, or settleable solids in compliance with these rules, or to precipitation- or snowmelt-induced runoff from open feedlots in compliance with the minimum control requirements set forth in this rule.

a. Notification. A person storing, handling, transporting, or land-applying manure, process wastewater, open feedlot effluent, settled open feedlot effluent, scraped solids, or settleable solids from an open feedlot operation who becomes aware of a release shall notify the department of the occurrence of release as soon as possible but not later than six hours after the onset or discovery of the release by contacting the department's spill line. The local police department or the office of the sheriff of the affected county shall also be contacted within the same time period if the release involves a public roadway and public safety could be threatened. Reports made pursuant to this rule shall be confirmed in writing as provided in 65.101(9)*"c."*

b. Verbal report. The verbal report of such a release should provide information on as many items listed in 65.101(9)*"c"* as available information will allow.

c. Written report. The written report of a release shall be submitted at the request of the department within 30 days after the verbal report of the release and contain at a minimum the following information:

(1) The approximate location of the alleged release (including at a minimum the quarter-quarter section, township and county in which the release occurred or was discovered).

(2) The time and date of onset of the alleged release, if known, and the time and date of the discovery of the alleged release.

(3) The time and date of the verbal report to the department of the release.

(4) The name, mailing address and telephone number of the person reporting the release.

(5) The name, mailing address and telephone number of any other person with knowledge of the event who can be contacted for further information.

(6) The source of the manure, process wastewater, open feedlot effluent, settled open feedlot effluent or settleable solids allegedly released (e.g., settled open feedlot effluent basin).

(7) The estimated or known volume of manure, process wastewater, open feedlot effluent, settled open feedlot effluent, scraped solids, or settleable solids allegedly released.

(8) The weather conditions at the time of the onset or discovery of the release.

(9) If known, the circumstances under which the alleged release occurred or exists (e.g., overflow, storage structure breach, equipment malfunction or breakdown, land runoff).

(10) The approximate location of the nearest stream or other water body which is or could be impacted by the alleged release, and the approximate location to the alleged release of any known tile intakes or tile lines which could be a direct conveyance to a surface water or groundwater.

(11) A description of any containment or remedial measures taken to minimize the impact of the release.

(12) Any information that may assist the department in evaluating the release.

d. *Reporting of subsequent findings.* All subsequent findings and laboratory results should be reported and submitted in writing to the department as soon as they become available.

e. *Waiver of notification requirement.* A waiver from the notification requirement of paragraph *"a"* of this subrule may be granted by the department for a release to a specific drainage tile line or intake if sufficient information is provided to demonstrate that the drainage tile line or intake will not result in a discharge to a water of the state.

[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 1627C**, IAB 9/17/14, effective 10/22/14; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.102(459A) Concentrated animal feeding operations; NPDES permits. Iowa Code subsection 459A.401(2) requires an open feedlot that is a concentrated animal feeding operation as defined in 40 CFR 122.23(b) to comply with applicable NPDES permit requirements pursuant to rules adopted by the commission. The following regulations are adopted by reference:

- 40 CFR 122.21, application for a permit.
- 40 CFR 122.23, concentrated animal feeding operations.
- 40 CFR 122.42(e), additional conditions applicable to specified categories of NPDES permits.
- 40 CFR 122.63(h), minor modification of permits.
- 40 CFR Part 412, concentrated animal feeding operations (CAFO) point source category.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.103(455B,459A) Departmental evaluation; CAFO designation; remedial actions.

65.103(1) The department may evaluate any animal feeding operation that is not defined as a large or medium CAFO, and designate it as a CAFO if, after an on-site inspection, it is determined to be a significant contributor of manure or process wastewater to waters of the United States. In making this determination, the department shall consider the following factors:

a. The size of the operation and the amount of manure or process wastewater reaching waters of the United States;

b. The location of the operation relative to waters of the United States;

c. The means of conveyance of manure or process wastewater to waters of the United States;

d. The slope, vegetation, rainfall, and other factors affecting the likelihood or frequency of discharge of manure or process wastewater into waters of the United States; and

e. Other relevant factors.

65.103(2) No animal feeding operation with an animal capacity less than that specified for a medium CAFO shall be designated as a CAFO unless manure or process wastewater from the operation is discharged into a water of the United States:

a. Through a man-made ditch, flushing system, or other similar man-made device; or

b. Which originates outside of and passes over, across or through the facility or otherwise comes into direct contact with animals confined in the operation.

65.103(3) The owner or operator of a designated CAFO shall apply for an NPDES permit no later than 90 days after receiving written notice of the designation.

65.103(4) If departmental evaluation determines that any of the conditions listed in paragraph 65.103(4)*"a," "b,"* or *"c"* exist, the open feedlot operation shall institute necessary remedial actions within a time specified by the department to eliminate the conditions warranting the determination, if the operation receives a written notification from the department of the need to correct the conditions.

a. Settled open feedlot effluent, settleable solids from the open feedlot operation, or open feedlot effluent is being discharged into a water of the state and the operation is not providing the applicable minimum level of manure control as specified in rule 567—65.101(459A);

b. Settled open feedlot effluent, settleable solids from the open feedlot operation, or open feedlot effluent is causing or may reasonably be expected to cause pollution of a water of the state; or

c. Settled open feedlot effluent, settleable solids from the open feedlot operation, or open feedlot effluent is causing or may reasonably be expected to cause a violation of state water quality standards.

[1]**65.103(5)** The department may evaluate any proposed open feedlot operation or proposed expansion of an open feedlot operation that requires a construction permit with respect to its potential adverse impacts on natural resources or the environment. For the purpose of this subrule, open feedlot effluent includes manure, process wastewater, settled open feedlot effluent and settleable solids.

a. In conducting the evaluation, the department shall consider the following factors:

(1) The likelihood open feedlot effluent will be applied to frozen or snow-covered cropland.

(2) The proximity of the open feedlot operation structures or open feedlot effluent application areas to sensitive areas, including but not limited to publicly owned land, designated areas, trout streams and karst terrain.

(3) Topography, slope, vegetation, potential means or routes of conveyance of open feedlot effluent spilled or land-applied. This factor includes but is not limited to whether the open feedlot effluent application areas involve cropland with predominant slopes greater than 9 percent without a conservation plan approved by the local soil and water conservation district or its equivalent and whether open feedlot effluent for land application is hauled or otherwise transported more than five miles.

(4) Whether the operation or open feedlot effluent application area is or will be located in a two-year capture zone for a public water supply.

b. In addition to the requirements in rules 567—65.105(459A), 567—65.109(459A) and 567—65.112(459A), the department may deny a construction permit, disapprove a nutrient management plan or prohibit construction of the proposed operation at the proposed location if the director determines from the evaluation conducted pursuant to this subrule that the operation would reasonably be expected to result in any of the following impacts:

(1) Open feedlot effluent from the operation will cause pollution of a water of the state.

(2) Open feedlot effluent from the operation will cause a violation of state water quality standards.

(3) An adverse effect on natural resources or the environment will occur in a specific area due to the current concentration of animal feeding operations or the associated open feedlot effluent application areas.

c. The department also may establish permit conditions or require amendments to the nutrient management plan in addition to the minimum requirements established for such operations, on the location of structures or open feedlot effluent application, or other operational conditions necessary to avoid or minimize the adverse impacts.

d. A construction permit denial or condition, a nutrient management plan disapproval or required amendment, or a prohibition of construction pursuant to this subrule may be appealed according to the contested case procedures set forth in 561—Chapter 7.

[1] Objection to 65.103(5) filed by the Administrative Rules Review Committee October 10, 2006. See text of Objection at end of Chapter 65.

567—65.104(455B,459A) NPDES permits.

65.104(1) *Existing animal feeding operations holding an NPDES permit.* Animal feeding operations which hold a valid NPDES permit issued prior to September 14, 2005, are not required to reapply for an NPDES permit. However, the operations are required to apply for permit renewal in accordance with subrule 65.104(10).

65.104(2) *Existing animal feeding operations not holding an NPDES permit.* Animal feeding operations in existence prior to April 14, 2003, which were defined as CAFOs under rules that were in effect prior to April 14, 2003, but which have not obtained a permit, should have applied for an NPDES permit by April 14, 2003. Animal feeding operations in existence on April 14, 2003, which were not defined as CAFOs under rules that were in effect prior to April 14, 2003, shall apply for an NPDES permit no later than July 31, 2007.

65.104(3) *Expansion of existing animal feeding operations.* A person intending to expand an existing animal feeding operation which, upon completion of the expansion, will be defined as a CAFO

and if the operation discharges pollutants to waters of the United States shall apply for an NPDES permit at least 90 days prior to the scheduled expansion. Operation of the expanded portion of the facility shall not begin until an NPDES permit has been obtained.

65.104(4) *New animal feeding operations.* A person intending to begin a new animal feeding operation which, upon completion, will be defined as a CAFO and if the operation discharges pollutants to waters of the United States shall apply for an NPDES permit at least 180 days prior to the date operation of the new animal feeding facility is scheduled. Operation of the new facility shall not begin until an NPDES permit has been obtained.

65.104(5) *Permits required as a result of departmental designation.* An animal feeding operation which is required to apply for an NPDES permit as a result of departmental designation (in accordance with the provisions of 567—65.103(455B,459A)) shall apply for an NPDES permit within 90 days of receiving written notification of the need to obtain a permit. Once application has been made, the animal feeding operation is authorized to continue to operate without a permit until the application has either been approved or disapproved by the department, provided that the owner or operator has submitted all requested information and promptly taken all steps necessary to obtain coverage.

65.104(6) *Voluntary permit applications.* Rescinded IAB 11/9/16, effective 12/14/16.

65.104(7) *Application forms and requirements.* An application for an NPDES permit shall be made on a form provided by the department. The application shall be complete and shall contain information required by the department. Applications shall include a nutrient management plan as required in rule 567—65.112(459A). Applications involving AT systems shall include results of predictive computer modeling as required by 65.110(6)*"a."* The application shall be signed by the person who is legally responsible for the animal feeding operation and its associated manure or process wastewater control system.

65.104(8) *Compliance schedule.* When necessary to comply with a standard which must be met at a future date, an NPDES permit shall include a schedule for modification of the permitted facility to meet the standard. The schedule shall not relieve the permittee of the duty to obtain a construction permit pursuant to rule 567—65.105(459A).

65.104(9) *Permit conditions.* NPDES permits shall contain conditions required by 40 CFR Section 122.41 and conditions considered necessary by the department to ensure compliance with all applicable rules of the department, to ensure that the production area and land application areas are operated and maintained as required by Iowa law, to protect the public health and beneficial uses of waters of the United States, and to prevent water pollution from manure storage or application operations. Any more stringent conditions of Iowa Code chapter 459A, 567—subrule 62.4(12), and this chapter that apply to animal feeding operations shall govern. For CAFOs that maintain cattle, swine, or poultry, the following conditions shall be included:

a. *Nutrient management plan.* Open feedlot CAFOs shall comply with the requirements of 567—65.112(459A) and any additional nutrient management plan requirements for CAFOs in these rules. CAFOs that seek to obtain coverage under an NPDES permit shall have a nutrient management plan developed and implemented upon the date of permit coverage.

b. *Inspections and record keeping.*

(1) Visual inspections. Routine visual inspections of the CAFO production area must be conducted. At a minimum the following must be visually inspected:

1. Weekly inspections of all storm water diversion, runoff diversion structures, and devices channelling contaminated storm water to the open feedlot structure.

2. Daily inspection of water lines, including drinking water or cooling water lines.

(2) Corrective actions. Any deficiencies found as a result of the inspections required in 65.104(9)*"b"*(1) or as a result of the liquid level reporting required in 65.104(9)*"e"* must be corrected as soon as possible.

(3) The following records must be maintained on site for a period of five years from the date they are created and must be made available to the department upon request:

1. Records documenting the inspections required in 65.104(9)*"b"*(1).

2. Records of weekly liquid level observations as required in 65.104(9)*"e."*

3. Records documenting any actions taken to correct deficiencies as required in 65.104(9)*"b"*(2).

c. Large CAFOs—transfer of manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent. Prior to transferring manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent to other persons, a large CAFO must provide the recipient of the manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent with the most current nutrient analysis. A large CAFO must retain for five years records of the date, recipient name and address, nutrient analysis and approximate amount of manure, process wastewater, settled open feedlot effluent, settleable solids or open feedlot effluent transferred to another person.

d. Minimum monitoring requirements for AT systems. During the first five years of operation of an AT system, the following minimum monitoring will be required:

(1) Discharge monitoring. An effluent collection point must be established at the outlet of the AT system, and the flow volume recorded and an effluent sample collected on each day a discharge from the AT system occurs. Discharge samples must be submitted to a certified laboratory and analyzed for: total Kjeldahl N, NH4 N, total P, COD, total suspended solids, and chloride.

(2) Discharge monitoring—tile lines. If the AT system includes a tile system installed to enhance infiltration within the VTA in accordance with 65.110(6)*"h"* or 65.110(7)*"h,"* water samples shall be collected from a sampling point located downgradient of the VTA on each individual tile line or combination of tile lines on the following schedule:

1. Quarterly sampling. One sample shall be taken from each sampling point once each quarter (January - March, April - June, July - September, October - December), and the level of flow in the tile system recorded at the time of sampling. The sample shall be collected at least ten days after a rainfall event of one inch or greater; and samples must be taken at least two, but not more than four, months apart. If there is no discharge from the tile line at a time that meets these requirements, documentation on appropriate department forms can be substituted for the sample and analysis. Collected samples shall be submitted to a certified laboratory and analyzed for: total Kjeldahl N, NH4 N, total P, COD, total suspended solids, and chloride.

2. Event sampling. Each year, two rainfall event related tile flow samples shall be collected from each sampling point. For each sampling event, one sample shall be taken from each sampling point three to five days following a rainfall event of one inch or greater, and the level of flow in the tile system recorded at the time of sampling. Collected samples shall be submitted to a certified laboratory and analyzed for: total Kjeldahl N, NH4 N, total P, COD, total suspended solids, and chloride.

(3) Groundwater monitoring. A minimum of two groundwater monitoring wells or piezometers (one upgradient and one downgradient) must be established at each AT system. Additional wells or piezometers may be required if the department determines they are necessary to adequately assess the impacts the AT system is having on groundwater. Samples must be collected from these wells quarterly and analyzed for: NH4 N, NO3 N, and chloride.

(4) Soil sampling.

1. Initial and permit renewal sampling. Soil sampling shall be conducted prior to initial discharge of open feedlot effluent into the AT system and repeated prior to renewal of the NPDES permit, as outlined below:

- VTA. A minimum of two sampling sites shall be established within each VTA cell, one located where runoff enters the VTA and one where runoff is discharged from the VTA. Soil samples shall be taken from these sites to a depth of 4 feet, with separate samples taken to represent the 0 to 6-inch depth, the 6- to 12-inch depth, and in one-foot increments thereafter. All samples shall be analyzed for NO3 N, NH4 N, P by either the Olsen or Mehlich-3 method, and pH.

If the length of effluent flow through the VTA exceeds 400 feet, an additional soil sample representing the 0 to 6-inch depth should be taken for each additional 200 feet of VTA length. Samples shall be analyzed for NO3 N, NH4 N, P by either the Olsen or Mehlich-3 method, and pH.

- VIB. One sampling site shall be established where open feedlot effluent enters the VIB. Soil samples at this site shall be taken to a depth of 4 feet, with separate samples taken to represent the 0

to 6-inch depth, the 6- to 12-inch depth, and in one-foot increments thereafter. These samples shall be analyzed for NO3 N, NH4 N, P by either the Olsen or Mehlich-3 method, and pH.

An additional sampling site shall be established where open feedlot effluent is discharged from the VIB through the tile system. Soil samples shall be taken at this site to represent the 0 to 6-inch depth, and analyzed for NO3 N, NH4 N, P by either the Olsen or Mehlich-3 method, and pH.

2. Annual sampling. One sampling site shall be established in each cell of a VTA and VIB in an area which is expected to receive the greatest amount of open feedlot effluent. Soil samples shall be taken from each site prior to initiating discharge of open feedlot effluent into the VTA or VIB and shall be repeated annually. Each sample shall represent a composite of 10 to 12 individual samples taken to a 6-inch depth, and analyzed for P using either the Olsen or Mehlich-3 method and for pH.

Monitoring requirements for an AT system following the initial two-year operation period will be determined at the time the NPDES permit for the operation is due for renewal.

e. Quarterly reporting requirements for large CAFOs with outside liquid impoundments. A permittee with outside liquid impoundments must submit quarterly reports by April 10, July 10, October 10, and January 10, following the respective calendar quarters, documenting daily precipitation, weekly impoundment liquid levels, volume of liquid removed from the impoundments, and the date, time, duration, and estimated volume of any overflow. Liquid levels must be obtained by observing a depth marker which clearly indicates the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour precipitation event.

f. Annual reporting requirements for all CAFOs with systems other than AT systems. All permittees must submit an annual report to the department by January 10 of the following year. The annual report must include:

(1) The number and type of animals in the open feedlot operation;

(2) Estimated amount of manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent generated by the CAFO in the previous 12 months (tons/gallons);

(3) Estimated amount of total manure transferred to other persons by the CAFO in the previous 12 months (tons/gallons);

(4) Total number of acres for land application covered by the nutrient management plan and the total number of acres under control of the CAFO that were used for land application of manure in the previous 12 months;

(5) Summary of all manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent discharges from the production area that have occurred in the previous 12 months, including date, time, and approximate volume;

(6) A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner;

(7) Actual crops planted and actual yield for the preceding 12 months; and

(8) Results of all samples of manure, litter and process wastewater for nitrogen and phosphorus content for manure, litter and process wastewater that was land-applied.

g. Quarterly reporting requirements for CAFOs with AT systems. A permittee with an AT system must submit quarterly reports by April 10, July 10, October 10, and January 10, following the respective calendar quarters. The quarterly reports shall provide all of the following information:

(1) Daily precipitation.

(2) Dates on which manure, process wastewater, settled open feedlot effluent, open feedlot effluent, or settleable solids were removed from the production area and estimated amounts of manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent removed (tons/gallons).

(3) Dates on which discharges from the production area or the AT system occurred and the estimated duration and volume of discharge on each discharge date.

(4) Results of laboratory analyses of discharge samples for each date a discharge from the production area or the AT system occurred. If the results of laboratory analyses are not available by the due date of the quarterly report, the results shall be provided with the following quarter's report.

(5) Results of laboratory analyses of samples taken from the groundwater monitoring wells or piezometers. If the results of laboratory analyses are not available by the due date of the quarterly report, the results shall be provided with the following quarter's report.

h. Annual reporting requirements for CAFOs with AT systems. A permittee shall submit an annual report by January 10 of the following year. The annual report must include all of the following:

(1) The number and type of animals in the open feedlot operation.

(2) Estimated amount of total manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent generated by the CAFO in the previous 12 months (tons/gallons).

(3) Estimated amount of total manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent transferred to other persons by the CAFO in the previous 12 months (tons/gallons).

(4) Total number of acres for land application covered by the nutrient management plan and the total number of acres under control of the CAFO that were used for land application of manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent in the previous 12 months.

(5) Summary of all manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent discharges from the production area or AT system that have occurred in the previous 12 months, including date, time, and approximate volume.

(6) Harvest dates and estimated amounts of forage removed from the AT system during the previous 12 months.

(7) Results of soil and groundwater sampling within the AT system during the previous 12 months.

(8) A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner.

65.104(10) *Permit renewal.*

a. General requirements. An NPDES permit may be issued for any period of time not to exceed five years. An application for renewal of an NPDES permit must be submitted to the department at least 180 days prior to the date the permit expires. Each permit to be renewed shall be subject to the rules of the department in effect at the time of renewal. A permitted animal feeding operation which ceases to be a CAFO will be exempted from the need to retain an NPDES permit if the permittee can demonstrate to the satisfaction of the department that there is no remaining potential for a discharge of manure that was generated while the operation was a CAFO, other than agricultural storm water from land application areas.

b. Permits involving use of AT systems.

(1) Renewal of a permit involving use of an AT system is contingent upon proper operation and maintenance of the AT system, submittal of all required records and reports, and demonstration that the AT system is providing an equivalent level of performance to that achieved by a containment system that is designed and operated as required by statute, 567—subrule 62.4(12) and Division II of this chapter.

(2) If departmental review of an AT system indicates the system is not meeting the equivalent performance standard, the permittee may either be required to make needed system modifications to enable compliance with this standard or be required to install a conventional runoff containment system. Open feedlot operations found to be in compliance with the equivalent performance standard will be issued a five-year NPDES permit which allows continued use of the AT system.

65.104(11) *Permit modification, suspension or revocation.* The department may modify, suspend, refuse to renew or revoke in whole or part any NPDES permit for cause. Any more stringent requirement pursuant to 40 CFR Section 122.62, 122.63 or 122.64 shall control. Cause for modification, suspension or revocation of a permit may include the following:

a. Violation of any term or condition of the permit.

b. Obtaining a permit by misrepresentation of fact or failure to disclose fully all material facts.

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

d. Failure to retain, make available, or submit the records and information that the department requires in order to ensure compliance with the operation and discharge conditions of the permit.

e. A determination by the department that the continued operation of a CAFO constitutes a clear, present and impending danger to public health or the environment.
[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.105(459A) Construction permits.

65.105(1) *Open feedlot operations required to obtain a construction permit.* An open feedlot operation must obtain a construction permit prior to any of the following:

a. Constructing or expanding a settled open feedlot effluent basin or AT system or installing a settled open feedlot effluent transfer piping system if the open feedlot operation is required to be issued an NPDES permit.

b. Increasing the animal unit capacity of the open feedlot operation to more than the animal unit capacity approved by the department in a previous construction permit.

c. Increasing the volume of settled open feedlot effluent, settleable solids or open feedlot effluent stored at the open feedlot operation to more than the volume approved by the department in a previous construction permit.

d. Repopulating the open feedlot operation if it was discontinued for 24 months or more and the animal unit capacity will be 1,000 animal units or more.

65.105(2) *When a construction permit is not required.*

a. *Research colleges.* A construction permit is not required for construction of a settled open feedlot effluent basin or AT system if the basin or system is part of an open feedlot operation which is owned by a research college conducting research activities as provided in Iowa Code section 459A.105.

b. *Solids settling facilities.* If only solids settling facilities are being constructed, a construction permit is not required. If solids settling facilities are proposed as part of a project that includes facilities that require a construction permit, then the proposed solids settling facilities are subject to a construction permit.

65.105(3) *Applications that cannot be approved.* The department shall not approve an application for a construction permit unless the applicant submits all of the following:

a. A nutrient management plan as provided in rule 567—65.112(459A).

b. An engineering report, construction plans, and specifications prepared by a professional engineer or NRCS certifying that the design of the settled open feedlot effluent basin or AT system complies with the construction design standards required in Division II of this chapter.

65.105(4) *Plan review criteria; time for approval or disapproval.*

a. *Plan review criteria.* Review of plans and specifications shall be conducted by the department to determine the potential of the settled open feedlot effluent basin or AT system to achieve the level of control being required of the open feedlot operation. Applicable criteria contained in federal law, state law, these rules, NRCS design standards and specifications, unless inconsistent with federal or state law or these rules, and United States Department of Commerce precipitation data will be used in the review of large CAFOs. If the proposed facility plans are not adequately covered by these criteria, applicable criteria contained in current technical literature shall be used. Medium CAFOs and designated CAFOs shall be evaluated using the department's professional judgment.

b. *Time for approval or disapproval.* The department shall approve or disapprove an application for a construction permit within 60 days after receiving the permit application. However, the applicant may deliver a notice requesting a continuance. Upon receipt of a notice, the time required for the department to act upon the application shall be suspended for the period provided in the notice, but for not more than 30 days after the department's receipt of the notice. The applicant may submit more than one notice. If review of the application is delayed because the application is incomplete, and the applicant fails to supply requested information within a reasonable time prior to the deadline for action on the application, the permit may be denied and a new application will be required if the applicant wishes to proceed. The department may also provide for a continuance when it considers the application. The department shall provide notice to the applicant of the continuance. The time required for the department

to act upon the application shall be suspended for the period provided in the notice, but for not more than 30 days. However, the department shall not provide for more than one continuance.

65.105(5) *Expiration of construction permits.* The construction permit shall expire if construction, as defined in rule 567—65.106(459A), is not begun within one year and completed within three years of the date of issuance. The director may grant an extension of time to begin or complete construction if it is necessary or justified, upon showing of such necessity or justification to the director.

65.105(6) *Revocation of construction permits.* The department may suspend or revoke a construction permit, modify the terms or conditions of a construction permit, or refuse to renew a permit expiring according to subrule 65.105(5) if it determines that the operation of the open feedlot operation constitutes a clear, present and impending danger to public health or the environment.

65.105(7) *Permit prior to construction.* An applicant for a construction permit shall notify the department prior to the start of construction for any open feedlot operation structure not required to be covered by a construction permit. The applicant shall not begin construction of a settled open feedlot effluent basin or AT system, or begin installation of a settled open feedlot effluent transfer piping system until the person has been granted a permit for the construction by the department.

[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.106(459A) Construction. For purposes of these rules:

65.106(1) Construction of an animal feeding operation structure begins or an animal feeding operation structure is constructed when any of the following occurs:

a. Excavation commences for a proposed open feedlot operation structure or proposed expansion of an existing open feedlot operation structure.

b. Installation of forms for concrete for a proposed open feedlot operation structure or the proposed expansion of an existing open feedlot operation structure.

c. Installation of piping for movement of settled open feedlot effluent or open feedlot effluent within or between open feedlot operation structures as proposed or proposed to be expanded.

65.106(2) Construction does not begin upon occurrence of any of the following:

a. Removal of trees, brush, or other vegetative growth.

b. Construction of driveways or roads.

c. General earth moving for leveling at the site.

d. Installation of temporary utility services.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.107(459A) Construction permit application. An open feedlot operation required to obtain a construction permit in accordance with the provisions of 65.105(1) shall apply for a construction permit at least 90 days before the date that construction, installation, or modification is scheduled to start.

65.107(1) Conceptual design. Prior to submitting an application for a construction permit, the applicant may submit a conceptual design and site investigation report to the department for review and comment.

65.107(2) Application for a construction permit for an open feedlot shall be made on a form provided by the department. The application shall include all of the information necessary to enable the department to determine the potential of the proposed settled open feedlot effluent basin or AT system to achieve the level of control required of the open feedlot. A construction permit application shall include the following:

a. The name of the owner of the open feedlot operation and the name of the open feedlot operation, including the owner's mailing address and telephone number.

b. The name of the contact person for the open feedlot operation, including the person's mailing address and telephone number.

c. The location of the open feedlot operation.

d. A statement providing that the application is for any of the following:

(1) The construction or expansion of a settled open feedlot effluent basin or AT system for an existing open feedlot operation which is not expanding;

(2) The construction or expansion of a settled open feedlot effluent basin or AT system for an existing open feedlot operation which is expanding;

(3) The construction of a settled open feedlot effluent basin or AT system for a proposed new open feedlot operation.

e. The animal unit capacity for each animal species in the open feedlot operation before and after the proposed construction.

f. An engineering report, construction plans and specifications prepared by a professional engineer or by NRCS personnel for the settled open feedlot effluent basin or AT system.

g. A report on the soil and hydrogeologic information for the site, as described in subrules 65.109(2) and 65.110(4).

h. Information including, but not limited to, maps, drawings and aerial photos that clearly show the location of all the following:

(1) The open feedlot operation and all existing and proposed settled open feedlot effluent basins or AT systems, clean water diversions, and other pertinent features or structures.

(2) Any other open feedlot operation under common ownership or common management and located within 1,250 feet of the open feedlot operation.

(3) Any public water supply system as defined in Iowa Code section 455B.171 or drinking water well which is located less than the distance from the open feedlot operation required by rule 567—65.108(455B,459A). Information shall also be provided as to whether the proposed settled open feedlot effluent basin or AT system will meet all applicable separation distances.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.108(455B,459A) Water well separation distances for open feedlot operations.

65.108(1) *Unformed settled open feedlot effluent basins.* Unformed settled open feedlot effluent basins shall be separated from water wells as follows:

a. *Public wells.* 1,000 feet from shallow wells and 400 feet from deep wells;

b. *Private wells.* 400 feet from both shallow wells and deep wells.

65.108(2) *Open feedlots, solids settling facilities, formed settled open feedlot effluent basins, feed storage runoff control structures and AT systems.* Open feedlots, solids settling facilities, formed settled open feedlot effluent basins, feed storage runoff control structures and AT systems shall be separated from water wells as follows: for both public wells and private wells, 200 feet from shallow wells and 100 feet from deep wells.

65.108(3) *Variances.* Variances to this rule may be granted by the director if the petitioner complies with the procedures and criteria in 561—Chapter 10 and provides an alternative that is substantially equivalent to the rule or provides improved effectiveness or protection as required by the rule. Petition for a variance shall be made in writing at the time the construction permit application is submitted. The denial of a variance may be appealed to the commission.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.109(459A) Settled open feedlot effluent basins—investigation, design and construction requirements. A settled open feedlot effluent basin required to be constructed pursuant to a construction permit issued pursuant to Iowa Code section 459A.205 shall meet the design and construction requirements set forth in this rule.

65.109(1) *Drainage tile investigation and removal.* Prior to constructing a settled open feedlot effluent basin, the owner of the open feedlot operation shall investigate the site for the basin for a drainage tile line. The investigation shall be made by digging a core trench to a depth of at least six feet deep from ground level at the projected center of the berm of the basin. A written record of the investigation shall be submitted as part of the construction certification required in 567—65.111(459A). If a drainage tile line is discovered, one of the following solutions shall be implemented:

a. The drainage tile line shall be rerouted around the perimeter of the basin at a distance of least 25 feet horizontally separated from the outside toe of the berm of the basin. For an area of the basin where there is not a berm, the drainage tile line shall be rerouted at least 50 feet horizontally separated from the edge of the basin.

b. The drainage tile line shall be replaced with a nonperforated tile line under the basin floor. The nonperforated tile line shall be continuous and without connecting joints. There must be a minimum of three feet between the nonperforated tile line and the basin floor.

65.109(2) *Soils and hydrogeologic report.* A settled open feedlot effluent basin required to be constructed pursuant to a construction permit issued pursuant to rule 567—65.105(459A) shall meet design standards as required by a soils and hydrogeologic report. The report shall be submitted with the construction permit application as provided in rule 567—65.107(459A). The report shall include all of the following:

a. A description of the steps taken to determine the soils and hydrogeologic conditions at the proposed construction site, a description of the geologic units encountered, and a description of the effects of the soil and groundwater elevation and direction of flow on the construction and operation of the basin.

b. The subsurface soil classification of the site. A subsurface soil classification shall be based on ASTM international designation D 2487-92 or D 2488-90.

c. The results of a soils investigation conducted at a minimum of three locations within the area of the basin reflecting the continuous soil profile existing within the area of the basin. The soils investigation results shall be used in determining subsurface soil characteristics and groundwater elevation and direction of flow at the proposed site. The soils investigation shall be conducted and utilized as follows:

(1) By a qualified person ordinarily engaged in the practice of performing soils investigations.

(2) At locations that reflect the continuous soil profile conditions existing within the area of the proposed basin, including conditions found near the corners and the deepest point of the proposed basin. The soils investigation shall be conducted to a minimum depth of ten feet below the proposed bottom elevation of the basin.

(3) By methods which identify the continuous soil profile and do not result in mixing of soil layers. Soil corings using hollow stem augers and other suitable methods may be used.

(4) If located in karst terrain or potential karst terrain, at least one soil coring shall be taken to a minimum depth of 25 feet below the bottom elevation of the settled open feedlot effluent basin or into bedrock, whichever is shallower.

(5) Soil corings may be used to determine current groundwater levels by completing the corings as temporary monitoring wells as provided in 65.109(3)*"a"*(1) and measuring the water levels in these wells no earlier than seven days after installation as provided in 65.109(3)*"a"*(2).

(6) Upon abandonment of soil core holes, all soil core holes including those developed as temporary water level monitoring wells shall be plugged with concrete, Portland cement concrete grout, bentonite, or similar materials.

(7) If excavation methods are used in conducting the soils investigation, upon closure these excavations must be filled with suitable materials and adequately compacted to ensure they will not compromise the integrity of the basin liner.

65.109(3) *Hydrology.*

a. *Determination of groundwater table.* For purposes of this rule, groundwater table is the seasonal high-water table determined by a professional engineer, a groundwater professional certified pursuant to 567—Chapter 134, or qualified staff from the department or NRCS. If a construction permit is required, the department must approve the groundwater table determination.

(1) Current groundwater levels shall be measured as provided in this subparagraph for either a formed settled open feedlot effluent basin or an unformed settled open feedlot effluent basin. Three temporary monitoring wells shall be developed according to 567—subrule 110.11(8). The top of the well screen shall be within five feet of the ground surface. Each well shall be extended to at least two feet below the proposed top of the liner of an unformed settled open feedlot effluent basin, or to at least two feet below the proposed bottom of the footings of a formed settled open feedlot effluent basin. In addition, the wells must be installed as follows:

1. Unformed basins. For an unformed settled open feedlot effluent basin, the monitoring wells may be installed in the soil core holes developed as part of conducting the soils investigation required in paragraph 65.109(2)*"c."*

2. Formed basins. For a formed settled open feedlot effluent basin, at least three temporary monitoring wells shall be installed as close as possible to three corners of the structure, with one of the wells close to the corner of deepest excavation. If the formed settled open feedlot effluent basin is circular, the three monitoring wells shall be equally spaced and one well shall be placed at the point of deepest excavation.

(2) The seasonal high-water table shall be determined by considering all relevant data, including the groundwater levels measured in the temporary monitoring wells not earlier than seven days following installation, NRCS soil survey information, soil characteristics such as color and mottling, other existing water table data, and other pertinent information. If a drainage system for artificially lowering the groundwater table will be installed in accordance with the requirements of paragraph 65.109(3)*"c,"*the level to which the groundwater table will be lowered will be considered to represent the seasonal high-water table.

b. The settled open feedlot effluent basin shall be constructed with a minimum separation of two feet between the top of the liner of the basin and the seasonal high-water table.

c. If a drainage tile line around the perimeter of the basin is installed a minimum of two feet below the top of the basin liner to artificially lower the seasonal high-water table, the top of the basin's liner may be a maximum of four feet below the seasonal high-water table which existed prior to installation of the perimeter tile system. The seasonal high-water table may be artificially lowered by gravity flow tile lines or other similar system. However, the following shall apply:

(1) Except as provided in subparagraph (2), an open feedlot operation shall not use a nongravity mechanical system that uses pumping equipment.

(2) If the open feedlot operation was constructed before July 1, 2005, the operation may continue to use its existing nongravity mechanical system that uses pumping equipment, or it may construct a new nongravity mechanical system that uses pumping equipment. However, an open feedlot operation that expands the area of its open feedlot on or after April 1, 2011, shall not use a nongravity mechanical system that uses pumping equipment.

(3) Drainage tile lines may be installed to artificially lower the seasonal high-water table at a settled open feedlot effluent basin, if all of the following conditions are satisfied:

1. A device to allow monitoring of the water in the drainage tile lines and a device to allow shutoff of the flow in the drainage tile lines are installed, if the drainage tile lines do not have a surface outlet accessible on the property where the settled open feedlot effluent basin is located.

2. Drainage tile lines are installed horizontally at least 25 feet away from the outside toe of the berm of the settled open feedlot effluent basin. Drainage tile lines shall be placed in a vertical trench and encased in granular material which extends upward to the level of the seasonal high-water table which existed prior to installation of the perimeter tile system.

65.109(4) *Karst terrain.*

a. Construction prohibited. Settled open feedlot effluent basins shall not be constructed in areas which drain to known sinkholes or in karst terrain. Structure sites located within one mile of karst terrain shall be considered to be located in karst terrain, unless site-specific geologic information is submitted documenting that 25 feet of suitable materials exist between the structure bottom and carbonated bedrock or limestone or dolomite.

b. The use of formed structures is required to store liquid or dry manure in karst terrain.

(1) Formed structures constructed of concrete in karst terrain shall comply with the provisions of 65.15(14).

(2) The use of formed structures constructed of materials other than concrete and located in areas which drain to known sinkholes or located in karst terrain may be approved by the department if the proposed structures are designed by a professional engineer, a minimum of five feet vertical separation is maintained between the structure bottom and carbonated bedrock, and the engineer certifies and provides

data showing the permeability of the geologic material below the structure's base is sufficiently low to provide an adequate barrier to prevent percolation into carbonated bedrock or groundwater.

c. Construction of an unformed settled open feedlot effluent basin is allowed in areas identified as karst terrain if site-specific geologic information is submitted documenting that 25 feet of suitable materials exist between the structure bottom and carbonated bedrock or limestone or dolomite.

65.109(5) *Bedrock separation.* A settled open feedlot effluent basin shall be constructed with at least four feet of separation between the bottom of the basin and a bedrock formation.

65.109(6) *Floodplain requirements.*

a. *Construction in floodplains.* Open feedlot operation structures located on a floodplain or within a floodway of a river or stream may be required to obtain department permits and provide protection from inundation by flood waters, as specified in 567—Chapters 71 and 72. If a proposed open feedlot operation structure is located in alluvial soils, then a floodplain determination or floodway elevation shall be requested from the department. The AFO Siting Atlas may be a tool used to assist in the floodplain and alluvial soil determinations.

b. *Permits for dam construction.* Open feedlot operation structures exceeding storage capacity or dam height thresholds may be required to obtain department permits, as specified in 567—71.3(455B) and 567—72.3(455B).

65.109(7) *Liner design and construction.* The liner of a settled open feedlot effluent basin shall comply with all of the following:

a. The liner shall comply with any of the following permeability standards:

(1) The liner shall be constructed to have a percolation rate that shall not exceed one-sixteenth inch per day at the design depth of the basin as determined by percolation tests conducted by the professional engineer. If a clay soil liner is used, the liner shall be constructed with a minimum thickness of 12 inches or the minimum thickness necessary to comply with the percolation rate in this paragraph, whichever is greater.

(2) The liner shall be constructed to have a percolation rate that shall not exceed one-sixteenth inch per day at the design depth of the basin. The design of the liner will specify a moisture content, compaction requirement, and liner thickness that will comply with the maximum allowable percolation requirement, and will be based on moisture content and percentage of maximum density as determined by a standard 5 point proctor test performed in accordance with ASTM D698 (Method A). The liner thickness will be based on laboratory tests of the compacted material, with a minimum liner thickness of 12 inches. Appropriate field or laboratory testing during construction shall be provided to verify the design requirements are met.

b. If a synthetic liner is used, the liner shall be installed to comply with the percolation rate required in 65.109(7)*"a"*(1).

65.109(8) *Berm erosion inspection and repair.* The owner of an open feedlot operation using a settled open feedlot effluent basin shall inspect the berms of the basin at least semiannually for evidence of erosion. If the inspection reveals erosion which may impact the basin's structural stability or the integrity of the basin's liner, the owner shall repair the berms.

65.109(9) *Unformed basins containing confinement manure and open feedlot effluent.* Unformed basins containing confinement manure and open feedlot effluent shall meet the confinement construction standards and separation distance requirements provided in Division I of this chapter. The unformed basin design shall ensure adequate storage for two feet of freeboard plus the open feedlot effluent resulting from a 25-year, 24-hour precipitation event. The unformed basin shall contain the annual manure generated from all confinement animals.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.110(459A) AT systems—design requirements.

65.110(1) *Containment volume.*

a. Adequate capacity must be provided within the AT system or within the solids settling facility for the open feedlot operation to contain expected open feedlot effluent from November 1 to March 30 or to hold the precipitation event as required by 65.101(2)*"a,"* whichever is greater. Controls on the solids

settling facility or the AT system shall prevent release of collected open feedlot effluent to waters of the United States during the period from November 1 to March 30.

b. If the containment volume required in 65.110(1)*"a"* is provided in an open feedlot operation structure whose primary purpose is to remove settleable solids from open feedlot effluent prior to discharge into an AT system, the basin shall not be required to comply with the liner design and construction requirements of 65.109(7), provided the basin does not retain collected open feedlot effluent for more than seven consecutive days following a precipitation event during the period from March 30 to November 1.

65.110(2) *Solids settling.* Settleable solids shall be removed from open feedlot effluent prior to discharge of the effluent into an AT system. Solids settling shall be conducted in conformance with the requirements of paragraph 65.101(1)*"b."*

65.110(3) *Drainage tile investigation and removal.* Prior to constructing an AT system, the owner of the open feedlot operation shall investigate the site for the AT system for drainage tile lines. The investigation shall be made by digging a core trench to a depth of at least six feet from ground level at the projected center of the berm of the AT system. A written record of the investigation shall be submitted as part of the construction certification required in rule 567—65.111(459A). If a drainage tile line is discovered, one of the following solutions shall be implemented:

a. The drainage tile line shall be rerouted around the perimeter of the AT system at a distance of least 25 feet horizontally separated from the toe of the outside berm of the AT system. For an area of the system where there is not a berm, the drainage tile line shall be rerouted at least 50 feet horizontally separated from the edge of the system.

b. The drainage tile line shall be replaced with a nonperforated tile line under the AT system. The nonperforated tile line shall be continuous and without connecting joints. There must be a minimum of three feet of separation between the nonperforated tile line and the soil surface of the AT system.

65.110(4) *Soils and hydrogeologic report.* An AT system constructed pursuant to a construction permit issued pursuant to rule 567—65.105(459A) shall meet design standards as required by a soils and hydrogeologic report. The report shall be submitted with the construction permit application as provided in rule 567—65.107(459A). The report shall include all of the following:

a. A description of the steps taken to determine the soils and hydrogeologic conditions at the proposed construction site, a description of the geologic units encountered, and a description of the effects of the soil and groundwater elevation and direction of flow on the construction and operation of the AT system.

b. Subsurface soil classification of the site. A subsurface soil classification shall be based on ASTM international designation D 2487-92 or D 2488-90.

c. The results of a soils investigation conducted at a minimum of three locations within the area of the proposed AT system for AT systems of five acres or less, with one additional soils investigation site utilized for each additional three acres of surface area or fraction thereof. The soils investigation results shall be used in determining subsurface soil characteristics and groundwater elevation and direction of flow at the proposed AT system site. The soils investigation shall be conducted and utilized as follows:

(1) By a qualified person ordinarily engaged in the practice of performing soils investigations.

(2) At locations that reflect the continuous soil profile conditions existing within the area of the proposed AT system. The soils investigation shall be conducted to a minimum depth of ten feet below the elevation of the soil surface of the proposed AT system.

(3) By methods which identify the continuous soil profile and do not result in mixing of soil layers. Investigation methods may include soil corings using hollow stem augers, soil test pits, or other suitable methods.

(4) If located in karst terrain, at least one soil coring shall be taken to a minimum depth of 25 feet below the elevation of the soil surface of the proposed AT system or into bedrock, whichever is shallower. The department may accept well log information from the department's Geosam database in lieu of the coring. If bedrock is encountered, adequate investigation of the bedrock formation shall be made to determine if it consists of limestone, dolomite, or other soluble rock.

(5) Soil core holes may be used to determine current groundwater levels by completing the core holes as temporary monitoring wells and measuring the water levels in these wells not earlier than seven days after installation.

(6) Upon abandonment of the soil core holes, all soil core holes, including those developed as temporary water level monitoring wells, shall be plugged with concrete, Portland cement concrete grout, bentonite, or similar materials.

(7) If soil test pits or other excavation methods are used in conducting the soils investigation, upon closure these excavations must be filled with suitable materials and adequately compacted to ensure they will not compromise the integrity of the AT system.

65.110(5) *Hydrology—groundwater table.* For purposes of this rule, groundwater table is the seasonal high-water table determined by a professional engineer, a groundwater professional certified pursuant to 567—Chapter 134, or qualified staff from the department or NRCS. If a construction permit is required, the department must approve the groundwater table determination.

a. Groundwater level measurements. Groundwater levels shall be measured using at least one of the following methods:

(1) Temporary monitoring wells. Three temporary monitoring wells shall be developed to a minimum of ten feet below the surface of the proposed AT system and constructed in accordance with requirements of 567—subrule 110.11(8). The top of the well screen shall be within five feet of the ground surface. These monitoring wells may be installed in the soil core holes developed as part of conducting the soils investigation required in paragraph 65.110(4)*"c."*

(2) Test pits. Test pits may be used in lieu of temporary monitoring wells to determine the seasonal high-water table or prior to the construction of an AT system to ensure the required separation distance to the seasonal high-water table is being met. The bottom of each pit shall be a minimum of five feet below the proposed surface of the AT system. However, if the test pit is also being used to conduct the soils investigation required in 65.110(4)*"c,"* the bottom of the pit shall be a minimum of ten feet below the surface of the proposed AT system. Each pit shall be allowed to remain open and unaltered for a minimum of seven days for viewing by the department or NRCS qualified staff. Adequate protection (temporary berms and covers) shall be provided to prevent surface runoff from entering the test pits. Test pits shall be located as needed to provide an accurate assessment of soil materials and seasonal high groundwater levels throughout the area of the proposed AT system. A description of the materials present in the test pit shall be documented by all of the following:

- Digital photos;
- Description of soils including mottling;
- Weather conditions both prior to and during the period in which test pits are open.

b. Determination of seasonal high-water table. The seasonal high-water table shall be determined by considering all relevant data, including the groundwater levels measured in the temporary monitoring wells or test pits not earlier than seven days following installation, NRCS soil survey information, soil characteristics such as color and mottling found in soil cores and test pits, other existing water table data, and other pertinent information. If a drainage system for artificially lowering the groundwater table will be installed in accordance with the requirements of paragraph 65.110(6)*"g"* or 65.110(7)*"g,"* the level to which the groundwater table will be lowered will be considered to represent the seasonal high-water table.

65.110(6) *Vegetative infiltration basin followed by vegetative treatment area.*

a. Computer modeling. Results of predictive computer modeling for the proposed AT system shall be used to determine suitability of the proposed site for the AT system and to predict performance of the AT system as compared to the use of a 25-year, 24-hour runoff containment system, over a 25-year period. A summary of the computer modeling results shall be provided to the department.

b. Size. The computer model used to determine if the proposed AT system will meet the equivalent performance standard shall also be used to establish the minimum required size of the VIB and VTA. However, the size of the VIB shall not be less than 30 percent of the total drainage area (feedlot and other) served by the basin, and the size of the VTA shall not be less than 30 percent of the surface area of the VIB.

c. *Slope.* The following slope requirements apply to the constructed system components.

(1) VIB. The maximum slope of the constructed VIB shall not exceed 1 percent.

(2) VTA. The constructed VTA shall be level in one dimension and have a slight slope (maximum of 5 percent) in the other dimension.

d. *Berming.*

(1) VIB. The VIB must be bermed to prevent inflow of surface water from outside the VIB and prevent surface outflow of feedlot effluent from the VIB.

(2) VTA. The VTA must be bermed to prevent inflow of surface water from outside areas.

e. *Spreaders.* Settled open feedlot effluent must be discharged evenly across the top width of the VTA and allowed to slowly flow downslope through the VTA. Level spreaders or other practices may be required to maintain uniform flow of settled open feedlot effluent across the width of the VTA as flow moves downslope through the VTA.

f. *Soil permeability.* Soil permeability within the VIB and VTA must be from 0.6 to 2.0 inches per hour throughout the soil profile to a depth of five feet. Soil permeability must be verified by conducting on-site or laboratory soil permeability testing.

g. *Groundwater lowering system.* The seasonal high-water table within the VIB and the VTA must be capable of being lowered to a depth of four to five feet with a perimeter tile system installed outside of the VIB or VTA. Design information must be provided which demonstrates the adequacy of the proposed groundwater lowering system. The tile system must satisfy the following requirements:

(1) If the tile system does not have a surface outlet accessible on the property where the AT system is located, a device to allow monitoring of the water in the tile system and a device to allow shutoff of the flow in the tile system must be installed.

(2) Tile lines in the system must be installed horizontally at least 25 feet away from the outside toe of the berm of the VIB or VTA.

h. *Tile system to enhance infiltration within the VTA.* A tile system may be installed at the perimeter of the VTA cells to enhance infiltration within the VTA. The tile system must satisfy the following requirements:

(1) Tile lines shall be installed at the centerline of the berms of the VTA cells.

(2) The tile lines shall be constructed such that no settled open feedlot effluent can enter the lines except through infiltration through the soil profile.

(3) A shutoff valve and sampling point located downslope of the VTA cell shall be provided for each individual tile line. However, if multiple tile lines are brought together into a common tile line, a single shutoff valve and sampling point may be utilized.

(4) Monitoring of the tile lines must be conducted in accordance with the requirements of 65.104(9)*"d"*(2).

i. *Depth to sands, gravels, or glacial outwash.*

(1) VIB. A VIB is not allowed if the depth to sands, gravels, or glacial outwash is less than ten feet.

(2) VTA. A VTA is not allowed if the depth to sands, gravels, or glacial outwash is less than six feet.

(3) A soils investigation that documents sands found are in isolated sand lenses that will not have a significant impact on subsurface water flow or groundwater quality shall not prohibit use of the site.

j. *Depth to bedrock.* A minimum of ten feet of overburden or loose material must exist between the surface of the constructed VIB or VTA and underground bedrock.

k. *Flooding.* Both the VIB and the VTA must be constructed in areas which are not subject to flooding more frequently than once in 25 years.

l. *Distance to water bodies.* The following distances, measured along the path of water flow, shall be provided between the point of discharge from the VTA and the receiving water body.

(1) Designated use streams referenced in 567—subrule 61.3(5). A minimum distance of 500 feet or one-half foot distance per animal unit capacity of the open feedlot area which drains to the VTA, whichever is greater, shall be provided.

(2) All other uncrossable intermittent streams. A minimum distance of 200 feet shall be provided.

65.110(7) *Stand-alone VTA.*

a. Computer modeling. Results of predictive computer modeling for the proposed alternative technology system shall be used to determine suitability of the proposed site for the system and to predict performance of the alternative technology system as compared to the use of a 25-year, 24-hour runoff containment system, over a 25-year period. A summary of the computer modeling results shall be provided to the department.

b. Size. The computer model used to determine if the proposed AT system will meet the equivalent performance standard shall also be used to establish the minimum required size of the VTA. However, in no case shall the size of the VTA be less than the following:

(1) 50 percent of the total drainage area (feedlot and other) served if the soil permeability is from 0.6 to 2.0 inches per hour.

(2) 100 percent of the total drainage area (feedlot and other) served if the soil permeability is from 0.2 to 0.6 inches per hour.

c. Slope. The constructed VTA shall be level in one dimension and have a slight slope (maximum of 5 percent) in the other dimension.

d. Berming. The VTA must be bermed to prevent inflow of surface water from outside areas.

e. Spreaders. Settled open feedlot effluent must be discharged evenly across the top width of the VTA and allowed to slowly flow downslope through the VTA. Level spreaders or other practices may be required to maintain uniform flow of settled open feedlot effluent across the width of the VTA as flow moves downslope through the VTA.

f. Soil permeability. Soil permeability within the VTA must be from 0.2 to 2.0 inches per hour throughout the soil profile to a depth of five feet. Soil permeability must be verified by conducting on-site or laboratory soil permeability testing.

g. Groundwater lowering system. The seasonal high-water table within the VTA must be capable of being lowered to a depth of four to five feet with a perimeter tile system installed outside of the VTA. Design information must be provided which demonstrates the adequacy of the proposed groundwater lowering system. The tile system must satisfy the following requirements:

(1) If the tile system does not have a surface outlet accessible on the property where the AT system is located, a device to allow monitoring of the water in the tile system and a device to allow shutoff of the flow in the tile system must be installed.

(2) Tile lines in the system must be installed horizontally at least 25 feet away from the outside toe of the berm of the VTA.

h. Tile system to enhance infiltration within the VTA. A tile system may be installed at the perimeter of the VTA cells to enhance infiltration within the VTA. The tile system must satisfy the following requirements:

(1) Tile lines shall be installed at the centerline of the berms of the VTA cells.

(2) The tile lines shall be constructed such that no settled open feedlot effluent can enter the lines except through infiltration through the soil profile.

(3) A shutoff valve and sampling point located downslope of the VTA cell shall be provided for each individual tile line. However, if multiple tile lines are brought together into a common tile line, a single shutoff valve and sampling point may be utilized.

(4) Monitoring of the tile lines must be conducted in accordance with the requirements of 65.104(9)*"d"*(2).

i. Depth to sands, gravels, or glacial outwash. A VTA is not allowed if the depth to sands, gravels, or glacial outwash is less than six feet. A soils investigation that documents sands found are in isolated sand lenses that will not have a significant impact on subsurface water flow or goundwater quality shall not prohibit use of the site.

j. Depth to bedrock. A minimum of ten feet of overburden or loose material must exist between the surface of the constructed VTA and underground bedrock.

k. Flooding. The VTA must be constructed in areas which are not subject to flooding more frequently than once in 25 years.

l. Distance to water bodies. The following distances, measured along the path of water flow, shall be provided between the point of discharge from the VTA and the receiving water body.

(1) Designated use streams referenced in 567—subrule 61.3(5). A minimum distance of 500 feet or one-half foot distance per animal unit capacity of the feedlot area which drains to the VTA, whichever is greater, shall be provided.

(2) All other uncrossable intermittent streams. A minimum distance of 200 feet shall be provided.
[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.111(459A) Construction certification.

65.111(1) The owner of an open feedlot operation who is issued a construction permit for a settled open feedlot effluent basin or AT system as provided in rule 567—65.105(459A) shall submit to the department a construction certification from a professional engineer certifying all of the following:

a. The settled open feedlot effluent basin or AT system was constructed in accordance with the design plans submitted to the department as part of an application for a construction permit pursuant to rule 567—65.107(459A). If the actual construction deviates from the approved design plans, the construction certification shall identify all changes and certify that the changes were consistent with all applicable standards of these rules.

b. The settled open feedlot effluent basin or AT system was inspected by the professional engineer after completion of construction and before commencement of operation.

65.111(2) A written record of an investigation for drainage tile lines, including the findings of the investigation and actions taken to comply with 65.109(1) or 65.110(3), shall be submitted as part of the construction certification.
[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.112(459A) Nutrient management plan requirements.

65.112(1) The owner of an open feedlot operation which has an animal unit capacity of 1,000 animal units or more or which is required to be issued an NPDES permit shall develop and implement a nutrient management plan meeting the requirements of this rule. The owner of an open feedlot operation that seeks to obtain or is required to be issued an NPDES permit shall develop and implement a nutrient management plan meeting the requirements of this rule no later than the date on which the NPDES permit becomes effective. For the purpose of this rule, requirements pertaining to open feedlot effluent also apply to settled open feedlot effluent and settleable solids.

65.112(2) Not more than one open feedlot operation shall be covered by a single nutrient management plan. For an open feedlot operation that is required to have an NPDES permit and the animal feeding operation includes an open feedlot operation and a confinement feeding operation, the nutrient management plan must include both the open feedlot operation and the confinement feeding operation if the confinement feeding operation does not have a manure management plan. If the confinement feeding operation portion of the animal feeding operation does have a manure management plan as required in 567—65.16(455B) and 567—65.17(455B), the confinement feeding operation portion shall not be included in the nutrient management plan; however, in that event, the manure management plan must be amended to include the information specified in 65.112(8)*"e."*

65.112(3) A person shall not remove manure, process wastewater or open feedlot effluent from an open feedlot operation structure which is part of an open feedlot operation for which a nutrient management plan is required under this rule, unless the department approves a nutrient management plan as required in this rule.

65.112(4) The department shall not approve an application for a permit to construct a settled open feedlot effluent basin or AT system unless the owner of the open feedlot operation applying for approval submits a nutrient management plan together with the application for the construction permit as provided in rule 567—65.105(459A). The owner shall also submit proof that the owner has published a notice for public comment as provided in 65.112(7).

65.112(5) If a construction permit is required as provided in rule 567—65.105(459A), the department shall approve or disapprove the nutrient management plan as part of the construction permit application. If a construction permit is not required, the department shall approve or disapprove the nutrient management plan within 60 days from the date that the department receives the nutrient management plan.

65.112(6) Prior to approving or disapproving a nutrient management plan as required in this rule, the department may receive comments exclusively to determine whether the nutrient management plan is submitted according to procedures required by the department and that the nutrient management plan complies with the provisions of this rule.

65.112(7) Public notice.

a. The owner of the open feedlot operation shall publish a notice for public comment in a newspaper having a general circulation in the county where the open feedlot operation is or is proposed to be located and in the county where manure, process wastewater, or open feedlot effluent which originates from the open feedlot operation may be applied under the terms and conditions of the nutrient management plan.

b. The notice for public comment shall include all of the following:

(1) The name of the owner of the open feedlot operation submitting the nutrient management plan.

(2) The name of the township where the open feedlot operation is or is proposed to be located and the name of the township where manure, process wastewater, or open feedlot effluent originating from the open feedlot operation may be applied.

(3) The animal unit capacity of the open feedlot operation.

(4) The time when and the place where the nutrient management plan may be examined as provided in Iowa Code section 22.2.

(5) Procedures for providing public comment to the department. The notice shall also include procedures for requesting a public hearing conducted by the department. The department is not required to conduct a public hearing if it does not receive a request for the public hearing within ten days after the first publication of the notice for public comment as provided in this subrule. If such a request is received, the public hearing must be conducted within 30 days after the first date that the notice for public comment was published.

(6) A statement that a person may acquire information relevant to making comments under this subrule by accessing the department's Internet website. The notice for public comment shall include the address of the department's Internet website as required by the department.

65.112(8) Except as provided in 65.112(8)*"f,"* a nutrient management plan shall include all of the following:

a. Restrictions on the application of open feedlot effluent based on all of the following:

(1) A phosphorus index of each field in the nutrient management plan, as required in 65.17(17), including the factors used in the calculation. A copy of the NRCS phosphorus index detailed report shall satisfy the requirement to include the factors used in the calculation. In addition, total phosphorus (as P_2O_5) available to be applied from the open feedlot operation shall be included.

(2) Calculations necessary to determine the land area required for the application of manure, process wastewater and open feedlot effluent from an open feedlot operation based on nitrogen or phosphorus use levels (as determined by phosphorus index) in order to obtain optimum crop yields according to a crop schedule specified in the nutrient management plan, and according to requirements specified in subrule 65.17(4). The 100 pounds of available nitrogen per acre limitation specified in paragraph 65.17(18)*"c"* (applicable to open feedlot operations and combined open feedlot and confinement operations with an NPDES permit because of requirements in subrule 65.17(4)) pertaining to liquid manure applied to land currently planted to soybeans or to land where a soybean crop is planned applies only to liquid manure, process wastewater or settled open feedlot effluent.

b. Information relating to the application of the manure, process wastewater and open feedlot effluent, including all of the following:

(1) Nutrient concentration of the manure, process wastewater and open feedlot effluent.

(2) Application methods, the timing of the application, and the location of the land where the application occurs.

c. If the application is on land other than land owned or rented for crop production by the owner of the open feedlot operation, the plan shall include a copy of each written agreement executed by the owner of the open feedlot operation and the landowner or the person renting the land for crop production where the manure, process wastewater or open feedlot effluent may be applied. The written agreement

shall indicate the number of acres on which the manure, process wastewater or effluent may be applied and the length of the agreement.

d. An estimate of the manure, process wastewater and open feedlot effluent volume or weight produced by the open feedlot operation.

e. Information which shows all of the following:

(1) There is adequate storage for manure, process wastewater, stockpiled manure and open feedlot effluent, including procedures to ensure proper operation and maintenance of the storage structures.

(2) The proper management of animal mortalities to prevent discharge of pollutants to surface water and to ensure that animals are not disposed of in an open feedlot operation structure or a treatment system that is not specifically designed to treat animal mortalities.

(3) Surface drainage prior to contact with an open feedlot structure is diverted, as appropriate, from the open feedlot operation.

(4) Animals kept in the open feedlot operation do not have direct contact with any waters of the United States.

(5) Chemicals or other contaminants handled on site are not disposed of in manure, process wastewater, an open feedlot operation structure or a treatment system that is not specifically designed to treat such chemicals or contaminants.

(6) Equipment used for the land application of manure, process wastewater or open feedlot effluent must be periodically inspected for leaks.

(7) Appropriate site-specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States.

(8) Protocols for appropriate testing of manure, process wastewater, open feedlot effluent and soil.

(9) Protocols to land-apply manure, process wastewater or open feedlot effluent in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, process wastewater or open feedlot effluent.

(10) Identification of specific records that will be maintained to document the implementation and management of the requirements in this subrule.

f. Sales of scraped solids or settleable solids licensed by the Iowa department of agriculture and land stewardship (IDALS). Open feedlot operations that will sell scraped solids or settleable solids as a bulk dry animal nutrient product under Iowa Code chapter 200A as regulated by IDALS may, in lieu of complying with this subrule for that portion of open feedlot effluent, submit to the department a copy of the operation's site-specific IDALS license or documentation for any scraped solids or settleable solids that will be sold pursuant to Iowa Code chapter 200A, along with the department-approved nutrient management plan form for sales of scraped solids or settleable solids.

g. An open feedlot operation must submit a complete nutrient management plan using a new phosphorus index, including soil sampling as required in subrule 65.17(16), for each field in the nutrient management plan a minimum of once every five years, submitting the plan with the NPDES permit renewal application if the open feedlot operation has an NPDES permit.

65.112(9) If an open feedlot operation uses an alternative technology system as provided in rule 567—65.110(459A), the nutrient management plan is not required to provide for settled open feedlot effluent that enters the AT system.

65.112(10) Current nutrient management plan, record keeping and inspections.

a. *Current nutrient management plan.* The owner of an open feedlot operation who is required to submit a nutrient management plan shall maintain a current nutrient management plan at the site of the open feedlot operation and shall make the current nutrient management plan available to the department upon request. If nutrient management practices change, a person required to submit a nutrient management plan shall make appropriate changes consistent with this rule. If values other than the standard table values are used for nutrient management plan calculations, the source of the values used shall be identified.

b. *Record keeping.* Records shall be maintained by the owner of an open feedlot operation who is required to submit a nutrient management plan. This recorded information shall be maintained for five years following the year of application or for the length of the crop rotation, whichever is greater.

Records shall be maintained at the site of the open feedlot operation and shall be made available to the department upon request. Records to demonstrate compliance with the nutrient management plan shall include the following:

(1) Factors used to calculate the manure, process wastewater and open feedlot effluent application rate:

1. Optimum yield for the planned crop.

2. Types of nitrogen credits and amounts.

3. Remaining crop nitrogen needed.

4. Nitrogen content and first-year nitrogen availability of the manure, process wastewater and open feedlot effluent.

5. Phosphorus content of the manure, process wastewater and open feedlot effluent as required in 65.17(3)*"i"*(1) and (2). If an actual sample is used, documentation shall be provided.

(2) If phosphorus-based application rates are used, the following shall be included:

1. Crop rotation.

2. Phosphorus removed by crop harvest of that crop rotation.

(3) Maximum allowable manure, process wastewater and open feedlot effluent application rate.

(4) Actual manure, process wastewater and open feedlot effluent application information:

1. Method(s) of application when manure, process wastewater or open feedlot effluent from the open feedlot operation was applied.

2. Date(s) when the manure, process wastewater or open feedlot effluent from the open feedlot operation was applied.

3. Weather conditions at time of application and for 24 hours prior to and following the application.

4. Location of the field where the manure, process wastewater or open feedlot effluent from the open feedlot operation was applied, including the number of acres.

5. The manure, process wastewater or open feedlot effluent application rate.

6. Dates when application equipment was inspected.

(5) Date(s) and application rate(s) of commercial nitrogen and phosphorus on fields that received manure, process wastewater or open feedlot effluent. However, if the date and application rate information is for fields which are not owned for crop production or which are not rented or leased for crop production by the person required to keep records pursuant to this subrule, an enforcement action for noncompliance with a nutrient management plan or the requirements of this subrule shall not be pursued against the person required to keep records pursuant to this subrule or against any other person who relied on the date and application rate in records required to be kept pursuant to this subrule, unless that person knew or should have known that nitrogen or phosphorus would be applied in excess of maximum levels set forth in paragraph 65.17(1)*"a."* If nutrients are applied to fields not owned, rented or leased for crop production by the person required to keep records pursuant to this subrule, that person shall obtain from the person who owns, rents or leases those fields a statement specifying the planned commercial nitrogen and phosphorus fertilizer rates to be applied to each field receiving the nutrients.

(6) A copy of the current soil test laboratory results for each field in the nutrient management plan.

(7) All applicable records identified in 65.112(8)*"e"*(7).

c. Record inspection. The department may inspect an open feedlot operation at any time during normal working hours and may inspect the nutrient management plan and any records required to be maintained.

[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.113(459A) Complaint investigations. Complaints of violations of Iowa Code chapter 455B, 459, 459A, or 459B or these rules, which are received by the department or are forwarded to the department by a county, following a county board of supervisors' determination that a complainant's allegation constitutes a violation, shall be investigated by the department if it is determined that the complaint is legally sufficient and an investigation is justified.

65.113(1) If after evaluating a complaint to determine whether the allegation may constitute a violation, without investigating whether the facts supporting the allegation are true or untrue, the county board of supervisors shall forward its finding to the department director.

65.113(2) A complaint is legally sufficient if it contains adequate information to investigate the complaint and if the allegation constitutes a violation, without an investigation of whether the facts supporting the allegation are true or untrue, of department rules, Iowa Code chapter 455B, 459, 459A, or 459B or environmental standards in regulations subject to federal law and enforced by the department.

65.113(3) The department in its discretion shall determine the urgency of the investigation, and the time and resources required to complete the investigation, based upon the circumstances of the case, including the severity of the threat to the quality of surface water or groundwater.

65.113(4) The department shall notify the complainant and the alleged violator if an investigation is not conducted specifying the reason for the decision not to conduct an investigation.

65.113(5) The department will notify the county board of supervisors where the violation is alleged to have occurred before doing a site investigation unless the department determines that a clear, present and impending danger to the public health or environment requires immediate action.

65.113(6) The county board of supervisors may designate a county employee to accompany the department on the investigation of any site as a result of a complaint.

65.113(7) A county employee accompanying the department on a site investigation has the same right of access to the site as the department official conducting the investigation during the period that the county designee accompanies the department official.

65.113(8) Upon completion of an investigation, the department shall notify the complainant of the results of the investigation, including any anticipated, pending or complete enforcement action arising from the investigation. The department shall deliver a copy of the notice to the open feedlot operation that is the subject of the complaint, any alleged violators if different from the open feedlot operation and the county board of supervisors of the county where the violation is alleged to have occurred.

65.113(9) When a person who is a department official, an agent of the department, or a person accompanying the department official or agent enters the premises of an open feedlot operation, both of the following shall apply:

a. The person may enter at any reasonable time in and upon any private or public property to investigate any actual or possible violation of Iowa Code chapter 455B, 459, 459A, or 459B or these rules. However, the owner or person in charge shall be notified.

(1) If the owner or occupant of any property refuses admittance to the operation, or if prior to such refusal the director demonstrates the necessity for a warrant, the director may make application under oath or affirmation to the district court of the county in which the property is located for the issuance of a search warrant.

(2) In the application the director shall state that an inspection of the premises is mandated by the laws of this state or that a search of certain premises, areas, or things designated in the application may result in evidence tending to reveal the existence of violations of public health, safety, or welfare requirements imposed by statutes, rules or ordinances established by the state or a political subdivision thereof. The application shall describe the area, premises, or thing to be searched, give the date of the last inspection if known, give the date and time of the proposed inspection, declare the need for such inspection, recite that notice of desire to make an inspection has been given to affected persons and that admission was refused if that be the fact, and state that the inspection has no purpose other than to carry out the purpose of the statute, ordinance, or regulation pursuant to which inspection is to be made. If an item of property is sought by the director, it shall be identified in the application.

(3) If the court is satisfied from the examination of the applicant, and of other witnesses, if any, and of the allegations of the application of the existence of the grounds of the application, or that there is probable cause to believe their existence, the court may issue such search warrant.

(4) In making inspections and searches pursuant to the authority of this rule, the director must execute the warrant:

1. Within ten days after its date.

2. In a reasonable manner, and any property seized shall be treated in accordance with the provisions of Iowa Code chapters 808, 809, and 809A.

3. Subject to any restrictions imposed by the statute, ordinance or regulation pursuant to which inspection is made.

b. The person shall comply with standard biosecurity requirements customarily required by the open feedlot operation which are necessary in order to control the spread of disease among an animal population.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.114(455B,459A) Transfer of legal responsibilities or title. If title or legal responsibility for a permitted open feedlot operation and its open feedlot operation structure is transferred, the person to whom title or legal responsibility is transferred shall be subject to all terms and conditions of the permit and these rules. The person to whom the permit was issued and the person to whom title or legal responsibility is transferred shall notify the department of the transfer of legal responsibility or title of the operation within 30 days of the transfer. Within 30 days of receiving a written request from the department, the person to whom legal responsibility is transferred shall submit to the department all information needed to modify the permit to reflect the transfer of legal responsibility.

These rules are intended to implement Iowa Code sections 455B.171 to 455B.191, 459.314, and 459.601 and 2005 Iowa Code Supplement chapter 459A.

567—65.115 to **65.199** Reserved.

DIVISION III
ANIMAL TRUCK WASH FACILITIES

567—65.200(459,459A) Definitions and incorporation by reference. In addition to the definitions in Iowa Code sections 455B.101, 455B.171 and 459A.102, the following definitions shall apply to Division III of this chapter.

65.200(1) *Definitions.*

"Animal feeding operation" or *"AFO"* means a lot, yard, corral, building, or other area in which animals are confined and fed and maintained for 45 days or more in any 12-month period, and all structures used for the storage of manure from animals in the operation. Except as required for an NPDES permit required pursuant to the Act, an animal feeding operation does not include a livestock market.

"Animal truck wash effluent" means a combination of manure, washwater-induced runoff, or other runoff derived from an animal truck wash facility, which may include solids. Animal truck wash effluent shall not exceed the following metal concentrations: aluminum 10 mg/L, copper 0.4 mg/L, and iron 10 mg/L.

"Animal truck wash effluent structure" means an impoundment which is part of an animal truck wash facility, if the primary function of the impoundment is to collect and store animal truck wash effluent.

"Animal truck wash facility" means an operation engaged solely in washing single-unit trucks, truck-tractors, semitrailers, or trailers used to transport animals. An animal truck wash facility is considered to be part of an animal feeding operation if the animal truck wash facility and the animal feeding operation are under common ownership or management and the animal truck wash facility is located within 1,250 feet of the animal feeding operation.

"Common management" means significant control by an individual of the management of the day-to-day operations of two or more animal truck wash facilities or an animal truck wash facility and an animal feeding operation. "Common management" does not include control over a contract livestock facility by a contractor as defined in Iowa Code section 202.1.

"Formed animal truck wash effluent structure" means a covered or uncovered impoundment used to store effluent from an animal truck wash facility, which has walls and a floor constructed of concrete, concrete block, wood, steel, or similar materials.

"Karst terrain" means land having karst formations that exhibit surface and subterranean features of a type produced by the dissolution of limestone, dolomite, or other soluble rock and characterized

by closed depressions, sinkholes, losing streams, or caves. If a 25-foot vertical separation distance can be maintained between the bottom of an animal truck wash facility and limestone, dolomite, or other soluble rock, then the structure is not considered to be in karst terrain.

"Manure" means animal excreta or other commonly associated wastes of animals including, but not limited to, bedding, compost, litter, feed losses, raw materials or other materials commingled with manure or set aside for disposal. If a manure storage structure or animal truck wash effluent structure contains both manure from a confinement feeding operation and animal truck wash effluent from an animal truck wash facility, the effluent shall be deemed to be manure.

"Manure storage structure" means a formed manure storage structure, an unformed manure storage structure or a dry bedded manure storage structure. A manure storage structure does not include an egg washwater storage structure. An animal truck wash facility may be part of a confinement feeding operation. An animal truck wash effluent structure may be the same as a manure storage structure that is part of the confinement feeding operation, so long as the primary function of such impoundment is to collect and store both effluent from the animal truck wash facility and manure from the confinement feeding operation.

"Nutrient management plan" or *"NMP"* means a plan which provides for the management of animal truck wash effluent, including the application of effluent, as provided in 567—65.208(459A).

"Open feedlot effluent" means a combination of manure, precipitation-induced runoff, or other runoff from an open feedlot before its settleable solids have been removed. If an open feedlot operation structure or animal truck wash effluent structure contains effluent from both an open feedlot operation and an animal truck wash facility, the animal truck wash effluent shall be deemed to be open feedlot effluent.

"Owner" means the person who has title to the property where the animal truck wash facility is located or the person who has title to the animal truck wash effluent structure which is part of an animal truck wash facility. "Owner" does not include a person who has a lease to use the land where the animal truck wash facility is located or to use the animal truck wash effluent structure which is part of an animal truck wash facility.

"Release" means an actual, imminent or probable discharge of process wastewater, manure, animal truck wash effluent, or settleable solids from an animal truck wash facility to surface water, groundwater, or an actual, imminent or probable discharge directly to a drainage tile line or intake resulting from storing, handling, transporting or land-applying process wastewater, manure, animal truck wash effluent or settleable solids.

"Settleable solids," "scraped solids," or *"solids"* mean that portion of animal truck wash effluent that meets all the following requirements:

1. The solids do not flow perceptibly under pressure.
2. The solids are not capable of being transported through a mechanical pumping device designed to move a liquid.
3. The constituent molecules of the solids do not flow freely among themselves but do show the tendency to separate under stress.

"Settled open feedlot effluent basin" or *"runoff control basin"* means a covered or uncovered impoundment which is part of an open feedlot operation, if the primary function of the impoundment is to collect and store settled open feedlot effluent. An animal truck wash facility may be part of an open feedlot operation. An animal truck wash effluent structure may be the same as a settled open feedlot effluent basin that is part of the open feedlot operation, so long as the primary function of such impoundment is to collect and store effluent from both the animal truck wash facility and the open feedlot operation.

"Small animal truck wash facility" means an animal truck wash facility, if all of the following apply:

1. The animal truck wash facility and all single-unit trucks, truck-tractors, semitrailers, or trailers that are washed at the facility are owned by the same person; and
2. The average total per-day volume of washwater used by the animal truck wash facility does not exceed 2,000 gallons as calculated on a monthly basis.

"Stockpile" means any accumulation of manure, scraped solids, settleable solids or combination of manure and solids located outside of the animal truck wash facility or outside of an area that drains to an animal truck wash facility, where the scraped manure or solids are stored for less than six months.

"Unformed animal truck wash effluent structure" means a covered or uncovered impoundment used to store animal truck wash effluent, other than a formed animal truck wash effluent structure.

"Water of the state" means any stream, lake, pond, marsh, watercourse, waterway, well, spring, reservoir, aquifer, irrigation system, drainage system, and any other body or accumulation of water, surface or underground, natural or artificial, public or private, which are contained within, flow through or border upon the state or any portion thereof.

65.200(2) *Incorporation by reference.* The text of the following incorporated materials is not included in Division III of this chapter. The materials listed below are hereby made a part of Division III of this chapter. For material subject to change, only the specific version specified in this subrule is incorporated. Any amendment or revision to a reference document is not incorporated until this subrule has been amended to specify the new version.

a. *"Act"* means the federal Water Pollution Control Act as amended through January 1, 2015, 33 U.S.C. Chapter 26;

b. *"AFO Siting Atlas"* means a tool to assist in determining potential building sites that meet regulatory requirements. The AFO Siting Atlas is located on the department's website;

c. *"CFR"* or *"Code of Federal Regulations"* means the federal administrative rules adopted by the United States in effect as of January 1, 2015;

d. Designated Wetlands in Iowa – effective date August 23, 2006, located on the department's website; and

e. Spill line telephone number is (515)725-8694.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.201(459A) Minimum animal truck wash effluent control requirements and reporting of releases. An animal truck wash facility shall provide for the management of manure, process wastewater, settleable solids, scraped solids, and animal truck wash effluent by using the control method as provided in subrules 65.201(1) to 65.201(4). A release shall be reported to the department as provided in subrule 65.201(5).

65.201(1) No direct discharge of animal truck wash effluent shall be allowed from an animal truck wash facility into a publicly owned lake, a known sinkhole, or an agricultural drainage well.

65.201(2) Land application.

a. *General requirements.* Animal truck wash effluent shall be land-applied in a manner which will not cause pollution of surface water or groundwater. Land application of animal truck wash effluent shall not exceed one inch per hour, and land application shall cease immediately if runoff occurs. Land application of animal truck wash effluent shall be conducted on days when weather and soil conditions are suitable. Weather and soil conditions are normally considered suitable for animal truck wash effluent application if: (1) land application areas are not frozen or snow-covered; (2) temperatures during application are greater than 32 degrees Fahrenheit; and (3) precipitation has not exceeded the water holding capacity of the soil to accept the effluent application without the possibility of runoff. Application in accordance with the provisions of state law and the rules in this chapter shall be deemed as compliance with this requirement.

b. *Separation distances.* A person shall not apply animal truck wash effluent on land located within 750 feet from a residence not owned by the titleholder of the land, unless one of the following apply:

(1) The animal truck wash effluent is land-applied by injection or incorporation on the same date as the animal truck wash effluent was land-applied.

(2) The titleholder of the land benefiting from the separation distance requirement executes a written waiver with the titleholder of the land where the animal truck wash effluent is applied.

(3) The animal truck wash effluent is from a small animal truck wash facility or an animal truck wash facility that is part of a small animal feeding operation.

65.201(3) The owner of an animal truck wash facility who discontinues the use of the facility shall remove and land-apply in accordance with state law all manure, process wastewater and animal truck wash effluent from the animal truck wash effluent structures as soon as practical but not later than six months following the date the animal truck wash facility is discontinued.

65.201(4) Stockpiling of scraped solids and settleable solids. Stockpiles of solids scraped from animal truck wash facilities and stockpiles of settleable solids shall comply with the following requirements:

a. Stockpiles must be land-applied in accordance with subrule 65.201(2) as soon as possible but not later than six months after they are established.

b. Stockpiles shall not be located within 400 feet from a designated area or, in the case of a high-quality water resource, within 800 feet.

c. Stockpiles shall not be located in grassed waterways or areas where water ponds or has concentrated flow.

d. Stockpiles shall not be located within 200 feet of a terrace tile inlet or surface tile inlet or known sinkhole unless the stockpile is located so that any runoff from the stockpile will not reach the inlet or sinkhole.

e. Stockpiles shall not be located on land having a slope of more than 3 percent unless methods, structures or practices are implemented to contain the stockpiled solids, including but not limited to hay bales, silt fences, temporary earthen berms, or other effective measures, and to prevent or diminish precipitation-induced runoff from the stockpiled solids.

65.201(5) A release, as defined in rule 567—65.200(459,459A), shall be reported to the department as provided in this subrule. This subrule does not apply to the land application of manure, process wastewater, animal truck wash effluent, scraped solids, or settleable solids in compliance with these rules.

a. *Notification.* A person storing, handling, transporting, or land-applying manure, process wastewater, animal truck wash effluent, scraped solids, or settleable solids from an animal truck wash facility who becomes aware of a release shall notify the department of the occurrence of release as soon as possible but not later than six hours after the onset or discovery of the release by contacting the department's spill line. The local police department or the office of the sheriff of the affected county shall also be contacted within the same time period if the release involves a public roadway and public safety could be threatened. Reports made pursuant to this rule shall be confirmed in writing as provided in 65.201(5)*"c."*

b. *Verbal report.* The verbal report of such a release should provide information on as many items listed in 65.201(5)*"c"* as available information will allow.

c. *Written report.* The written report of a release shall be submitted at the request of the department within 30 days after the verbal report of the release and contain at a minimum the following information:

(1) The approximate location of the alleged release (including at a minimum the quarter-quarter section, township and county in which the release occurred or was discovered).

(2) The time and date of onset of the alleged release, if known, and the time and date of the discovery of the alleged release.

(3) The time and date of the verbal report to the department of the release.

(4) The name, mailing address and telephone number of the person reporting the release.

(5) The name, mailing address and telephone number of any other person with knowledge of the event who can be contacted for further information.

(6) The source of the manure, process wastewater, animal truck wash effluent, scraped solids, or settleable solids allegedly released.

(7) The estimated or known volume of manure, process wastewater, animal truck wash effluent, scraped solids, or settleable solids allegedly released.

(8) The weather conditions at the time of the onset or discovery of the release.

(9) If known, the circumstances under which the alleged release occurred or exists (e.g., overflow, storage structure breach, equipment malfunction or breakdown, land runoff).

(10) The approximate location of the nearest stream or other water body which is or could be impacted by the alleged release, and the approximate location to the alleged release of any known tile intakes or tile lines which could be a direct conveyance to a surface water or groundwater.

(11) A description of any containment or remedial measures taken to minimize the impact of the release.

(12) Any information that may assist the department in evaluating the release.

d. *Reporting of subsequent findings.* All subsequent findings and laboratory results should be reported and submitted in writing to the department as soon as they become available.

e. *Waiver of notification requirement.* A waiver from the notification requirement of paragraph *"a"* of this subrule may be granted by the department for a release to a specific drainage tile line or intake if sufficient information is provided to demonstrate that the drainage tile line or intake will not result in a discharge to a water of the state.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.202(459,459A) Construction permits.

65.202(1) *Animal truck wash facilities required to obtain a construction permit.* An animal truck wash facility must obtain a construction permit prior to any of the following:

a. Constructing or expanding an animal truck wash effluent structure.

b. When the department has previously issued the animal truck wash facility a construction permit and the volume of the animal truck wash effluent would be more than the volume approved by the department in the previous construction permit.

c. When the animal truck wash facility is part of a confinement feeding operation and all of the following apply:

(1) The department has issued a construction permit or an NPDES permit for the confinement feeding operation or a letter approving a construction design statement for the confinement feeding operation in lieu of a construction permit.

(2) The animal truck wash effluent will be added to an existing manure storage structure resulting in a total stored volume greater than that approved in the construction permit or the construction design statement approval letter.

d. When the animal truck wash facility is part of an open feedlot operation and all of the following apply:

(1) The department has issued a construction permit or an NPDES permit for an open feedlot operation.

(2) The animal truck wash effluent will be added to an existing settled open feedlot effluent basin resulting in a total stored volume greater than that approved in the construction permit or NPDES permit.

e. When an animal truck wash facility is constructed or expanded as part of a small animal feeding operation that includes a manure storage structure and the animal truck wash effluent will be added to the manure storage structure.

65.202(2) *When a construction permit for an animal truck wash facility is not required.*

a. When a small animal truck wash facility is constructed or expanded.

b. When a small animal truck wash facility is part of a small animal feeding operation and the animal truck wash effluent is added to the manure storage structure.

65.202(3) *Construction permit applications that cannot be approved.* The department shall not approve an application for a construction permit unless the applicant submits all of the following:

a. A nutrient management plan as provided in rule 567—65.208(459A).

b. An engineering report, construction plans, and specifications prepared by a professional engineer or NRCS certifying that the design of the animal truck wash effluent structure complies with the construction design standards required in Division III of this chapter.

65.202(4) *Plan review criteria; time for approval or disapproval.*

a. *Plan review criteria.* Review of plans and specifications shall be conducted by the department to determine the potential of the animal truck wash effluent structure to achieve the level of control being required of the animal truck wash facility. Applicable criteria contained in federal law, state law,

these rules, NRCS design standards and specifications unless inconsistent with federal or state law or these rules will be used in this review. If the proposed facility plans are not adequately covered by these criteria, applicable criteria contained in current technical literature shall be used.

b. *Time for approval or disapproval.* The department shall approve or disapprove an application for a construction permit within 60 days after receiving the permit application. However, the applicant may deliver a notice requesting a continuance. Upon receipt of a notice, the time required for the department to act upon the application shall be suspended for the period provided in the notice, but for not more than 30 days after the department's receipt of the notice. The applicant may submit more than one notice. If review of the application is delayed because the application is incomplete, and the applicant fails to supply requested information within a reasonable time prior to the deadline for action on the application, the permit may be denied and a new application will be required if the applicant wishes to proceed. The department may also provide for a continuance when it considers the application. The department shall provide notice to the applicant of the continuance. The time required for the department to act upon the application shall be suspended for the period provided in the notice, but for not more than 30 days. However, the department shall not provide for more than one continuance.

65.202(5) *Expiration of construction permits.* The construction permit shall expire if construction, as defined in rule 567—65.203(459A), is not begun within one year and completed within three years of the date of issuance. The director may grant an extension of time to begin or complete construction if it is necessary or justified, upon showing of such necessity or justification to the director.

65.202(6) *Revocation of construction permits.* The department may suspend or revoke a construction permit, modify the terms or conditions of a construction permit, or refuse to renew a construction permit expiring according to subrule 65.202(5) if it determines that the operation of the animal truck wash facility constitutes a clear, present and impending danger to public health or the environment.

65.202(7) *Permit prior to construction.* An applicant for a construction permit shall notify the department prior to the start of construction for any animal truck wash facility. The applicant shall not begin construction of an animal truck wash facility until the person has been granted a permit for the construction by the department.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.203(459A) Construction. For purposes of these rules:

65.203(1) Construction of an animal truck wash facility begins or an animal truck wash facility is constructed when any of the following occur:

a. Excavation commences for a proposed animal truck wash facility or proposed expansion of an existing animal truck wash facility structure.

b. Installation of forms for concrete for a proposed animal truck wash facility or the proposed expansion of an existing animal truck wash facility.

c. Installation of piping for movement of animal truck wash effluent within or between animal truck wash facilities as proposed or proposed to be expanded.

65.203(2) Construction does not begin upon occurrence of any of the following:

a. Removal of trees, brush, or other vegetative growth.

b. Construction of driveways or roads.

c. General earth moving for leveling at the site.

d. Installation of temporary utility services.

65.203(3) Separation distances for the construction or expansion of an animal truck wash effluent structure.

a. An animal truck wash effluent structure shall not be constructed or expanded within 1,250 feet from a residence not owned by the titleholder of the animal truck wash facility, a commercial enterprise, a bona fide religious institution, an educational institution, or a public use area.

b. An animal truck wash effluent structure shall not be constructed or expanded within 100 feet from a public thoroughfare.

c. Any separation distance required for a confinement feeding operation structure and a location or object specified in Table 6 for "Water Wells" and "Other Distances" at the end of this chapter shall also apply to the animal truck wash effluent structure and that same location or object.

d. An animal truck wash effluent structure shall not be constructed or expanded on land that is part of a one hundred year floodplain.

65.203(4) Exemptions to separation distances for the construction or expansion of an animal truck wash effluent structure.

a. Paragraph 65.203(3)*"a"* does not apply if a residence, educational institution, a bona fide religious institution, or commercial enterprise was constructed or expanded, or if the boundaries of a public use area were expanded, after the date that the animal truck wash facility was established. The date the animal truck wash facility was established is the date on which the animal truck wash facility commenced operating. A change in ownership or expansion of an animal truck wash facility shall not change the date of operation.

b. Paragraphs 65.203(3)*"a"* and *"b"* do not apply if the titleholder of the land benefiting from the separation distance requirement, including a person authorized by the titleholder, executes a written waiver with the owner of the animal truck wash effluent structure. The structure shall be constructed or expanded under such terms and conditions that the parties negotiate. The state or a political subdivision constructing or maintaining the public thoroughfare benefiting from the separation distance requirement may execute a written waiver with the titleholder of the land where the structure is located. The structure shall be constructed or expanded under such terms and conditions that the parties negotiate. The waiver shall be specific to the construction or expansion project for which it is submitted. The waiver may include specific language to include future projects or expansions.

c. Paragraphs 65.203(3)*"a"* and *"b"* shall not apply to small animal truck wash facilities.

d. Exemptions to separation distance requirements from water sources, major water sources, known sinkholes, agricultural drainage wells and designated wetlands and secondary containment.

As specified in Iowa Code section 459.310(3), the separation distance required from surface intakes, wellheads or cisterns of agricultural drainage wells, known sinkholes, water sources, major water sources and designated wetlands, specified in Iowa Code section 459.310 and summarized in Tables 6 to 6d at the end of this chapter, shall not apply to a farm pond or privately owned lake as defined in Iowa Code section 462A.2 or to an animal truck wash effluent structure constructed with a secondary containment barrier according to subrule 65.15(17). To qualify for this separation distance exemption, the design of the secondary containment barrier shall be filed in accordance with subrule 65.9(8) prior to beginning construction of the animal truck wash facility.

e. Paragraphs 65.203(3)*"c"* and *"d"* shall not apply to the replacement of an unformed animal truck wash effluent structure constructed prior to April 28, 2003, with a formed animal truck wash effluent structure. The capacity of a replacement animal truck wash effluent structure shall not exceed the amount required to store animal truck wash effluent for any 18-month period.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.204(459A) Construction permit application. An animal truck wash facility required to obtain a construction permit in accordance with the provisions of 65.202(1) shall apply for the construction permit at least 90 days before the date that construction, installation, or modification is scheduled to start.

65.204(1) Conceptual design. Prior to submitting an application for a construction permit, the applicant may submit a conceptual design and site investigation report to the department for review and comment.

65.204(2) Application for a construction permit for an animal truck wash facility shall be made on a form provided by the department. The application shall include all of the information necessary to enable the department to determine the potential of the proposed animal truck wash effluent structure to achieve the level of control required of the animal truck wash facility. A construction permit application shall include the following:

a. The name of the animal truck wash facility and the name of the owner of the animal truck wash facility, including the owner's mailing address and telephone number.

b. The name of the contact person for the animal truck wash facility, including the person's mailing address and telephone number.

c. The location of the animal truck wash facility.

d. A statement providing that the application is for any of the following:

(1) The construction or expansion of an animal truck wash effluent structure for an existing animal truck wash facility which is not expanding;

(2) The construction or expansion of an animal truck wash effluent structure for an existing animal truck wash facility which is expanding;

(3) The construction of an animal truck wash effluent structure for a proposed new animal truck wash facility.

e. An engineering report, construction plans, and specifications prepared by a professional engineer or by NRCS personnel.

(1) The engineering report must demonstrate that the storage capacity of the animal truck wash effluent structure is equal to or greater than the amount of effluent to be stored for any six-month period, in addition to two feet of freeboard for an unformed animal truck wash effluent structure or one foot of freeboard for a formed animal truck wash effluent structure.

(2) If an animal truck wash effluent structure is to be constructed on karst terrain, the engineering report must establish that the construction complies with the requirements of Iowa Code section 459A.404.

f. A report on the soil and hydrogeologic information for the site, as described in subrule 65.206(2).

g. Information including, but not limited to, maps, drawings and aerial photos that clearly show the location of all the following:

(1) The animal truck wash facility and all existing and proposed animal truck wash effluent structures.

(2) Any animal truck wash facility under common ownership or common management and located within 1,250 feet of the animal truck wash facility.

(3) Any public water supply system as defined in Iowa Code section 455B.171 or drinking water well which is located less than the distance from the animal truck wash facility required by rule 567—65.205(459A). Information shall also be provided as to whether the proposed animal truck wash effluent structure will meet all applicable separation distances.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.205(459A) Water well separation distances for animal truck wash facilities.

65.205(1) *Unformed animal truck wash effluent structures.* Unformed animal truck wash effluent structures shall be separated from water wells as follows:

a. *Public wells.* 1,000 feet from shallow wells and 400 feet from deep wells;

b. *Private wells.* 400 feet from both shallow wells and deep wells.

65.205(2) *Formed animal truck wash effluent structures.* Formed animal truck wash effluent structures shall be separated from water wells as follows: for both public wells and private wells, 200 feet from shallow wells and 100 feet from deep wells.

65.205(3) *Variances.* Variances to this rule may be granted by the director if the petitioner complies with the procedures and criteria in 561—Chapter 10 and provides an alternative that is substantially equivalent to the rule or provides improved effectiveness or protection as required by the rule. Petition for a variance shall be made in writing at the time the construction permit application is submitted. The denial of a variance may be appealed to the commission.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.206(459A) Unformed animal truck wash effluent structure—investigation, design and construction requirements. An unformed animal truck wash effluent structure required to be

constructed pursuant to a construction permit issued pursuant to Iowa Code section 459A.205 shall meet the design and construction requirements set forth in this rule.

65.206(1) *Drainage tile investigation and removal.* Prior to constructing an unformed animal truck wash effluent structure, the owner of the animal truck wash facility shall investigate the site for the animal truck wash effluent structure for a drainage tile line. The investigation shall be made by digging a core trench to a depth of at least six feet from ground level at the projected center of the berm of the animal truck wash effluent structure. A written record of the investigation shall be submitted as part of the construction certification required in 567—65.207(459A). If a drainage tile line is discovered, one of the following solutions shall be implemented:

a. The drainage tile line shall be rerouted around the perimeter of the unformed animal truck wash effluent structure at a distance of at least 25 feet horizontally separated from the outside toe of the berm of the unformed animal truck wash effluent structure. For an area of the unformed animal truck wash effluent structure where there is not a berm, the drainage tile line shall be rerouted at least 50 feet horizontally separated from the edge of the unformed animal truck wash effluent structure.

b. The drainage tile line shall be replaced with a nonperforated tile line under the unformed animal truck wash effluent structure floor. The nonperforated tile line shall be continuous and without connecting joints. There must be a minimum of three feet between the nonperforated tile line and the unformed animal truck wash effluent structure floor.

65.206(2) *Soils and hydrogeologic report.* An unformed animal truck wash effluent structure required to be constructed pursuant to a construction permit issued pursuant to rule 567—65.202(459A) shall meet design standards as required by a soils and hydrogeologic report. The report shall be submitted with the construction permit application as provided in rule 567—65.204(459A). The report shall include all of the following:

a. A description of the steps taken to determine the soils and hydrogeologic conditions at the proposed construction site, a description of the geologic units encountered, and a description of the effects of the soil and groundwater elevation and direction of flow on the construction and operation of the unformed animal truck wash effluent structure.

b. The subsurface soil classification of the site. A subsurface soil classification shall be based on ASTM international designation D 2487-92 or D 2488-90.

c. The results of a soils investigation conducted at a minimum of three locations within the area of the unformed animal truck wash effluent structure reflecting the continuous soil profile existing within the area of the unformed animal truck wash effluent structure. The soils investigation results shall be used in determining subsurface soil characteristics and groundwater elevation and direction of flow at the proposed site. The soils investigation shall be conducted and utilized as follows:

(1) By a qualified person ordinarily engaged in the practice of performing soils investigations.

(2) At locations that reflect the continuous soil profile conditions existing within the area of the proposed unformed animal truck wash effluent structure, including conditions found near the corners and the deepest point of the proposed unformed animal truck wash effluent structure. The soils investigation shall be conducted to a minimum depth of ten feet below the proposed bottom elevation of the unformed animal truck wash effluent structure.

(3) By methods which identify the continuous soil profile and do not result in mixing of soil layers. Soil corings using hollow-stem augers and other suitable methods may be used.

(4) If located in karst terrain or potential karst terrain, at least one soil coring shall be taken to a minimum depth of 25 feet below the bottom elevation of the unformed animal truck wash effluent structure or into bedrock, whichever is shallower.

(5) Soil corings may be used to determine current groundwater levels by completing the corings as temporary monitoring wells as provided in 65.206(3)*"a"*(1) and measuring the water levels in these wells no earlier than seven days after installation as provided in 65.206(3)*"a"*(2).

(6) Upon abandonment of soil core holes, all soil core holes, including those developed as temporary water level monitoring wells, shall be plugged with concrete, Portland cement concrete grout, bentonite, or similar materials.

(7) If excavation methods are used in conducting the soils investigation, upon closure these excavations must be filled with suitable materials and adequately compacted to ensure they will not compromise the integrity of the unformed animal truck wash effluent structure liner.

65.206(3) *Hydrology.*

a. Determination of groundwater table. For purposes of this rule, the groundwater table is the seasonal high-water table determined by a professional engineer, a groundwater professional certified pursuant to 567—Chapter 134, or qualified staff from the department or NRCS. If a construction permit is required, the department must approve the groundwater table determination.

(1) Current groundwater levels shall be measured as provided in this subparagraph for an unformed animal truck wash effluent structure. Three temporary monitoring wells shall be installed. The top of the well screen shall be within five feet of the ground surface. Each well shall be extended to at least two feet below the proposed top of the liner of an unformed animal truck wash effluent structure or to at least two feet below the proposed bottom of the footings of a formed animal truck wash effluent structure. In addition, the wells must be installed as follows:

1. Unformed animal truck wash effluent structure. For an unformed animal truck wash effluent structure, the monitoring wells may be installed in the soil core holes developed as part of conducting the soils investigation required in paragraph 65.206(2)*"c."*

2. Formed animal truck wash effluent structure. For a formed animal truck wash effluent structure, at least three temporary monitoring wells shall be installed as close as possible to three corners of the structure, with one of the wells close to the corner of deepest excavation. If the formed animal truck wash effluent structure is circular, the three monitoring wells shall be equally spaced and one well shall be placed at the point of deepest excavation.

(2) The seasonal high-water table shall be determined by considering all relevant data, including the groundwater levels measured in the temporary monitoring wells not earlier than seven days following installation, NRCS soil survey information, soil characteristics such as color and mottling, other existing water table data, and other pertinent information. If a drainage system for artificially lowering the groundwater table will be installed in accordance with the requirements of paragraph 65.206(3)*"c,"* the level to which the groundwater table will be lowered will be considered to represent the seasonal high-water table.

b. The unformed animal truck wash effluent structure shall be constructed with a minimum separation of two feet between the top of the liner of the unformed animal truck wash effluent structure and the seasonal high-water table.

c. If a drainage tile line around the perimeter of the basin is installed a minimum of two feet below the top of the unformed animal truck wash effluent structure liner to artificially lower the seasonal high-water table, the top of the unformed animal truck wash effluent structure's liner may be a maximum of four feet below the seasonal high-water table which existed prior to installation of the perimeter tile system. The seasonal high-water table may be artificially lowered by gravity flow tile lines or other similar system. However, the following shall apply:

(1) Except as provided in subparagraph (2), an animal truck wash facility shall not use a nongravity mechanical system that uses pumping equipment.

(2) If the animal truck wash facility was constructed before July 1, 2005, the operation may continue to use its existing nongravity mechanical system that uses pumping equipment or it may construct a new nongravity mechanical system that uses pumping equipment. However, an animal truck wash facility that expands the area of its animal truck wash facility on or after April 1, 2011, shall not use a nongravity mechanical system that uses pumping equipment.

(3) Drainage tile lines may be installed to artificially lower the seasonal high-water table at an unformed animal truck wash effluent structure, if all of the following conditions are satisfied:

1. A device to allow monitoring of the water in the drainage tile lines and a device to allow shutoff of the flow in the drainage tile lines are installed, if the drainage tile lines do not have a surface outlet accessible on the property where the unformed animal truck wash effluent structure is located.

2. Drainage tile lines are installed horizontally at least 25 feet away from the outside toe of the berm of the unformed animal truck wash effluent structure. Drainage tile lines shall be placed in a vertical

trench and encased in granular material which extends upward to the level of the seasonal high-water table which existed prior to installation of the perimeter tile system.

65.206(4) *Karst terrain.*

a. Construction prohibited. Unformed animal truck wash effluent structures shall not be constructed in areas which drain to known sinkholes or in karst terrain. Structure sites located within one mile of karst terrain shall be considered to be located in karst terrain, unless site-specific geologic information is submitted documenting that 25 feet of suitable materials exist between the bottom of an unformed animal truck wash effluent storage structure and carbonated bedrock or limestone or dolomite.

b. The use of formed structures is required to store animal truck wash effluent in karst terrain.

(1) Formed structures constructed of concrete in karst terrain shall comply with the provisions of 65.15(14).

(2) The use of formed structures constructed of materials other than concrete and located in areas which drain to known sinkholes or located in karst terrain may be approved by the department if the proposed structures are designed by a professional engineer, a minimum of five feet vertical separation is maintained between the structure bottom and carbonated bedrock, and the engineer certifies and provides data showing that the permeability of the geologic material below the structure's base is sufficiently low to provide an adequate barrier to prevent percolation into carbonated bedrock or groundwater.

c. Construction of an unformed animal truck wash effluent structure is allowed in areas identified as karst terrain if site-specific geologic information is submitted documenting that 25 feet of suitable materials exist between the bottom of an unformed animal truck wash effluent storage structure and carbonated bedrock or limestone or dolomite.

65.206(5) *Bedrock separation.* An unformed animal truck wash effluent structure shall be constructed with at least four feet of separation between the bottom of the unformed animal truck wash effluent structure and a bedrock formation.

65.206(6) *Floodplain requirements.*

a. *Construction in floodplains.* Animal truck wash facilities located on a floodplain or within a floodway of a river or stream may be required to obtain department permits and provide protection from inundation by flood waters, as specified in 567—Chapters 71 and 72. If the animal truck wash facility structure is located in alluvial soils, then a floodplain determination or floodway elevation shall be requested from the department. The AFO Siting Atlas may be a tool used to assist in the floodplain and alluvial soil determinations.

b. *Permits for dam construction.* Animal truck wash facility structures exceeding storage capacity or dam height thresholds may be required to obtain department permits, as specified in 567—71.3(455B) and 567—72.3(455B).

65.206(7) *Liner design and construction.* The liner of an unformed animal truck wash effluent structure shall comply with all of the following:

a. The liner shall comply with any of the following permeability standards:

(1) The liner shall be constructed to have a percolation rate that shall not exceed one-sixteenth inch per day at the design depth of the unformed animal truck wash effluent structure as determined by percolation tests conducted by the professional engineer. If a clay soil liner is used, the liner shall be constructed with a minimum thickness of 12 inches or the minimum thickness necessary to comply with the percolation rate in this subparagraph, whichever is greater.

(2) The liner shall be constructed to have a percolation rate that shall not exceed one-sixteenth inch per day at the design depth of the unformed animal truck wash effluent structure. The design of the liner will specify a moisture content, compaction requirement, and liner thickness that will comply with the maximum allowable percolation requirement and will be based on moisture content and percentage of maximum density as determined by a standard 5-point proctor test performed in accordance with ASTM D698 (Method A). The liner thickness will be based on laboratory tests of the compacted material, with a minimum liner thickness of 12 inches. Appropriate field or laboratory testing during construction shall be provided to verify the design requirements are met.

b. If a synthetic liner is used, the liner shall be installed to comply with the percolation rate required in 65.206(7)*"a"*(1).

65.206(8) *Berm erosion inspection and repair.* The owner of an animal truck wash facility using an unformed animal truck wash effluent structure shall inspect the berms of the unformed animal truck wash effluent structure at least semiannually for evidence of erosion. If the inspection reveals erosion which may impact the unformed animal truck wash effluent structure's structural stability or the integrity of the unformed animal truck wash effluent structure's liner, the owner shall repair the berms.

65.206(9) *Basins containing confinement manure and animal truck wash effluent.* Basins containing confinement manure and animal truck wash effluent shall meet the confinement construction standards and separation distance requirements provided in Division I of this chapter. The basin design shall ensure adequate storage including two feet of freeboard for an unformed animal truck wash effluent structure or one foot of freeboard for a formed animal truck wash effluent structure. The basin shall contain the annual manure generated from all confinement animals.

65.206(10) *Formed animal truck wash effluent structures.* An animal truck wash facility electing to use a formed animal truck wash effluent structure may submit, in lieu of an engineering report, a construction design statement that meets the requirements in subrule 65.9(6).

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.207(459A) Construction certification.

65.207(1) The owner of an animal truck wash facility who is issued a construction permit for an animal truck wash effluent structure as provided in rule 567—65.202(459A) shall submit to the department a construction certification on a form provided by the department from a professional engineer certifying all of the following:

a. The animal truck wash effluent structure was constructed in accordance with the design plans submitted to the department as part of an application for a construction permit pursuant to rule 567—65.204(459A). If the actual construction deviates from the approved design plans, the construction certification shall identify all changes and certify that the changes were consistent with all applicable standards of these rules.

b. The animal truck wash effluent structure was inspected by the professional engineer after completion of construction and before commencement of operation.

65.207(2) A written record of an investigation for drainage tile lines, including the findings of the investigation and actions taken to comply with 65.206(1), shall be submitted as part of the construction certification.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.208(459A) Nutrient management plan requirements.

65.208(1) The owner of an animal truck wash facility, other than a small animal truck wash facility, which has an animal truck wash effluent structure shall develop and implement a nutrient management plan meeting the requirements of this rule. However, an animal truck wash facility which is part of a confinement feeding operation, in lieu of submitting a nutrient management plan, may submit an original manure management plan and an updated manure management plan to the department.

65.208(2) A person shall not remove animal truck wash effluent from an animal truck wash facility for which a nutrient management plan is required under this rule, unless the department approves a nutrient management plan as required in this rule.

65.208(3) The department shall not approve an application for a permit to construct an animal truck wash effluent structure unless the owner of the animal truck wash facility applying for approval submits a nutrient management plan together with the application for the construction permit as provided in rule 567—65.202(459A).

65.208(4) If a construction permit is required as provided in rule 567—65.202(459A), the department shall approve or disapprove the nutrient management plan as part of the construction permit application. If a construction permit is not required, the department shall approve or disapprove the nutrient management plan within 60 days from the date that the department receives the nutrient management plan.

65.208(5) A nutrient management plan shall include all of the following:

a. Restrictions on the application of animal truck wash effluent based on all of the following:

(1) A phosphorus index of each field in the nutrient management plan, as required in 65.17(17), including the factors used in the calculation. A copy of the NRCS phosphorus index detailed report shall satisfy the requirement to include the factors used in the calculation. In addition, total phosphorus (as P2O5) available to be applied from the animal truck wash facility shall be included.

(2) Calculations necessary to determine the land area required for the application of animal truck wash effluent from an animal truck wash facility based on nitrogen or phosphorus use levels (as determined by the phosphorus index) in order to obtain optimum crop yields according to a crop schedule specified in the nutrient management plan, and according to requirements specified in subrule 65.17(4).

b. Information relating to the application of the animal truck wash effluent, including all of the following:

(1) Nutrient concentration of the animal truck wash effluent. Animal truck wash facilities shall provide yearly animal truck wash effluent test analysis for aluminum, copper, and iron.

(2) Application methods, the timing of the application, and the location of the land where the application occurs.

c. If the application is on land other than land owned or rented for crop production by the owner of the animal truck wash facility, the plan shall include a copy of each written agreement executed by the owner and the landowner or the person renting the land for crop production where the animal truck wash effluent may be applied. The written agreement shall indicate the number of acres on which the animal truck wash effluent may be applied and the length of the agreement.

d. An estimate of the animal truck wash effluent volume or weight produced by the animal truck wash facility.

e. Information which shows all of the following:

(1) There is adequate storage for animal truck wash effluent, including procedures to ensure proper operation and maintenance of the storage structures.

(2) Surface drainage is diverted from the animal truck wash facility.

(3) Chemicals or other contaminants handled on site are not disposed of in an animal truck wash facility that is not specifically designed to store such chemicals or contaminants.

(4) Equipment used for the land application of animal truck wash effluent must be periodically inspected for leaks.

(5) Appropriate site-specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States.

(6) Protocols for appropriate testing of animal truck wash effluent and soil.

(7) Protocols to land-apply animal truck wash effluent in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the animal truck wash effluent.

(8) Identification of specific records that will be maintained to document the implementation and management of the requirements in this subrule.

65.208(6) Current nutrient management plan, record keeping and inspections.

a. *Current nutrient management plan.* The owner of an animal truck wash facility who is required to submit a nutrient management plan shall maintain a current nutrient management plan at the site of the animal truck wash facility and shall make the current nutrient management plan available to the department upon request. If nutrient management practices change, a person required to submit a nutrient management plan shall make appropriate changes consistent with this rule. If values other than the standard table values are used for nutrient management plan calculations, the source of the values used shall be identified.

b. *Record keeping.* Records shall be maintained by the owner of an animal truck wash facility who is required to submit a nutrient management plan. This recorded information shall be maintained for five years following the year of application or for the length of the crop rotation, whichever is greater. Records shall be maintained at the site of the animal truck wash facility and shall be made available to the department upon request. Records to demonstrate compliance with the nutrient management plan shall include the following:

(1) Factors used to calculate the animal truck wash effluent application rate:

1. Optimum yield for the planned crop.

2. Types of nitrogen credits and amounts.

3. Remaining crop nitrogen needed.

4. Nitrogen content and first-year nitrogen availability of the animal truck wash effluent.

5. Phosphorus content of the animal truck wash effluent as required in 65.17(3)*"i"*(1) and (2). If an actual sample is used, documentation shall be provided.

6. For animal truck wash facilities, the soil test analysis must include phosphorus, aluminum, copper and iron. The yearly effluent analysis for animal truck wash facilities shall include metals testing.

(2) If phosphorus-based application rates are used, the following shall be included:

1. Crop rotation.

2. Phosphorus removed by crop harvest of that crop rotation.

(3) Maximum allowable animal truck wash effluent application rate.

(4) Actual animal truck wash effluent application information:

1. Method(s) of application when animal truck wash effluent from the animal truck wash facility was applied.

2. Date(s) when the animal truck wash effluent from the animal truck wash facility was applied.

3. Weather conditions at the time of application and for 24 hours prior to and following the application.

4. Location of the field where the animal truck effluent from the animal truck wash facility was applied, including the number of acres.

5. The animal truck wash effluent application rate.

6. Dates when application equipment was inspected.

(5) Date(s) and application rate(s) of commercial nitrogen and phosphorus on fields that received animal truck wash effluent. However, if the date and application rate information is for fields which are not owned for crop production or which are not rented or leased for crop production by the person required to keep records pursuant to this subrule, an enforcement action for noncompliance with a nutrient management plan or the requirements of this subrule shall not be pursued against the person required to keep records pursuant to this subrule or against any other person who relied on the date and application rate in records required to be kept pursuant to this subrule, unless that person knew or should have known that nitrogen or phosphorus would be applied in excess of maximum levels set forth in paragraph 65.17(1)*"a."* If nutrients are applied to fields not owned, rented or leased for crop production by the person required to keep records pursuant to this subrule, that person shall obtain from the person who owns, rents or leases those fields a statement specifying the planned commercial nitrogen and phosphorus fertilizer rates to be applied to each field receiving the nutrients.

(6) A copy of the current soil test laboratory results for each field in the nutrient management plan.

(7) All applicable records identified in 65.208(5)*"e."*

c. *Record inspection.* The department may inspect an animal truck wash facility at any time during normal working hours and may inspect the nutrient management plan and any records required to be maintained.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.209(459A) Complaint investigations. Complaints of violations of Iowa Code chapter 455B, 459, 459A, or 459B or these rules, which are received by the department or are forwarded to the department by a county, following a county board of supervisors' determination that a complainant's allegation constitutes a violation, shall be investigated by the department if it is determined that the complaint is legally sufficient and an investigation is justified.

65.209(1) If after evaluating a complaint to determine whether the allegation may constitute a violation, without investigating whether the facts supporting the allegation are true or untrue, the county board of supervisors shall forward its finding to the department director.

65.209(2) A complaint is legally sufficient if it contains adequate information to investigate the complaint and if the allegation constitutes a violation, without an investigation of whether the facts

supporting the allegation are true or untrue, of department rules, Iowa Code chapter 455B, 459, 459A, or 459B, or environmental standards in regulations subject to federal law and enforced by the department.

65.209(3) The department in its discretion shall determine the urgency of the investigation, and the time and resources required to complete the investigation, based upon the circumstances of the case, including the severity of the threat to the quality of surface water or groundwater.

65.209(4) The department shall notify the complainant and the alleged violator if an investigation is not conducted specifying the reason for the decision not to conduct an investigation.

65.209(5) The department will notify the county board of supervisors where the violation is alleged to have occurred before doing a site investigation unless the department determines that a clear, present and impending danger to the public health or environment requires immediate action.

65.209(6) The county board of supervisors may designate a county employee to accompany the department on the investigation of any site as a result of a complaint.

65.209(7) A county employee accompanying the department on a site investigation has the same right of access to the site as the department official conducting the investigation during the period that the county designee accompanies the department official.

65.209(8) Upon completion of an investigation, the department shall notify the complainant of the results of the investigation, including any anticipated, pending or complete enforcement action arising from the investigation. The department shall deliver a copy of the notice to the animal truck wash facility that is the subject of the complaint, any alleged violators if different from the animal truck wash facility and the county board of supervisors of the county where the violation is alleged to have occurred.

65.209(9) When a person who is a department official, an agent of the department, or a person accompanying the department official or agent enters the premises of an animal truck wash, both of the following shall apply:

a. The person may enter at any reasonable time in and upon any private or public property to investigate any actual or possible violation of Iowa Code chapter 455B, 459, 459A, or 459B or these rules. However, the owner or person in charge shall be notified.

(1) If the owner or occupant of any property refuses admittance to the animal truck wash facility, or if prior to such refusal the director demonstrates the necessity for a warrant, the director may make application under oath or affirmation to the district court of the county in which the property is located for the issuance of a search warrant.

(2) In the application, the director shall state that an inspection of the premises is mandated by the laws of this state or that a search of certain premises, areas, or things designated in the application may result in evidence tending to reveal the existence of violations of public health, safety, or welfare requirements imposed by statutes, rules or ordinances established by the state or a political subdivision thereof. The application shall describe the area, premises, or thing to be searched, give the date of the last inspection if known, give the date and time of the proposed inspection, declare the need for such inspection, recite that notice of desire to make an inspection has been given to affected persons and that admission was refused if that be the fact, and state that the inspection has no purpose other than to carry out the purpose of the statute, ordinance, or regulation pursuant to which inspection is to be made. If an item of property is sought by the director, it shall be identified in the application.

(3) If the court is satisfied from the examination of the applicant, and of other witnesses, if any, and of the allegations of the application of the existence of the grounds of the application, or that there is probable cause to believe their existence, the court may issue such search warrant.

(4) In making inspections and searches pursuant to the authority of this rule, the director must execute the warrant:

1. Within ten days after its date.

2. In a reasonable manner, and any property seized shall be treated in accordance with the provisions of Iowa Code chapters 808, 809, and 809A.

3. Subject to any restrictions imposed by the statute, ordinance or regulation pursuant to which inspection is made.

b. The person shall comply with standard biosecurity requirements customarily required by the animal truck wash facility which are necessary in order to control the spread of disease among an animal population.
[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

567—65.210(455B,459A) Transfer of legal responsibilities or title. If title or legal responsibility for a permitted animal truck wash facility and its animal truck wash effluent structure is transferred, the person to whom title or legal responsibility is transferred shall be subject to all terms and conditions of the permit and these rules. The person to whom the permit was issued and the person to whom title or legal responsibility is transferred shall notify the department of the transfer of legal responsibility or title of the operation within 30 days of the transfer. Within 30 days of receiving a written request from the department, the person to whom legal responsibility is transferred shall submit to the department all information needed to modify the permit to reflect the transfer of legal responsibility.
[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

These rules are intended to implement Iowa Code chapters 455B and 459A.

APPENDIX A

OPEN FEEDLOT EFFLUENT CONTROL ALTERNATIVES FOR OPEN FEEDLOT OPERATIONS

Introduction: Water pollution control requirements for animal feeding operations are given in 567—65.101(459A). Under these rules, open feedlots meeting the NPDES permit application requirements of rule 567—65.104(455B,459A) must also comply with the minimum open feedlot effluent control requirements of subrule 65.101(2). Subrule 65.101(2) requires that all feedlot runoff and other open feedlot effluent flows resulting from precipitation events less than or equal to the 25-year, 24-hour rainfall event be collected and land-applied. For the purpose of this appendix, open feedlot effluent includes manure, process wastewater, settled open feedlot effluent and settleable solids.

This appendix describes five feedlot runoff control systems that meet the requirements of subrule 65.101(2). The systems differ in the volume of open feedlot effluent storage provided and in the frequency of open feedlot effluent application. In general, the time interval between required applications increases with increased storage volume.

A feedlot operator who constructs and operates an open feedlot effluent control facility in accordance with the requirements of any of these five systems will not have additional open feedlot effluent control requirements imposed, unless open feedlot effluent discharges from the facility cause state water quality standards violations. In describing the five systems, the major features of each are first reviewed, followed by detailed information on the construction and operation requirements of the system. The system descriptions are presented in this appendix as follows:

	System
System 1:	One Open Feedlot Effluent Application Period Per Year
System 2:	July and October Open Feedlot Effluent Application
System 3:	April, July, and October Open Feedlot Effluent Application
System 4:	Application After Each Significant Precipitation Event
System 5:	April/May and October/November Open Feedlot Effluent Application
Figures 1-4	

SYSTEM 1: ONE OPEN FEEDLOT EFFLUENT APPLICATION PERIOD PER YEAR

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the average annual runoff from all feedlot and nonfeedlot areas which drain into the open feedlot effluent control system (additional storage is required if open feedlot effluent from other sources also drains into the control system).

- Collected open feedlot effluent must be removed from the control system and land-applied at least once annually (interval between successive applications cannot exceed 12 months).

DETAILED SYSTEM REQUIREMENTS:

Open Feedlot Effluent Control System: The open feedlot effluent control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Solids settling facilities which meet or exceed the requirements of subrule 65.101(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

A. The volume determined by multiplying the unpaved feedlot area which drains into the control system by the appropriate runoff value from Figure 1.

B. The volume determined by multiplying the paved feedlot area which drains into the control system by 1.5 times the appropriate runoff value from Figure 1.

C. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the greater of the following:

- The amount of runoff expected from these areas as a result of the 25-year, 24-hour precipitation event.*

- The average annual runoff expected from these areas.*

D. The volume determined by multiplying the total roof, farmstead, and driveway area draining into the control system by the average annual runoff expected from these areas.*

E. The volume of process wastewater which drains into the control system during a 12-month period.

F. The volume of open feedlot effluent from other sources which discharges into the control system during a 12-month period.

*Expected 25-year, 24-hour and average annual runoff values shall be determined using runoff prediction methodologies of the NRCS (or equivalent methodologies).

Open Feedlot Effluent Application Requirements: Open feedlot effluent must be removed from the open feedlot effluent control system and land-applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected settleable solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, settleable solids shall be removed at least once annually.

2. Feedlot Runoff Control System: Accumulated open feedlot effluent shall be removed from the feedlot runoff control system and disposed of by land application at least once annually. The interval between successive application periods shall not exceed 12 months.

During application periods, land application shall be conducted at rates sufficient to ensure complete removal of accumulated open feedlot effluent from the runoff control system in ten or fewer application days. Open feedlot effluent removal is considered complete when the open feedlot effluent remaining in the runoff control system occupies less than 10 percent of the system's design open feedlot effluent storage volume.

Land application of open feedlot effluent shall be conducted on days when weather and soil conditions are suitable. Weather and soil conditions are normally considered suitable for open feedlot effluent application if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded the water-holding capacity of the soil to accept the manure application without the possibility of runoff.

SYSTEM 2: JULY AND OCTOBER OPEN FEEDLOT EFFLUENT APPLICATION

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the average runoff expected to occur over the nine-month period from November 1 through July 31 from all feedlot and nonfeedlot areas which drain into the open feedlot effluent control system (additional storage is required if open feedlot effluent from other sources also drains into the control system).

- Collected open feedlot effluent may be removed from the control system and land-applied during any period of the year that conditions are suitable. While application during other periods will minimize the need for July and October application, sufficient open feedlot effluent must still be disposed of during July and October to reduce the volume of open feedlot effluent remaining in the control system during these months to less than 10 percent of the system's design open feedlot effluent storage volume.

DETAILED SYSTEM REQUIREMENTS:

Open Feedlot Effluent Control System: The open feedlot effluent control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Open feedlot effluent solids settling facilities which meet or exceed the requirements of subrule 65.101(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

A. The volume determined by multiplying the unpaved feedlot area which drains into the control system by the appropriate runoff value from Figure 2.

B. The volume determined by multiplying the paved feedlot area which drains into the control system by 1.5 times the appropriate runoff value from Figure 2.

C. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the greater of the following:

- The amount of runoff expected from these areas as a result of the 25-year, 24-hour precipitation event.*

- The average runoff expected to occur from these areas during the nine-month period from November 1 to July 31.*

D. The volume determined by multiplying the total roof, farmstead and driveway area draining into the control system by the average runoff expected to occur from these areas during the nine-month period from November 1 to July 31.*

E. The volume of process wastewater which drains into the control system during the nine-month period from November 1 through July 31.

F. The volume of open feedlot effluent from other sources which discharges into the control system during the nine-month period from November 1 through July 31.

*Expected 25-year, 24-hour runoff and average runoff for the nine-month period from November 1 through July 31 shall be determined using runoff prediction methodologies of the NRCS (or equivalent methodologies).

Open Feedlot Effluent Application Requirements: Open feedlot effluent must be removed from the open feedlot effluent control system and land-applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected settleable solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, settleable solids shall be removed at least once annually.

2. Feedlot Runoff Control System:

A. A feedlot operator must comply with the following open feedlot effluent application requirements if application operations are limited to the months of July and October.

During these months, land application shall be conducted at rates sufficient to ensure complete removal of accumulated open feedlot effluent from the runoff control system in ten or fewer application days. Open feedlot effluent removal is considered complete when the open feedlot effluent remaining in the runoff control system occupies less than 10 percent of the system's design open feedlot effluent storage capacity.

During July and October, open feedlot effluent application operations shall be initiated on the first day that conditions are suitable for land application of open feedlot effluent, and application must continue on subsequent days that suitable conditions exist. If unfavorable weather conditions prevent complete application of open feedlot effluent to be accomplished during July or October, application must be continued into the following month. Open feedlot effluent application operations may cease when complete application has been achieved.

Weather and soil conditions are normally considered suitable for land application of open feedlot effluent if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded the water-holding capacity of the soil to accept the manure application without the possibility of runoff.

B. A feedlot operator may dispose of accumulated open feedlot effluent during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during July and October, the feedlot operator will still need to dispose of sufficient open

feedlot effluent during July and October to reduce the open feedlot effluent volume remaining in the runoff control system during these months to less than 10 percent of the system's design open feedlot effluent storage capacity.

A feedlot operator who does not limit open feedlot effluent application operations to the months of July and October is not required to comply with the specific open feedlot effluent application requirements which apply when application is limited to those months. However, this does not relieve the feedlot operator of the responsibility to conduct application operations at rates and times which are sufficient to ensure that the open feedlot effluent volume remaining in the runoff control system during July and October will be reduced to less than 10 percent of the system's design open feedlot effluent storage capacity.

SYSTEM 3: APRIL, JULY AND OCTOBER OPEN FEEDLOT EFFLUENT APPLICATION

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the average runoff expected to occur during the six-month period from November 1 through April 30 from all feedlot and nonfeedlot areas which drain into the open feedlot effluent control system (additional storage is required if open feedlot effluent from other sources also drains into the control system).

- Collected open feedlot effluent may be removed from the control system and land-applied during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during the specified application months, sufficient open feedlot effluent must still be disposed of during April, July and October to reduce the volume of open feedlot effluent remaining in the control system during these months to less than 10 percent of the system's design open feedlot effluent storage volume.

DETAILED SYSTEM REQUIREMENTS:

Open Feedlot Effluent Control System: The open feedlot effluent control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Solids settling facilities which meet or exceed the requirements of subrule 65.101(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

A. The volume determined by multiplying the unpaved feedlot area which drains into the control system by the appropriate runoff value from Figure 3.

B. The volume determined by multiplying the paved feedlot area which drains into the control system by 1.5 times the appropriate runoff value from Figure 3.

C. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the greater of the following:

- The amount of runoff expected from these areas as a result of the 25-year, 24-hour precipitation event.*

- The average annual runoff expected to occur from these areas during the six-month period from November 1 to April 30.*

D. The volume determined by multiplying the total roof, farmstead, and driveway area draining into the control system by the average runoff expected to occur from these areas during the six-month period from November 1 to April 30.*

E. The volume of process wastewater which drains into the control system during the six-month period from November 1 through April 30.

F. The volume of open feedlot effluent from other sources which discharges into the control system during the six-month period from November 1 through April 30.

*Expected 25-year, 24-hour runoff and average runoff for the six-month period from November 1 through April 30 shall be determined using runoff prediction methodologies of the NRCS (or equivalent methodologies).

Open Feedlot Effluent Application Requirements: Open feedlot effluent must be removed from the open feedlot effluent control system and land-applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected settleable solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, settleable solids shall be removed at least once annually.

2. Feedlot Runoff Control System:

A. A feedlot operator must comply with the following open feedlot effluent application requirements if application operations are limited to the months of April, July and October.

During these months, land application shall be conducted at rates sufficient to ensure complete removal of accumulated open feedlot effluent from the runoff control system in ten or fewer application days. Open feedlot effluent removal is considered complete when the open feedlot effluent remaining in the runoff control system occupies less than 10 percent of the system's design open feedlot effluent storage capacity.

During April, July and October, open feedlot effluent application operations shall be initiated on the first day that conditions are suitable for land application of open feedlot effluent, and application must continue on subsequent days that suitable conditions exist. If unfavorable weather conditions prevent complete application of open feedlot effluent to be accomplished during any of these months, open feedlot effluent application must be continued into the following month. Open feedlot effluent application operations may cease when complete application has been achieved.

Weather and soil conditions are normally considered suitable for land application of open feedlot effluent if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded the water-holding capacity of the soil to accept the manure application without the possibility of runoff.

B. A feedlot operator may dispose of accumulated open feedlot effluent during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during April, July and October, the feedlot operator will still need to dispose of sufficient open feedlot effluent during April, July and October to reduce the open feedlot effluent volume remaining in the runoff control system during these months to less than 10 percent of the system's design open feedlot effluent storage capacity.

A feedlot operator who does not limit open feedlot effluent application operations to the months of April, July and October is not required to comply with the specific open feedlot effluent application requirements which apply when application is limited to those months. However, this does not relieve the feedlot operator of the responsibility to conduct application operations at rates and times which are sufficient to ensure that the open feedlot effluent volume remaining in the runoff control system during April, July and October will be reduced to less than 10 percent of the system's design open feedlot effluent storage capacity.

SYSTEM 4: OPEN FEEDLOT EFFLUENT APPLICATION AFTER EACH SIGNIFICANT PRECIPITATION EVENT

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the runoff expected to occur as a result of the 25-year, 24-hour precipitation event from all feedlot and nonfeedlot areas which drain into the open feedlot effluent control system (additional storage is required if open feedlot effluent from other sources also drains into the control system).

- Collected open feedlot effluent must be removed from the control system and land-applied whenever the available (unoccupied) storage capacity remaining in the control system is less than 90 percent of that needed to store runoff from the 25-year, 24-hour precipitation event; land application must begin on the first day that conditions are suitable and must continue until application is completed.

DETAILED SYSTEM REQUIREMENTS:

Open Feedlot Effluent Control System: The open feedlot effluent control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Solids settling facilities which meet or exceed the requirements of subrule 65.101(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total wastewater volume determined by summing the following:

A. The volume determined by multiplying the total feedlot area which drains into the control system by the amount of runoff expected to occur from this area as a result of the 25-year, 24-hour precipitation event.*

B. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the amount of runoff expected to occur from these areas as a result of the 25-year, 24-hour precipitation event.*

C. The volume determined by multiplying the total roof, farmstead and driveway area draining into the control system by the amount of runoff expected to occur from these areas as a result of the 25-year, 24-hour precipitation event.*

D. The volume of process wastewater which drains into the control system during the six-month period from November 1 through April 30.

E. The volume of open feedlot effluent from other sources which discharges into the control system during the six-month period from November 1 through April 30.

*Expected 25-year, 24-hour runoff shall be determined by using runoff prediction methodologies of the NRCS (or equivalent methodologies).

Open Feedlot Effluent Application Requirements: Open feedlot effluent must be removed from the open feedlot effluent control system and land-applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected settleable solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, settleable solids shall be removed at least once annually.

2. Feedlot Runoff Control System: Accumulated open feedlot effluent shall be removed from the feedlot runoff control system and disposed of by land application following each precipitation or snowmelt runoff event which results in significant open feedlot effluent accumulations in the control system. Open feedlot effluent accumulations will be considered significant whenever the available (unoccupied) storage capacity remaining in the control system is less than 90 percent of that required to store the runoff from the 25-year, 24-hour precipitation event.

Once the available storage capacity remaining in the open feedlot effluent control system is reduced to the point that open feedlot effluent application is necessary, open feedlot effluent application operations must be initiated on the first day that conditions are suitable for land application of open feedlot effluent, and application must continue on subsequent days that suitable conditions exist. Application operations may cease when the storage capacity available in the control system has been restored to greater than 90 percent of that required to store runoff from the 25-year, 24-hour precipitation event.

During application periods, land application shall be conducted at rates sufficient to ensure complete removal of accumulated open feedlot effluent from the control system in ten or fewer application days.

Weather and soil conditions are normally considered suitable for land application of open feedlot effluent if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded the water-holding capacity of the soil to accept the manure application without the possibility of runoff.

SYSTEM 5: APRIL/MAY AND OCTOBER/NOVEMBER OPEN FEEDLOT EFFLUENT APPLICATION

MAJOR SYSTEM FEATURES:

- Adequate capacity must be provided to collect and store the average runoff expected to occur over the eight-month period from October 1 through May 31 from all feedlot and nonfeedlot areas which drain into the open feedlot effluent control system (additional storage is required if open feedlot effluent from other sources also drains into the control system).

- Collected open feedlot effluent may be removed from the control system and land-applied during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during the April/May and the October/November periods, sufficient open feedlot effluent must still be disposed of during each of these two-month periods to reduce the volume of open feedlot effluent remaining in the control system during these periods to less than 10 percent of the system's design open feedlot effluent storage volume.

DETAILED SYSTEM REQUIREMENTS:

Open Feedlot Effluent Control System: The open feedlot effluent control system must be constructed to meet or exceed the following requirements:

1. Solids Settling Facilities: Open feedlot effluent solids settling facilities which meet or exceed the requirements of subrule 65.101(1) must precede the feedlot runoff control system.

2. Feedlot Runoff Control System: The feedlot runoff control system shall, as a minimum, have adequate capacity to store the total open feedlot effluent volume determined by summing the following:

A. The volume determined by multiplying the unpaved feedlot area which drains into the control system by the appropriate runoff value from Figure 4.

B. The volume determined by multiplying the paved feedlot area which drains into the control system by 1.5 times the appropriate runoff value from Figure 4.

C. The volume determined by multiplying the total area of cropland, pasture and woodland draining into the control system by the greater of the following:

- The amount of runoff expected from these areas as a result of the 25-year, 24-hour precipitation event.*

- The average runoff expected to occur from these areas during the eight-month period from October 1 to May 31.*

D. The volume determined by multiplying the total roof, farmstead, and driveway draining into the control system by the average runoff expected to occur from these areas during the eight-month period from October 1 to May 31.*

E. The volume of process wastewater which drains into the control system during the eight-month period from October 1 through May 31.

F. The volume of open feedlot effluent from other sources which discharges into the control system during the eight-month period from October 1 through May 31.

*Expected 25-year, 24-hour runoff and average runoff for the eight-month period from October 1 through May 31 shall be determined using runoff prediction methodologies of the NRCS (or equivalent methodologies).

Open Feedlot Effluent Application Requirements: Open feedlot effluent must be removed from the open feedlot effluent control system and land-applied in accordance with the following requirements:

1. Solids Settling Facilities: Collected settleable solids must be removed from the solids settling facilities as necessary to maintain adequate capacity to handle future runoff events. As a minimum, settleable solids shall be removed at least once annually.

2. Feedlot Runoff Control System: At a minimum, accumulated open feedlot effluent shall be removed from the feedlot runoff control system and disposed of by land application during the periods April 1 through May 31 and October 1 through November 30.

During each of these periods, land application shall be conducted at rates sufficient to ensure complete removal of accumulated open feedlot effluent from the runoff control system in ten or fewer application days. Open feedlot effluent removal is considered complete when the open feedlot effluent remaining in the runoff control system occupies less than 10 percent of the system's design open feedlot effluent storage capacity.

A feedlot operator may dispose of accumulated open feedlot effluent during any period of the year that conditions are suitable. While application during other periods will minimize the need for application during the April/May and October/November periods, the feedlot operator will still need to dispose of sufficient open feedlot effluent during these periods to reduce the open feedlot effluent volume remaining in the runoff control system during these periods to less than 10 percent of the system's design open feedlot effluent storage capacity.

Land application of open feedlot effluent shall be conducted on days when weather and soil conditions are suitable. Weather and soil conditions are normally considered suitable for open feedlot effluent application if:

- Land application areas are not frozen or snow-covered.

- Temperatures during application are greater than 32 degrees Fahrenheit.

- Precipitation has not exceeded the water-holding capacity of the soil to accept the manure application without the possibility of runoff.

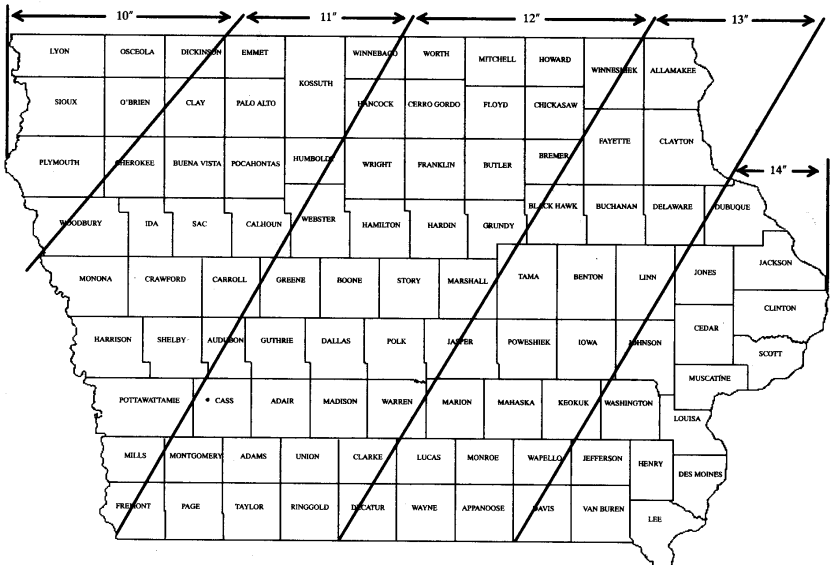


FIGURE 1. – Feedlot runoff value, in inches, for determining required capacity of the "System 1: One Open Feedlot Effluent Application Period Per Year" manure control system.

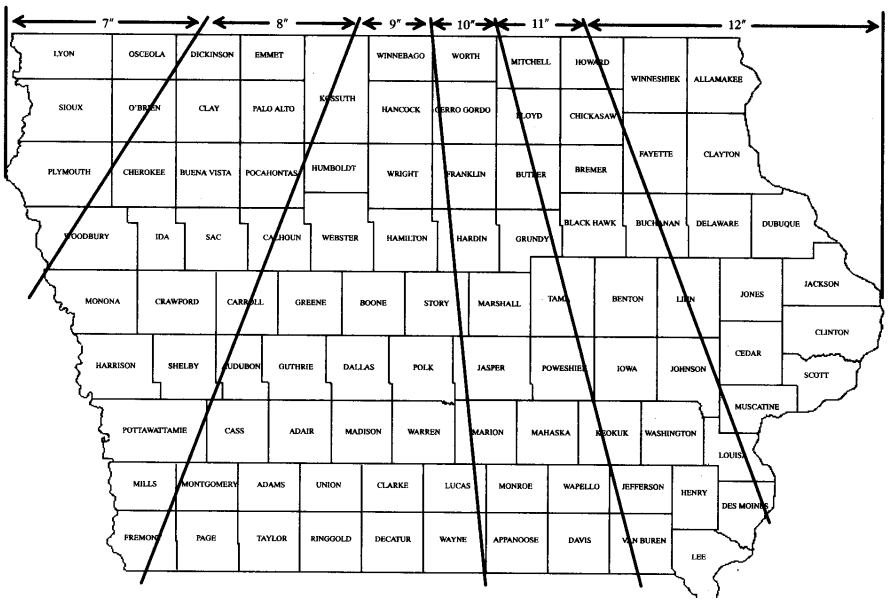


FIGURE 2. – Feedlot runoff value, in inches, for determining required capacity of the "System 2: July and October Open Feedlot Effluent Application" manure control system.

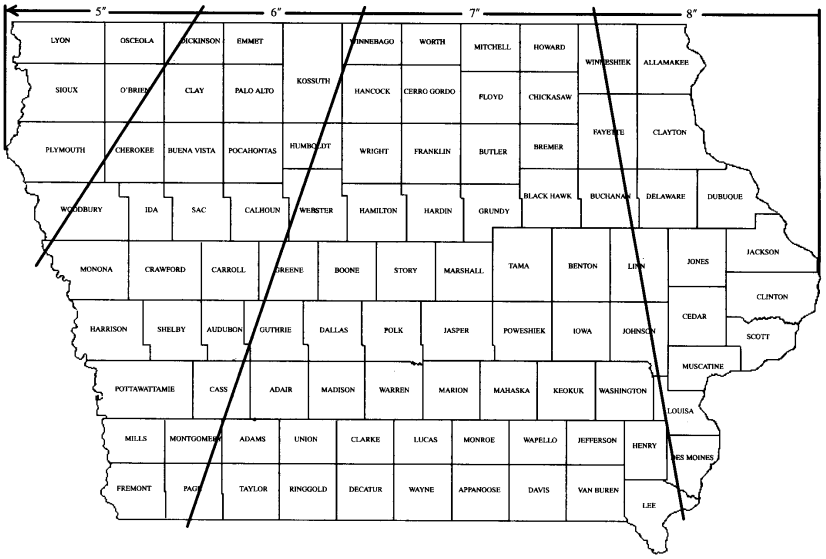


FIGURE 3. – Feedlot runoff value, in inches, for determining required capacity of the "System 3: April, July, and October Open Feedlot Effluent Application" manure control system.

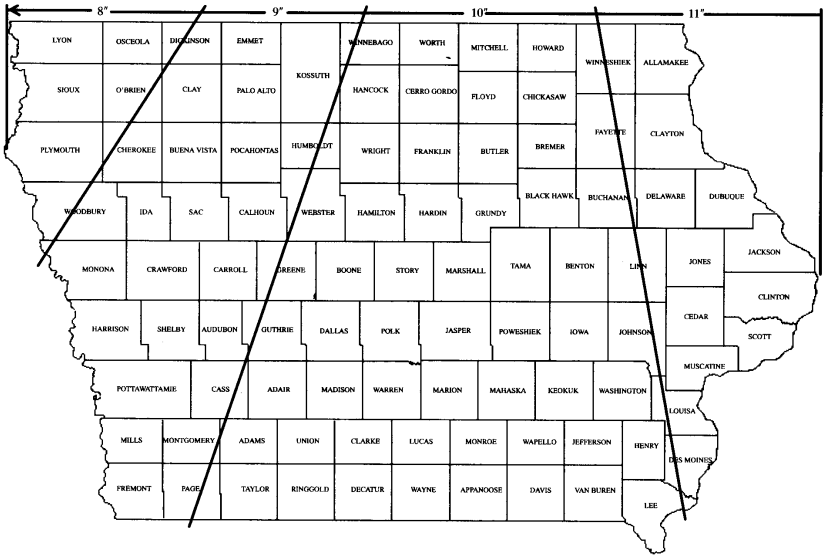


FIGURE 4. – Feedlot runoff value, in inches, for determining required capacity of the "System 5: April/May and October/November Open Feedlot Effluent Application" manure control system.

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

APPENDIX B
LAND DISPOSAL OF ANIMAL MANURE
Rescinded IAB 2/14/96, effective 3/20/96

APPENDIX C
MASTER MATRIX

Proposed Site Characteristics

The following scoring criteria apply to the site of the proposed confinement feeding operation. Mark one score under each criterion selected by the applicant. The proposed site must obtain a minimum overall score of 440 and a score of 53.38 in the "air" subcategory, a score of 67.75 in the "water" subcategory and a score of 101.13 in the "community impacts" subcategory.

1. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest:
* Residence not owned by the owner of the confinement feeding operation,
* Hospital,
* Nursing home, or
* Licensed or registered child care facility.

	Score	Air	Water	Community
250 feet to 500 feet	25	16.25		8.75
501 feet to 750 feet	45	29.25		17.50
751 feet to 1,000 feet	65	42.25		22.75
1,001 feet to 1,250 feet	85	55.25		29.75
1,251 feet or more	100	65.00		35.00

(A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567—Chapter 65 to determine minimum required separation distances.
(B) The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation.
(C) "Licensed or registered child care facility" - a facility licensed or registered by the department of human services providing child care or preschool services for six or more children as provided in Iowa Code chapter 237A.
(D) A full listing of licensed and registered child care facilities is available at county offices of the department of human services.

2. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest public use area.

	Score	Air	Water	Community
250 feet to 500 feet	5	2.00		3.00
501 feet to 750 feet	10	4.00		6.00
751 feet to 1,000 feet	15	6.00		9.00
1,001 feet to 1,250 feet	20	8.00		12.00
1,251 feet to 1,500 feet	25	10.00		15.00
1,501 feet or more	30	12.00		18.00

(A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567—Chapter 65 to determine minimum required separation distances.
(B) "Public use area" - a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 of 567—Chapter 65, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.

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3. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest:
* Educational institution,
* Religious institution, or
* Commercial enterprise.

	Score	Air	Water	Community
250 feet to 500 feet	5	2.00		3.00
501 feet to 750 feet	10	4.00		6.00
751 feet to 1,000 feet	15	6.00		9.00
1,001 feet to 1,250 feet	20	8.00		12.00
1,251 feet to 1,500 feet	25	10.00		15.00
1,501 feet or more	30	12.00		18.00

(A) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567—Chapter 65 to determine minimum required separation distances.
(B) The department will award points only for the single building, of the three listed above, closest to the proposed confinement feeding operation.
(C) "Educational institution" - a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area education agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.
(D) "Religious institution" - a building in which an active congregation is devoted to worship.
(E) "Commercial enterprise" - a building which is used as a part of a business that manufactures goods, delivers services, or sells goods or services, which is customarily and regularly used by the general public during the entire calendar year and which is connected to electric, water, and sewer systems. A commercial enterprise does not include a farm operation.

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4. Additional separation distance, above the minimum requirement of 500 feet, from proposed confinement structure to the closest water source.

	Score	Air	Water	Community
250 feet to 500 feet	5		5.00	
501 feet to 750 feet	10		10.00	
751 feet to 1,000 feet	15		15.00	
1,001 feet to 1,250 feet	20		20.00	
1,251 feet to 1,500 feet	25		25.00	
1,501 feet or more	30		30.00	

"Water source" - a lake, river, reservoir, creek, stream, ditch, or other body of water or channel having definite banks and a bed with water flow, except lakes or ponds without an outlet to which only one landowner is riparian.

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5. Separation distance of 300 feet or more from the proposed confinement structure to the nearest thoroughfare.

	Score	Air	Water	Community
300 feet or more	30	9.00		21.00

(A) "Thoroughfare" - a road, street, bridge, or highway open to the public and constructed or maintained by the state or a political subdivision.
(B) The 300-foot distance includes the 100-foot minimum setback plus an additional 200 feet.

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6. Additional separation distance, above minimum requirements, from proposed confinement structure to the closest critical public area.

	Score	Air	Water	Community
500 feet or more	10	4.00		6.00

(A) All critical public areas as defined in 567—65.1(459,459B) are public use areas and therefore subject to public use area minimum separation distances.
(B) Refer to the construction permit application package to determine the animal unit capacity (or animal weight capacity if an expansion) of the proposed confinement feeding operation. Then refer to Table 6 of 567—Chapter 65 to determine minimum required separation distances.

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7. Proposed confinement structure is at least two times the minimum required separation distance from all private and public water wells.

	Score	Air	Water	Community
Two times the minimum separation distance	30		24.00	6.00

Refer to Table 6 of 567—Chapter 65 for minimum required separation distances to wells.

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8. Additional separation distance, above the minimum requirement of 1,000 feet, from proposed confinement structure to the closest:
* Agricultural drainage well,
* Known sinkhole, or
* Major water source.

	Score	Air	Water	Community
250 feet to 500 feet	5	0.50	2.50	2.00
501 feet to 750 feet	10	1.00	5.00	4.00
751 feet to 1,000 feet	15	1.50	7.50	6.00
1,001 feet to 1,250 feet	20	2.00	10.00	8.00
1,251 feet to 1,500 feet	25	2.50	12.50	10.00
1,501 feet to 1,750 feet	30	3.00	15.00	12.00
1,751 feet to 2,000 feet	35	3.50	17.50	14.00
2,001 feet to 2,250 feet	40	4.00	20.00	16.00
2,251 feet to 2,500 feet	45	4.50	22.50	18.00
2,501 feet or more	50	5.00	25.00	20.00

(A) The department will award points only for the single item, of the three listed above, closest to the proposed confinement feeding operation.
(B) "Agricultural drainage wells" - include surface intakes, cisterns and wellheads of agricultural drainage wells.
(C) "Major water source" - a lake, reservoir, river or stream located within the territorial limits of the state, or any marginal river area adjacent to the state which can support a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Tables 1 and 2 in 567—Chapter 65.

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9. Distance between the proposed confinement structure and the nearest confinement facility that has a submitted department manure management plan.

	Score	Air	Water	Community
Three-quarters of a mile or more (3,960 feet)	25	7.50	7.50	10.00

Confinement facilities include swine, poultry, and dairy and beef cattle.

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10. Separation distance from proposed confinement structure to closest:
* High quality (HQ) waters,
* High quality resource (HQR) waters, or
* Protected water areas (PWA)
is at least two times the minimum required separation distance.

	Score	Air	Water	Community
Two times the minimum separation distance	30		22.50	7.50

(A) The department will award points only for the single item, of the three listed above, closest to the proposed confinement feeding operation.
(B) HQ waters are identified in 567—Chapter 61.
(C) HQR waters are identified in 567—Chapter 61.
(D) A listing of PWAs is available at www.state.ia.us/government/dnr/organiza/ppd/prowater.htm#Location%20of%20PWA's%20in.

11. Air quality modeling results demonstrating an annoyance level less than 2 percent of the time for residences within two times the minimum separation distance.

	Score	Air	Water	Community
University of Minnesota OFFSET model results demonstrating an annoyance level less than 2 percent of the time	10	6.00		4.00

(A) OFFSET can be found at www.extension.umn.edu/distribution/livestocksystems/DI7680.html. For more information, contact Dr. Larry Jacobson, University of Minnesota, (612)625-8288, jacob007@tc.umn.edu.
(B) A residence that has a signed waiver for the minimum separation distance cannot be included in the model.
(C) Only the OFFSET model is acceptable until the department recognizes other air quality models.

12. Liquid manure storage structure is covered.

	Score	Air	Water	Community
Covered liquid manure storage	30	27.00		3.00

(A) "Covered" - organic or inorganic material, placed upon an animal feeding operation structure used to store manure, which significantly reduces the exchange of gases between the stored manure and the outside air. Organic materials include, but are not limited to, a layer of chopped straw, other crop residue, or a naturally occurring crust on the surface of the stored manure. Inorganic materials include, but are not limited to, wood, steel, aluminum, rubber, plastic, or Styrofoam. The materials shall shield at least 90 percent of the surface area of the stored manure from the outside air. Cover shall include an organic or inorganic material which current scientific research shows reduces detectable odor by at least 75 percent. A formed manure storage structure directly beneath a floor where animals are housed in a confinement feeding operation is deemed to be covered.
(B) The design, operation and maintenance plan for the manure cover must be in the construction permit application and made a condition in the approved construction permit.

13. Construction permit application contains design, construction, operation and maintenance plan for emergency containment area at manure storage structure pump-out area.

	Score	Air	Water	Community
Emergency containment area	20		18.00	2.00

(A) The emergency containment area must be able to contain at least 5 percent of the total volume capacity of the manure storage structure.
(B) The emergency containment area must be constructed on soils that are fine-grained and have low permeability.
(C) If manure is spilled into the emergency containment area, the spill must be reported to the department within six hours of onset or discovery.
(D) The design, construction, operation and maintenance plan for the emergency containment area must be in the construction permit application and made a condition in the approved construction permit.

14. Installation of a filter(s) designed to reduce odors from confinement building(s) exhaust fan(s).

	Score	Air	Water	Community
Installation of filter(s)	10	8.00		2.00

The design, operation and maintenance plan for the filter(s) must be in the construction permit application and made a condition in the approved construction permit.

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15. Utilization of landscaping around confinement structure.

	Score	Air	Water	Community
Utilization of landscaping	20	10.00		10.00

The design, operation and maintenance plan for the landscaping must be in the construction permit application and made a condition in the approved construction permit. The design should contain at least three rows of trees and shrubs, of both fast- and slow-growing species that are well suited for the site.

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16. Enhancement, above minimum requirements, of structures used in stockpiling and composting activities, such as an impermeable pad and a roof or cover.

	Score	Air	Water	Community
Stockpile and compost facility enhancements	30	9.00	18.00	3.00

(A) The design, operation and maintenance plan for the stockpile or compost structure enhancements must be in the construction permit application and made a condition in the approved construction permit.
(B) The stockpile or compost structures must be located on land adjacent or contiguous to the confinement building.

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17. Proposed manure storage structure is formed.

	Score	Air	Water	Community
Formed manure storage structure	30		27.00	3.00

(A) “Formed manure storage structure” - a covered or uncovered impoundment used to store manure from an animal feeding operation, which has walls and a floor constructed of concrete, concrete block, wood, steel, or similar materials. Similar materials may include, but are not limited to, plastic, rubber, fiberglass, or other synthetic materials. Materials used in a formed manure storage structure shall have the structural integrity to withstand expected internal and external load pressures.
(B) The design, operation and maintenance plan for the formed manure storage structure must be in the construction permit application and made a condition in the approved construction permit.

18. Manure storage structure is aerated to meet departmental standards as an aerobic structure, if aeration is not already required by the department.

	Score	Air	Water	Community
Aerated manure storage structure	10	8.00		2.00

(A) "Aerobic structure" - an animal feeding operation structure other than an egg washwater storage structure which relies on aerobic bacterial action which is maintained by the utilization of air or oxygen and which includes aeration equipment to digest organic matter. Aeration equipment shall be used and shall be capable of providing oxygen at a rate sufficient to maintain an average of 2 milligrams per liter dissolved oxygen concentration in the upper 30 percent of the depth of manure in the structure at all times.
(B) The design, operation and maintenance plan for the aeration equipment must be in the construction permit application and made a condition in the approved construction permit.

19. Proposed confinement site has a suitable truck turnaround area so that semitrailers do not have to back into the facility from the road.

	Score	Air	Water	Community
Truck turnaround	20			20.00

(A) The design, operation and maintenance plan for the truck turnaround area must be in the construction permit application and made a condition in the approved construction permit.
(B) The turnaround area should be at least 120 feet in diameter and be adequately surfaced for traffic in inclement weather.

20. Construction permit applicant's animal feeding operation environmental and worker protection violation history for the last five years at all facilities in which the applicant has an interest.

	Score	Air	Water	Community
No history of Administrative Orders in last five years	30			30.00

(A) "Interest" - ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.
(B) An environmental violation is a final Administrative Order (AO) from the department or final court ruling against the construction permit applicant for environmental violations related to an animal feeding operation. A Notice of Violation (NOV) does not constitute a violation.

21. Construction permit applicant waives the right to claim a Pollution Control Tax Exemption for the life of the proposed confinement feeding operation structure.

	Score	Air	Water	Community
Permanent waiver of Pollution Control Tax Exemption	5			5.00

(A) Waiver of Pollution Control Tax Exemption is limited to the proposed structure(s) in the construction permit application.
(B) The department and county assessor will maintain a record of this waiver, and it must be in the construction permit application and made a condition in the approved construction permit.

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22. Construction permit applicant can lawfully claim a Homestead Tax Exemption on the site where the proposed confinement structure is to be constructed
- OR -
the construction permit applicant is the closest resident to the proposed confinement structure.

	Score	Air	Water	Community
Site qualifies for Homestead Tax Exemption or permit applicant is closest resident to proposed structure	25			25.00

(A) Proof of Homestead Tax Exemption is required as part of the construction permit application.
(B) Applicant includes persons who have ownership interests. "Interest" - ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.

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23. Construction permit applicant can lawfully claim a Family Farm Tax Credit for agricultural land where the proposed confinement feeding operation is to be located pursuant to Iowa Code chapter 425A.

	Score	Air	Water	Community
Family Farm Tax Credit qualification	25			25.00

Applicant includes persons who have ownership interests. "Interest" - ownership of a confinement feeding operation as a sole proprietor or a 10 percent or more ownership interest held by a person in a confinement feeding operation as a joint tenant, tenant in common, shareholder, partner, member, beneficiary or other equity interest holder. Ownership interest is an interest when it is held either directly, indirectly through a spouse or dependent child, or both.

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24. Facility size.

	Score	Air	Water	Community
1 to 2,000 animal unit capacity	20			20.00
2,001 to 3,000 animal unit capacity	10			10.00
3,001 animal unit capacity or more	0			0.00

(A) Refer to the construction permit application package to determine the animal unit capacity of the proposed confinement structure at the completion of construction.
(B) If the proposed structure is part of an expansion, animal unit capacity (or animal weight capacity) must include all animals confined in adjacent confinement structures.
(C) Two or more animal feeding operations under common ownership or management are deemed to be a single animal feeding operation if they are adjacent or utilize a common area or system for manure disposal. In addition, for purposes of determining whether two or more confinement feeding operations are adjacent, all of the following must apply:
(a) At least one confinement feeding operation structure must be constructed on and after May 21, 1998.
(b) A confinement feeding operation structure which is part of one confinement feeding operation is separated by less than a minimum required distance from a confinement feeding operation structure which is part of the other confinement feeding operation. The minimum required distance shall be as follows:
(1) 1,250 feet for confinement feeding operations having a combined animal unit capacity of less than 1,000 animal units.
(2) 2,500 feet for confinement feeding operations having a combined animal unit capacity of 1,000 animal units or more.

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25. Construction permit application includes livestock feeding and watering systems that significantly reduce manure volume.

	Score	Air	Water	Community
Wet/dry feeders or other feeding and watering systems that significantly reduce manure volume	25		12.50	12.50

The design, operation and maintenance plan for the feeding system must be in the construction permit application and made a condition in the approved construction permit.

Proposed Site Operation and Manure Management Practices

The following scoring criteria apply to the operation and manure management characteristics of the proposed confinement feeding operation. Mark one score under each criterion that best reflects the characteristics of the submitted manure management plan.

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26. Liquid or dry manure (choose only one subsection from subsections "a" - "e" and mark only one score in that subsection).

		Score	Air	Water	Community
a.	Bulk dry manure is sold under Iowa Code chapter 200A and surface-applied	15		15.00	
	Bulk dry manure is sold under Iowa Code chapter 200A and incorporated on the same date it is land-applied	30	12.00	12.00	6.00
b.	Dry manure is composted and land-applied under the requirements of a manure management plan	10	4.00	4.00	2.00
	Dry manure is composted and sold so that no manure is applied under the requirements of a manure management plan	30	12.00	12.00	6.00

c.

Methane digester is used to generate energy from manure and remaining manure is surface-applied under the requirements of a manure management plan	10	3.00	3.00	4.00
After methane digestion is complete, manure is injected or incorporated on the same date it is land-applied under the requirements of a manure management plan	30	12.00	12.00	6.00

d.

Dry manure is completely burned to generate energy and no remaining manure is applied under the requirements of a manure management plan	30	9.00	9.00	12.00
Some dry manure is burned to generate energy, but remaining manure is land-applied and incorporated on the same date it is land-applied	30	12.00	12.00	6.00

e.

Injection or incorporation of manure on the same date it is land-applied	30	12.00	12.00	6.00

(A) Choose only ONE line from subsection “a,” “b,” “c,” “d,” or “e” above and mark only one score in that subsection.
(B) The injection or incorporation of manure must be in the construction permit application and made a condition in the approved construction permit.
(C) If an emergency arises and injection or incorporation is not feasible, prior to land application of manure, the applicant must receive a written approval for an emergency waiver from a department field office to surface-apply manure.
(D) Requirements pertaining to the sale of bulk dry manure pursuant to Iowa Code chapter 200A must be incorporated into the construction permit application and made a condition of the approved construction permit.
(E) The design, operation and maintenance plan for utilization of manure as an energy source must be in the construction permit application and made a condition in the approved construction permit.
(F) The design, operation and maintenance plan for composting facilities must be in the construction permit application and made a condition in the approved construction permit.

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27. Land application of manure is based on a two-year crop rotation phosphorus uptake level.

	Score	Air	Water	Community
Two-year phosphorus crop uptake application rate	10		10.00	

(A) Land application of manure cannot exceed phosphorus crop usage levels for a two-year crop rotation cycle.
(B) The phosphorus uptake application rates must be in the construction permit application and made a condition in the approved construction permit.

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28. Land application of manure to farmland that has USDA Natural Resources Conservation Service (NRCS)-approved buffer strips contiguous to all water sources traversing or adjacent to the fields listed in the manure management plan.

	Score	Air	Water	Community
Manure application on farmland with buffer strips	10		8.00	2.00

(A) The department may request NRCS maintenance agreements to ensure proper design, installation and maintenance of filter strips. If a filter strip is present but not designed by NRCS, it must meet NRCS standard specifications.
(B) The application field does not need to be owned by the confinement facility owner to receive points.
(C) On current and future manure management plans, the requirement for buffer strips on all land application areas must be in the construction permit application and made a condition in the approved construction permit.

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29. Land application of manure does not occur on highly erodible land (HEL), as classified by the USDA NRCS.

	Score	Air	Water	Community
No manure application on HEL farmland	10		10.00	

Manure application on non-HEL farmland must be in the construction permit application and made a condition in the approved construction permit.

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30. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for the land application of manure to the closest:
* Residence not owned by the owner of the confinement feeding operation,
* Hospital,
* Nursing home, or
* Licensed or registered child care facility.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	3.25		1.75
Additional separation distance of 500 feet	10	6.50		3.50

(A) The department will award points only for the single building, of the four listed above, closest to the proposed confinement feeding operation.
(B) Minimum separation distance for land application of manure injected or incorporated on the same date as application: 0 feet.
(C) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
(D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.
(E) "Licensed or registered child care facility" - a facility licensed or registered by the department of human services providing child care or preschool services for six or more children as provided in Iowa Code chapter 237A.
(F) A full listing of licensed and registered child care facilities is available at county offices of the department of human services.

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31. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for land application of manure to closest public use area.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	2.00		3.00

(A) "Public use area" - a portion of land owned by the United States, the state, or a political subdivision with facilities which attract the public to congregate and remain in the area for significant periods of time. Facilities include, but are not limited to, picnic grounds, campgrounds, cemeteries, lodges, shelter houses, playground equipment, lakes as listed in Table 2 in 567—Chapter 65, and swimming beaches. It does not include a highway, road right-of-way, parking areas, recreational trails or other areas where the public passes through, but does not congregate or remain in the area for significant periods of time.
(B) Minimum separation distance for land application of manure injected or incorporated on the same date as application: 0 feet.
(C) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
(D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.

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32. Additional separation distance, above minimum requirements (0 or 750 feet, see below), for the land application of manure to the closest:
* Educational institution,
* Religious institution, or
* Commercial enterprise.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	2.00		3.00

(A) Minimum separation distance for land application of manure broadcast on soil surface: 750 feet.
(B) Minimum separation distance for land application of manure injected or incorporated on same date as application: 0 feet.
(C) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.
(D) "Educational institution" - a building in which an organized course of study or training is offered to students enrolled in kindergarten through grade 12 and served by local school districts, accredited or approved nonpublic schools, area education agencies, community colleges, institutions of higher education under the control of the state board of regents, and accredited independent colleges and universities.
(E) "Religious institution" - a building in which an active congregation is devoted to worship.
(F) "Commercial enterprise" - a building which is used as a part of a business that manufactures goods, delivers services, or sells goods or services, which is customarily and regularly used by the general public during the entire calendar year and which is connected to electric, water, and sewer systems. A commercial enterprise does not include a farm operation.

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33. Additional separation distance of 50 feet, above minimum requirements (0 or 200 feet, see below), for the land application of manure to the closest private drinking water well or public drinking water well
- OR -
well is properly closed under supervision of county health officials.

	Score	Air	Water	Community
Additional separation distance of 50 feet or well is properly closed	10		8.00	2.00

(A) Minimum separation distance for land application of manure injected or incorporated on the same date as application or 50-foot vegetation buffer exists around well and manure is not applied to the buffer: 0 feet.
(B) Minimum separation distance for land application of manure broadcast on soil surface: 200 feet.
(C) If applicant chooses to close the well, the well closure must be incorporated into the construction permit application and made a condition in the approved construction permit.

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34. Additional separation distance, above minimum requirements, for the land application of manure to the closest:
* Agricultural drainage well,
* Known sinkhole,
* Major water source, or
* Water source.

	Score	Air	Water	Community
Additional separation distance of 200 feet	5	0.50	2.50	2.00
Additional separation distance of 400 feet	10	1.00	5.00	4.00

(A) "Agricultural drainage wells" - include surface intakes, cisterns and wellheads of agricultural drainage wells.
(B) "Major water source" - a lake, reservoir, river or stream located within the territorial limits of the state, or any marginal river area adjacent to the state, which can support a floating vessel capable of carrying one or more persons during a total of a six-month period in one out of ten years, excluding periods of flooding. Major water sources in the state are listed in Tables 1 and 2 in 567—Chapter 65.
(C) "Water source" - a lake, river, reservoir, creek, stream, ditch, or other body of water or channel having definite banks and a bed with water flow, except lakes or ponds without an outlet to which only one landowner is riparian.
(D) The additional separation distances must be in the construction permit application and made a condition in the approved construction permit.

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35. Additional separation distance, above minimum requirements, for the land application of manure, to the closest:
* High quality (HQ) water,
* High quality resource (HQR) water, or
* Protected water area (PWA).

	Score	Air	Water	Community
Additional separation distance of 200 feet	5		3.75	1.25
Additional separation distance of 400 feet	10		7.50	2.50

(A) HQ waters are identified in 567—Chapter 61.
(B) HQR waters are identified in 567—Chapter 61.
(C) A listing of PWAs is available at www.state.ia.us/government/dnr/organiza/ppd/prowater.htm#Location%20of%20PWA's%20in.

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36. Demonstrated community support.

	Score	Air	Water	Community
Written approval of 100 percent of the property owners within a one-mile radius	20			20.00

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37. Worker safety and protection plan is submitted with the construction permit application.

	Score	Air	Water	Community
Submission of worker safety and protection plan	10			10.00

(A) The worker safety and protection plan must be in the construction permit application and made a condition in the approved construction permit.
(B) The worker safety and protection plan and subsequent records must be kept on site with the manure management plan records.

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38. Applicant signs a waiver of confidentiality allowing the public to view confidential manure management plan land application records.

	Score	Air	Water	Community
Manure management plan confidentiality waiver	5			5.00

The waiver of confidentiality must be in the construction permit application and made a condition in the approved construction permit. The applicant may limit public inspection to reasonable times and places.

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39. Added economic value based on quality job development (number of full-time equivalent (FTE) positions), and salary equal to or above Iowa department of workforce development median (45-2093)
- OR -
the proposed structure increases commercial property tax base in the county.

	Score	Air	Water	Community
Economic value to local community	10			10.00

The Iowa department of workforce development regional profiles are available at www.iowaworkforce.org/centers/regionalsites.htm. Select the appropriate region and then select "Regional Profile."

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40. Construction permit application contains an emergency action plan.

	Score	Air	Water	Community
Emergency action plan	5		2.50	2.50

(A) Iowa State University Extension publication PM 1859 lists the components of an emergency action plan. The emergency action plan submitted should parallel the components listed in the publication.
(B) The posting and implementation of an emergency action plan must be in the construction permit application and made a condition in the approved construction permit.
(C) The emergency action plan and subsequent records must be kept on site with the manure management plan records.

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41. Construction permit application contains a closure plan.

	Score	Air	Water	Community
Closure plan	5		2.50	2.50

(A) The closure plan must be in the construction permit application and made a condition in the approved construction permit.
(B) The closure plan must be kept on site with the manure management plan records.

42. Adoption and implementation of an environmental management system (EMS) recognized by the department.

	Score	Air	Water	Community
EMS	15	4.50	4.50	6.00

(A) The EMS must be in the construction permit application and made a condition in the approved construction permit.
(B) The EMS must be recognized by the department as an acceptable EMS for use with confinement operations.

43. Adoption and implementation of NRCS-approved Comprehensive Nutrient Management Plan (CNMP).

	Score	Air	Water	Community
CNMP	10	3.00	3.00	4.00

The implementation and continuation of a CNMP must be in the construction permit application and made a condition in the approved construction permit.

44. Groundwater monitoring wells installed near manure storage structure, and applicant agrees to provide data to the department.

	Score	Air	Water	Community
Groundwater monitoring	15		10.50	4.50

(A) Monitoring well location, sampling and data submission must meet department requirements.
(B) The design, operation and maintenance plan for the groundwater monitoring wells, and data transfer to the department, must be in the construction permit application and made a condition in the approved construction permit.

	Total Score	Air	Water	Community
Minimum score to pass:	440	53.38	67.75	101.13

APPENDIX D
DESIGN SPECIFICATIONS—FORMED MANURE STORAGE STRUCTURES

The following design specifications apply to a formed manure storage structure that is constructed belowground, is laterally braced and is not designed using MWPS-36 or by a PE or an NRCS engineer:

(1) The walls of a rectangular formed structure with a depth up to 12 feet shall be designed in accordance with the tables provided in this appendix.

(2) Consideration shall be given to internal and external loads including, but not limited to, lateral earth pressures, hydrostatic pressures, wind loads, and floor or cover, building and equipment loads.

(3) Each wall shall be braced laterally at the top of the wall.

(4) The walls shall be constructed above the groundwater table, or a drain tile shall be installed to artificially lower the groundwater table.

(5) Each wall that includes a pumpout port shall be constructed under the design consideration that vehicles will be operating within 5 feet of the wall as provided in Tables D-2 and D-4.

(6) Minimum wall thickness and minimum vertical steel reinforcement shall be in accordance with one of the following:

(a) Table D-1, if **all** of the following conditions are met:

1. There will be NO VEHICLES operating within 5 feet of the wall.

2. Backfilling is performed with gravel, sand, silt, and clay mixtures (less than 50 percent fines), with coarse sand with silt or clay (less than 50 percent fines), or cleaner granular material (see NRCS Conservation Practice Standard, "Waste Storage Facility," Code 313, Table 2, for description and unified classification or ASTM D 2488 and D 653).

APPENDIX D, TABLE D-1
Minimum Wall Thickness and Vertical Steel Reinforcement

Wall height (feet)	Wall thickness (inches)	Steel Grade			
		Grade 40		Grade 60	
		Bar	Space o.c. (inches)	Bar	Space o.c. (inches)
4 or less	6	#4	16.5	#4	18.0
		#5	18.0	#5	18.0
4 or less	8	#4	12.0	#4	13.5
		#5	18.0	#5	18.0
6	6	#4	14.5	#4	18.0
		#5	18.0	#5	18.0
6	8	#4	12.0	#4	13.5
		#5	18.0	#5	18.0
8	8	#4	9.5	#4	13.5
		#5	14.5	#5	18.0
8	10	#4	9.5	#4	11.0
		#5	15.0	#5	17.0
10	8	#4	6.5	#4	9.5
		#5	10.0	#5	13.5
10	10	#4	6.5	#4	9.5
		#5	10.0	#5	15.0
12	10	#4	5.0	#4	7.5
		#5	7.5	#5	11.5

(b) Table D-2, if **all** of the following conditions are met:

1. There will be VEHICLES operating within 5 feet of the wall.

2. Backfilling is performed with gravel, sand, silt, and clay mixtures (less than 50 percent fines), with coarse sand with silt or clay (less than 50 percent fines), or cleaner granular material (see NRCS Conservation Practice Standard, "Waste Storage Facility," Code 313, Table 2, for description and unified classification or ASTM D 2488 and D 653).

APPENDIX D, TABLE D-2

Minimum Wall Thickness and Vertical Steel Reinforcement

Wall height (feet)	Wall thickness (inches)	Steel Grade			
		Grade 40		Grade 60	
		Bar	Space o.c. (inches)	Bar	Space o.c. (inches)
4 or less	6	#4	16.5	#4	18.0
		#5	18.0	#5	18.0
4 or less	8	#4	12.0	#4	13.5
		#5	18.0	#5	18.0
6	6	#4	10.5	#4	15.5
		#5	16.5	#5	18.0
6	8	#4	12.0	#4	13.5
		#5	18.0	#5	18.0
8	8	#4	6.5	#4	10.0
		#5	10.5	#5	16.0
8	10	#4	8.5	#4	11.0
		#5	13.5	#5	17.0
10	8	#4	4.5	#4	6.5
		#5	7.0	#5	10.5
10	10	#4	5.0	#4	7.5
		#5	8.0	#5	12.0
12	10	#4	3.5	#4	5.5
		#5	5.5	#5	8.5

(c) Table D-3, if **all** of the following conditions are met:

1. There will be NO VEHICLES operating within 5 feet of the wall.

2. Backfilling is performed with low plasticity silts and clays with some sand or gravel (50 percent or more fines); or fine sands with silt or clay (less than 50 percent fines); or low to medium plasticity silts and clays with little sand or gravel (50 percent or more fines); or high plasticity silts and clays (see NRCS Conservation Practice Standard, "Waste Storage Facility," Code 313, Table 2, for description and unified classification or ASTM D 2488 and D 653).

APPENDIX D, TABLE D-3

Minimum Wall Thickness and Vertical Steel Reinforcement

Wall height (feet)	Wall thickness (inches)	Steel Grade			
		Grade 40		Grade 60	
		Bar	Space o.c. (inches)	Bar	Space o.c. (inches)
4 or less	6	#4	16.5	#4	18.0
		#5	18.0	#5	18.0
4 or less	8	#4	12.0	#4	13.5
		#5	18.0	#5	18.0
6	6	#4	10.5	#4	15.5
		#5	16.5	#5	18.0
6	8	#4	12.0	#4	13.5
		#5	18.0	#5	18.0
8	8	#4	6.5	#4	10.0
		#5	10.5	#5	16.0
8	10	#4	9.0	#4	11.0
		#5	14.0	#5	17.0
10	8	#4	4.5	#4	6.5
		#5	7.0	#5	10.0
10	10	#4	5.0	#4	7.5
		#5	8.0	#5	12.0
12	10	#4	3.5	#4	5.0
		#5	5.5	#5	8.0

(d) Table D-4, if **all** of the following conditions are met:

1. There will be VEHICLES operating within 5 feet of the wall.

2. Backfilling is performed with low plasticity silts and clays with some sand or gravel (50 percent or more fines); or fine sands with silt or clay (less than 50 percent fines); or low to medium plasticity silts and clays with little sand or gravel (50 percent or more fines); or high plasticity silts and clays (see NRCS Conservation Practice Standard, "Waste Storage Facility," Code 313, Table 2, for description and unified classification or ASTM D 2488 and D 653).

APPENDIX D, TABLE D-4

Minimum Wall Thickness and Vertical Steel Reinforcement

Wall height (feet)	Wall thickness (inches)	Steel Grade			
		Grade 40		Grade 60	
		Bar	Space o.c. (inches)	Bar	Space o.c. (inches)
4 or less	6	#4	16.5	#4	18.0
		#5	18.0	#5	18.0
4 or less	8	#4	12.0	#4	13.5
		#5	18.0	#5	18.0
6	6	#4	8.0	#4	12.0
		#5	12.5	#5	16.5
6	8	#4	9.5	#4	13.5
		#5	15.0	#5	18.0
8	8	#4	6.0	#4	9.0
		#5	9.0	#5	11.5
8	10	#4	6.0	#4	9.0
		#5	9.5	#5	14.0
10	8	#4	3.0	#4	4.5
		#5	4.5	#5	7.0
10	10	#4	4.5	#4	6.5
		#5	6.5	#5	10.0
12	10	#4	2.5	#4	4.0
		#5	4.0	#5	6.0

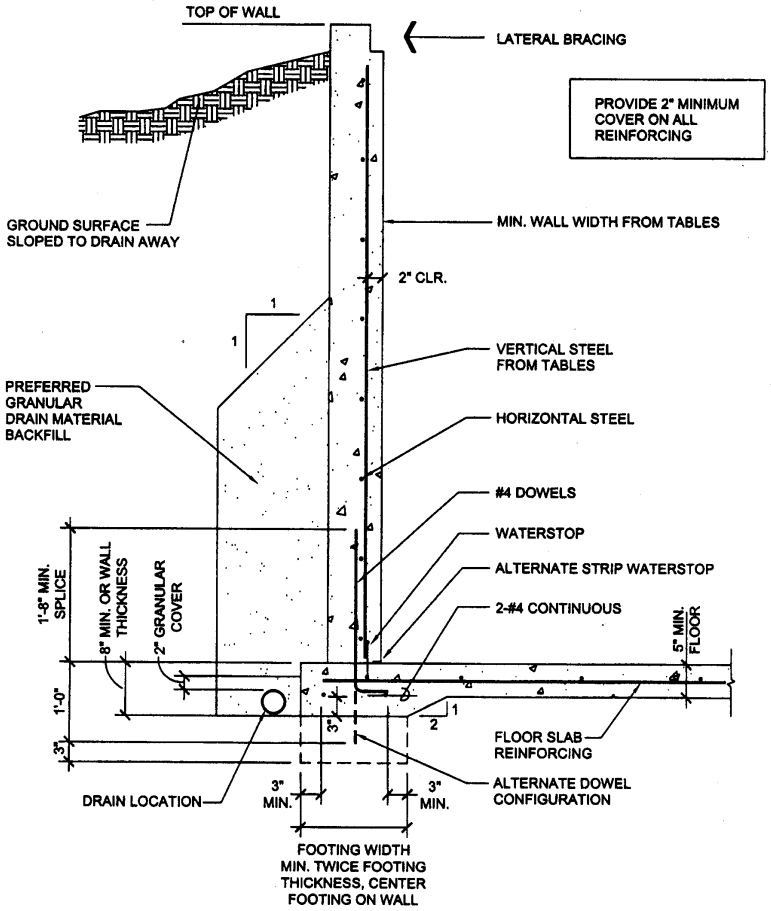
(7) Minimum horizontal steel for a rectangular tank shall be selected and placed according to Table D-5, regardless of wall height, and shall be tied to the soil side of vertical steel:

APPENDIX D, TABLE D-5

Minimum Wall Horizontal Steel Reinforcement

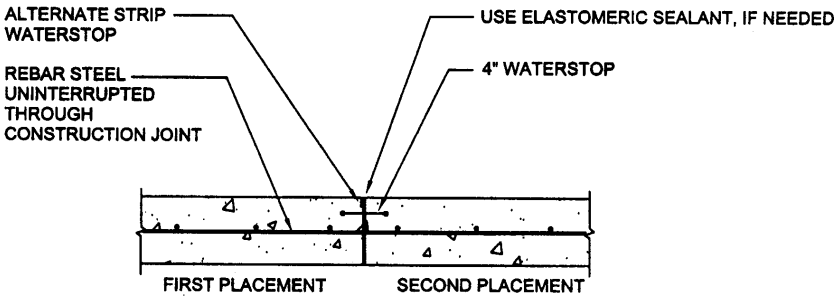
Wall thickness (inches)	Steel Grade			
	Grade 40		Grade 60	
	Bar	Space o.c. (inches)	Bar	Space o.c. (inches)
6	#4	16.5	#4	18.0
	#5	18.0	#5	18.0
8	#4	12.0	#4	13.5
	#5	18.0	#5	18.0
10	#4	9.5	#4	11.0
	#5	15.0	#5	17.0

APPENDIX D, FIGURE D-1
MONOLITHIC FOOTING FLOOR DETAIL



NOTE: For a more detailed version of this figure, contact the department, animal feeding operations.

APPENDIX D, FIGURE D-2
WALL AND FLOOR CONSTRUCTION JOINT



NOTE: For a more detailed version of this figure, contact the department, animal feeding operations.

TABLE 1

Major Water Sources—Rivers and Streams

County	River/Stream	Location
Adair	Bush Branch	East county line (S13, T75N, R30W) to confluence with unnamed tributary (S13, T75N, R30W)
	Middle Nodaway River	South county line (S31, T74N, R33W) to Hwy. 92 (S14, T75N, R32W)
	Middle River	East county line (S36, T76N, R30W) to north county line (S1, T77N, R32W)
	North Turkey Creek	Mouth (S35, T77N, R31W) to confluence with South Turkey Creek (S33, T77N, R31W)
	Shanghai Creek	South county line (S34, T74N, R32W) to confluence with unnamed tributary (SW1/4, S34, T74N, R32W)
	Thompson River	East county line (S12, T74N, R30W) to confluence with Ninemile Creek (S35, T75N, R30W)
	West Fork Middle Nodaway River	Mouth (S33, T74N, R33W) to County Road N51 (S20, T76N, R33W)
Adams	East Nodaway River	South county line (S31, T71N, R35W) to confluence with Shanghai Creek (S16, T73N, R32W)
	Middle Nodaway River	West county line (S31, T72N, R35W) to north county line (S6, T73N, R33W)
	Platte River	East line (S24, T71N, R32W) to east line (S36, T72N, R32W)
	Shanghai Creek	Mouth (S16, T73N, R32W) to north county line (S3, T73N, R32W)
Allamakee	Bear Creek	Mouth (S1, T99N, R06W) to west county line (S30, T100N, R06W)
	Mississippi River	South county line (S34, T96N, R03W) to north county line (S8, T100N, R03W)
	Paint Creek	Mouth (S9, T99N, R06W) to west county line (S18, T99N, R06W)

County	River/Stream	Location
	Paint Creek	Mouth (S15, T96N, R03W) to road crossing (S18, T97N, R04W)
	Upper Iowa River	Mouth (S19, T100N, R03W) to west county line (S31, T99N, R06W)
	Village Creek	Mouth (S33, T99N, R03W) to confluence with Erickson Spring Branch (S23, T98N, R04W)
	Waterloo Creek	Mouth (S35, T100N, R06W) to north county line (S04, T100N, R06W)
	Winnebago Creek	Mouth (S12, T100N, R04W) to north county line (S1, T100N, R04W)
	Yellow River	Mouth (S34, T96N, R03W) to west county line (S18, T96N, R06W)
Appanoose	Chariton River	South county line (S21, T67N, R16W) to west county line (S6, T70N, R19W)
	Packard Creek	Mouth (S8, T67N, R16W) to confluence with Pigeon Creek (S6, T67N, R16W)
	Soap Creek	East county line (S13, T70N, R16W) to north county line (S4, T70N, R16W)
	South Fork Chariton River	Lake Rathbun (S14, T70N, R19W) to west county line (S31, T70N, R19W)
	South Soap Creek	East county line (S25, T70N, R16W) to Lake Sundown (S29, T70N, R16W)
	Walnut Creek	Mouth (S1, T69N, R18W) to confluence with Little Walnut Creek (S1, T69N, R18W)
Audubon	Brushy Creek	East county line (S1, T81N, R34W) to north county line (S1, T81N, R34W)
	East Branch West Nishnabotna River	West county line (S18, T80N, R36W) to confluence with unnamed tributary (NW 1/4, S19, T81N, R35W)
	East Nishnabotna River	South county line (S36, T78N, R36W) to confluence with unnamed tributary (NW 1/4, S12, T81N, R35W)
	Troublesome Creek	South county line (S35, T78N, R35W) to east county line (S36, T79N, R34W)
Benton	Bear Creek	North county line (S1, T86N, R10W) to mouth (S21, T86N, R10W)
	Bear Creek	East county line (S13, T84N, R09W) to confluence of Wildcat Creek and Opossum Creek (S8, T84N, R09W)
	Blue Creek	East county line (S24, T86N, R09W) to confluence with West Branch Blue Creek (S24, T86N, R09W)
	Cedar River	East county line (S13, T85N, R09W) to north county line (S6, T86N, R10W)
	Iowa River	South county line (S31, T82N, R12W) to west county line (S31, T82N, R12W)
	Prairie Creek	Confluence with unnamed tributary (middle of S 1/2, S13, T83N, R12W) to east county line (S12, T82N, R09W)
	Salt Creek	Mouth (S6, T82N, R12W) to west county line (S6, T82N, R12W)

County	River/Stream	Location
	Walnut Creek	Mouth (S6, T82N, R12W) to south county line (S6, T82N, R12W)
	Wolf Creek	North county line (S2, T86N, R12W) to west county line (S19, T86N, R12W)
Black Hawk	Beaver Creek	Mouth (S34, T90N, R14W) to west county line (S31, T90N, R14W)
	Black Hawk Creek	Mouth (S22, T89N, R13W) to west county line (S6, T87N, R14W)
	Buck Creek	East county line (S12, T90N, R11W) to north county line (S1, T90N, R11W)
	Cedar River	East county line (S36, T87N, R11W) to north county line (S2, T90N, R14W)
	Crane Creek	Mouth (S26, T90N, R11W) to north county line (S3, T90N, R12W)
	Miller Creek	Mouth (S2, T87N, R12W) to confluence with unnamed tributary (NE 1/4, S24, T87N, R13W)
	Shell Rock River	Mouth (S4, T90N, R14W) to north county line (S4, T90N, R14W)
	Spring Creek	Mouth (S34, T87N, R11W) to confluence with East Branch Spring Creek (S11, T87N, R11W)
	Wapsipinicon River	East county line (S1, T89N, R11W) to north county line (S4, T90N, R11W)
	West Fork Cedar River	Mouth (S16, T90N, R14W) to west county line (S7, T90N, R14W)
	Wolf Creek	Mouth (S29, T87N, R11W) to south county line (S35, T87N, R12W)
Boone	Beaver Creek	Confluence with Middle Beaver Creek (S21, T83N, R28W) to south county line (S35, T82N, R28W)
	Des Moines River	South county line (S34, T82N, R26W) to north county line (S3, T85N, R27W)
	Squaw Creek	North line (S9, T85N, R25W) to east county line (S12, T84N, R25W)
Bremer	Cedar River	South county line (S35, T91N, R14W) to north county line (S5, T93N, R14W)
	Crane Creek	South county line (S34, T91N, R12W) to north line (S9, T91N, R12W)
	Dry Run	Mouth (S33, T93N, R14W) to confluence with Horton Creek (S33, T93N, R14W)
	East Branch Wapsipinicon River	Mouth (S34, T93N, R12W) to north county line (S3, T93N, R12W)
	Little Wapsipinicon River	East county line (S13, T92N, R11W) to north line (S2, T92N, R11W)
	Quarter Section Run	Mouth (S19, T91N, R13W) to confluence with unnamed tributary (SW 1/4, S35, T91N, R13W)
	Shell Rock River	South county line (S33, T91N, R14W) to west county line (S18, T91N, R14W)
	Wapsipinicon River	South county line (S33, T91N, R11W) to north county line (S1, T93N, R13W)

County	River/Stream	Location
Buchanan	Buck Creek	Mouth (S32, T90N, R10W) to west county line (S7, T90N, R10W)
	Buffalo Creek	East county line (S13, T87N, R07W) to confluence of East and West Branches (S35, T90N, R08W)
	Cedar River	South county line (S31, T87N, R10W) to west county line (S31, T87N, R10W)
	Little Wapsipinicon River	Mouth (S9, T89N, R10W) to north county line (S5, T90N, R10W)
	Otter Creek	Mouth (S19, T89N, R09W) to north county line (S4, T90N, R09W)
	South Fork Maquoketa River	East county line (S24, T90N, R07W) to confluence with Lamont Creek (S23, T90N, R07W)
	Wapsipinicon River	South county line (S31, T87N, R07W) to west county line (S6, T89N, R10W)
Buena Vista	Little Sioux River	North county line (S2, T93N, R38W) to north county line (S5, T93N, R36W)
	North Raccoon River	South county line (S36, T90N, R36W) to north line (S15, T91N, R36W)
Butler	Beaver Creek	East county line (S36, T90N, R15W) to west county line (S31, T90N, R18W)
	Boylan Creek	Mouth (S1, T91N, R18W) to confluence with Parmentar Creek (S14, T92N, R18W)
	Coldwater Creek	Mouth (S29, T93N, R16W) to west line (S5, T93N, R17W)
	Flood Creek	Mouth (S27, T93N, R16W) to north county line (S3, T93N, R16W)
	Hartgrave Creek	Mouth (S34, T92N, R18W) to west county line (S30, T92N, R18W)
	Johnson Creek	West county line (S19, T91N, R18W) to mouth (S20, T90N, R16W)
	Maynes Creek	West county line (S18, T91N, R18W) to mouth (S7, T91N, R17W)
	Shell Rock River	East county line (S13, T91N, R15W) to north county line (S2, T93N, R17W)
	South Beaver Creek	Mouth (S25, T90N, R17W) to south county line (S35, T90N, R17W)
	West Fork Cedar River	East county line (S12, T90N, R15W) to west county line (S7, T92N, R18W)
Calhoun	Camp Creek	Mouth (S7, T86N, R34W) to west line (S25, T88N, R34W)
	Cedar Creek	South county line (S34, T86N, R32W) to confluence with West Cedar Creek (S31, T87N, R31W)
	Lake Creek	Mouth (S23, T86N, R34W) to north line (S25, T87N, R33W)
	North Raccoon River	South county line (S31, T86N, R33W) to west county line (S6, T86N, R34W)

County	River/Stream	Location
Carroll	Brushy Creek	South county line (S36, T82N, R34W) to confluence with Dedham Creek (S16, T82N, R34W)
	Middle Raccoon River	South county line (S34, T82N, R33W) to confluence with unnamed tributary (NW 1/4, NW 1/4, S6, T84N, R35W)
	North Raccoon River	East county line (S12, T84N, R33W) to north county line (S6, T85N, R33W)
	West Nishnabotna River	West county line (S31, T82N, R36W) to confluence with unnamed tributary (S34, T83N, R36W)
Cass	East Nishnabotna River	West county line (S31, T75N, R37W) to north county line (S1, T77N, R36W)
	Indian Creek	Mouth (S17, T75N, R37W) to north county line (S5, T77N, R37W)
	Sevenmile Creek	South county line (S31, T74N, R36W) to confluence with unnamed tributary (center of S32, T76N, R34W)
	Troublesome Creek	Mouth (S32, T77N, R36W) to north county line (S2, T77N, R35W)
	Turkey Creek	Mouth (S2, T75N, R37W) to confluence with Lone Tree Branch (S28, T76N, R36W)
	West Nodaway River	South county line (SW 1/4, S34, T74N, R36W) to confluence with Williams Creek (S35, T74N, R36W)
Cedar	Cedar River	South county line (S31, T79N, R02W) to west county line (S18, T81N, R04W)
	Mud Creek	South county line (S34, T79N, R01W) to south county line (S35, T79N, R01W)
	Rock Creek	Road crossing north line (S1, T81N, R03W) to mouth (S3, T79N, R03W)
	Sugar Creek	Road crossing north line (S29, T81N, R02W) to south county line (S34, T79N, R02W)
	Wapsipinicon River	East county line (S12, T82N, R01W) to north county line (S1, T82N, R01W)
	West Branch Wapsinonoc Creek	South county line (S33, T79N, R04W) to confluence with unnamed tributary (NE 1/4, S32, T79N, R04W)
Cerro Gordo	Beaverdam Creek	I-35 (S8, T95N, R21W) to south county line (S35, T94N, R20W)
	East Branch Beaverdam Creek	Hwy. 65 (S9, T94N, R20W) to mouth (S21, T94N, R20W)
	Shell Rock River	East county line (S12, T96N, R19W) to north county line (S5, T97N, R19W)
	Spring Creek	County Road B15 (S9, T97N, R20W) to mouth (S28, T97N, R20W)
	West Fork Cedar River	South county line (S35, T94N, R20W) to confluence of Beaverdam Creek and East Branch Beaverdam Creek (S21, T94N, R20W)

County	River/Stream	Location
	Willow Creek	Hwy. 18 (S12, T96N, R21W) to mouth (S3, T96N, R20W)
	Winnebago River	East county line (S36, T96N, R19W) to west county line (S19, T97N, R22W)
Cherokee	Gray Creek	North line (S22, T93N, R40W) to mouth (S10, T92N, R40W)
	Little Sioux River	South county line (S31, T90N, R41W) to north county line (S3, T93N, R39W)
	Maple Creek	Mouth (S5, T91N, R39W) to confluence with unnamed tributary (S1, T91N, R39W)
	Maple River	Confluence with Maple Creek (S5, T91N, R39W) to south county line (S34, T90N, R39W)
	Mill Creek	North county line (S3, T93N, R41W) to mouth (S14, T92N, R40W)
	Perry Creek	North line (S5, T91N, R40W) to mouth (S28, T91N, R40W)
	Rock Creek	East line (S4, T91N, R41W) to mouth (S10, T90N, R41W)
	Silver Creek	Mouth (S32, T91N, R40W) to north line (S34, T90N, R40W)
	West Fork Little Sioux River	North line (S12, T92N, R42W) to west county line (S31, T91N, R42W)
	Willow Creek	North line (S30, T91N, R41W) to mouth (S30, T90N, R41W)
Chickasaw	Cedar River	South county line (S32, T94N, R14W) to west county line (S7, T94N, R14W)
	Crane Creek	East county line (S25, T95N, R11W) to north county line (S21, T97N, R12W)
	East Branch Wapsipinicon River	South county line (S34, T94N, R12W) to confluence with Plum Creek (S15, T95N, R12W)
	Little Cedar River	Mouth (S20, T94N, R14W) to west county line (S6, T95N, R14W)
	Little Turkey River	East county line (S25, T96N, R11W) to north county line (S19, T97N, R11W)
	Little Wapsipinicon River	Mouth (S3, T94N, R13W) to north county line (S24, T97N, R14W)
	Wapsipinicon River	South county line (S36, T94N, R13W) to north county line (S20, T97N, R14W)
Clarke	Squaw Creek	North county line (S1, T73N, R25W) to confluence with Walnut Creek (S3, T73N, R25W)
	White Breast Creek	East county line (S1, T71N, R24W) to confluence with South White Breast Creek (S3, T71N, R24W)
Clay	Big Muddy Creek	Mouth (S15, T96N, R36W) to confluence with Little Muddy Creek (S10, T96N, R36W)
	Little Sioux River	West county line (S30, T94N, R38W) to north county line (S5, T97N, R37W)

County	River/Stream	Location
	Ocheyedan River	Mouth (S13, T96N, R37W) to west county line (S7, T97N, R38W)
	Stony Creek	Mouth (S7, T96N, R36W) to north county line (S3, T97N, R38W)
Clayton	Bloody Run	Mouth (S15, T95N, R03W) upstream to second road bridge crossing the stream in the western portion of Basil Giard Claim No. 1
	Cox Creek	Mouth (S21, T92N, R05W) to confluence with Kleinlein Creek (S36, T92N, R06W)
	Elk Creek	Mouth (S36, T92N, R04W) to south county line (S35, T91N, R04W)
	Howard Creek	Mouth (S25, T94N, R05W) to confluence with Dry Hollow (S19, T94N, R04W)
	Little Turkey River	Mouth (S10, T91N, R02W) to confluence with White Pine Hollow (S31, T91N, R02W)
	Maquoketa River	South county line (S32, T91N, R06W) to north line (S31, T91N, R06W)
	Mink Creek	Mouth (S30, T93N, R06W) to confluence with unnamed tributary (SW 1/4, S19, T93N, R06W)
	Mississippi River	East county line (S25, T91N, R01W) to north county line (S3, T95N, R03W)
	Roberts Creek	Mouth (S25, T93N, R05W) to confluence with Silver Creek (S16, T94N, R05W)
	Sny Magill Creek	Mouth (S23, T94N, R03W) upstream to confluence with North Cedar Creek (S8, T94N, R03W)
	South Cedar Creek	Mouth (S33, T92N, R03W) to confluence with unnamed tributary (SW 1/4, NE 1/4, SE 1/4, S7, T92N, R03W)
	Turkey River	Mouth (S12, T91N, R02W) to west county line (S18, T94N, R06W)
	Volga River	Mouth (S36, T92N, R04W) to west county line (S30, T93N, R06W)
Clinton	Brophys Creek	South line (S4, T81N, R05E) to mouth (S1,T80N, R04E)
	Deep Creek	North county line (S6, T83N, R05E) to confluence with Bear Creek (S8, T83N, R05E)
	Drainage Ditch 12	West line (S30, T82N, R02E) to mouth (S13,T81N, R01E)
	Elk River	South line (S5, T83N, R06E) to mouth (S20, T83N, R07E)
	Harts Mill Creek	East line (S8, T81N, R06E) to mouth (S15, T81N, R06E)
	Mill Creek	Confluence with Harts Mill Creek (S15, T81N, R06E) to mouth (S23, T81N, R06E)
	Mississippi River	South county line (S13, T80N, R05E) to north county line (S5, T83N, R07E)

County	River/Stream	Location
	Silver Creek	South line (S22, T82N, R03E) to mouth (S6, T80N, R04E)
	Wapsipinicon River	Mouth (S13, T80N, R05E) to west county line (S7, T82N, R01E)
Crawford	Boyer River	South county line (S34, T82N, R41W) to north county line (S6, T85N, R37W)
	East Boyer River	Mouth (S10, T83N, R39W) to confluence with unnamed tributary (NW 1/4, S15, T84N, R37W)
	East Soldier River	West county line (S31, T84N, R41W) to confluence with Emigrant Creek (S23, T84N, R41W)
	Soldier River	West county line (S30, T85N, R41W) to north county line (S1, T85N, R41W)
	West Fork West Nishnabotna River	South county line (S32, T82N, R38W) to confluence with unnamed tributary (NE 1/4, S14, T82N, R38W)
	West Nishnabotna River	South county line (S35, T82N, R37W) to east county line (S36, T82N, R37W)
Dallas	Beaver Creek	East county line (S13, T80N, R26W) to north county line (S2, T81N, R28W)
	Des Moines River	East county line (S25, T81N, R26W) to north county line (S3, T81N, R26W)
	Middle Raccoon River	Mouth (S9, T78N, R29W) to west county line (S31, T79N, R29W)
	Mosquito Creek	Mouth (S34, T79N, R29W) to west county line (NW 1/4, NW 1/4, S6, T80N, R29W)
	North Raccoon River	Mouth (S21, T78N, R27W) to north county line (S5, T81N, R29W)
	Raccoon River	East county line (S25, T78N, R26W) to confluence of North and South Raccoon Rivers (S21, T78N, R27W)
	South Raccoon River	Mouth (S21, T78N, R27W) to west county line (S7, T78N, R29W)
Davis	Chequest Creek	East county line (S12, T69N, R12W) to confluence with South Chequest Creek (S12, T69N, R12W)
	Des Moines River	East county line (S12, T70N, R12W) to north county line (S2, T70N, R12W)
	Fox River	East county line (S1, T68N, R12W) to confluence with South Fox Creek (S28, T69N, R15W)
	Soap Creek	Mouth (S2, T70N, R12W) to west county line (S18, T70N, R15W)
	South Chequest Creek	Mouth (S12, T69N, R12W) to confluence with Burr Oak Creek (S15, T69N, R12W)
	South Soap Creek	Mouth (S21, T70N, R15W) to west county line (S30, T70N, R15W)
Decatur	Elk Creek	Mouth (S18, T68N, R26W) to confluence with West Elk Creek (S34, T69N, R27W)
	Little River	South county line (S25, T67N, R25W) to confluence with West Little River (S31, T69N, R25W)

County	River/Stream	Location
	Long Creek	Mouth (S8, T69N, R26W) to confluence with Bee Creek (S9, T70N, R26W)
	Steel Creek	Mouth (S10, T67N, R24W) to confluence with Hog Creek (S26, T68N, R24W)
	Thompson River	South county line (S25, T67N, R26W) to west county line (S6, T70N, R27W)
	Weldon River	South county line (S27, T67N, R24W) to Hwy. 2 (S20, T69N, R24W)
	West Elk Creek	Mouth (S34, T69N, R27W) to confluence with unnamed tributary (NE 1/4, S32, T69N, R27W)
Delaware	Buck Creek	Mouth (S11, T87N, R04W) to confluence with Lime Creek (S17, T87N, R04W)
	Buffalo Creek	South county line (S33, T87N, R06W) to west county line (S18, T87N, R06W)
	Coffins Creek	Mouth (S19, T89N, R05W) to road crossing center (S26, T89N, R06W)
	Elk Creek	North county line (S2, T90N, R04W) to confluence with Schechtman Branch (S14, T90N, R04W)
	Honey Creek	Mouth (S19, T89N, R05W) to confluence with Lindsey Creek (S3, T89N, R05W)
	Maquoketa River	South county line (S31, T87N, R03W) to north county line (S5, T90N, R06W)
	North Fork Maquoketa River	East county line (S24, T87N, R03W) to east county line (S12, T88N, R03W)
	Plum Creek	Mouth (S11, T87N, R04W) to confluence with unnamed tributary (SE 1/4, S24, T89N, R04W)
	Sand Creek	Mouth (S9, T88N, R05W) to confluence with Todds Creek (S8, T88N, R05W)
	South Fork Maquoketa River	Mouth (S16, T90N, R06W) to west county line (S19, T90N, R06W)
Des Moines	Brush Creek	South line (S5, T69N, R03W) to mouth (S2, T68N, R03W)
	Cedar Fork	West line (S31, T72N, R03W) to mouth (S25, T71N, R04W)
	Cottonwood Drain	Mouth (S1, T70N, R02W) to confluence with unnamed tributary (middle S7, T71N, R01W)
	Flint Creek	West county line (S18, T71N, R04W) to mouth (S28, T70N, R02W)
	Hawkeye Creek	East line (S30, T72N, R02W) to mouth (S19, T72N, R01W)
	Hawkeye-Dolbee Channel	Confluence with Hawkeye Creek (S19, T72N, R01W) to mouth (S22, T72N, R01W)
	Honey Creek	North county line (NE 1/4, S5, T72N, R03W) to north county line (NW 1/4, S5, T72N, R03W)
	Knotty Creek	East line (S25, T71N, R03W) to mouth (S24, T70N, R03W)

County	River/Stream	Location
	Long Creek	South line (S3, T69N, R04W) to mouth (S30, T69N, R03W)
	Mississippi River	South county line (S8, T68N, R02W) to north county line (S3, T72N, R01W)
	Running Slough Drain	East line (S24, T72N, R02W) to mouth (S31, T71N, R01W)
	Skunk River	East county line (S8, T68N, R02W) to west county line (S2, T69N, R05W)
	Smith Creek	North county line (S6, T72N, R02W) to north county line (NW 1/4, NE 1/4, S1, T72N, R03W)
	Spring Creek	South line (S15, T69N, R03W) to mouth (S32, T69N, R02W)
	Unnamed Creek	South line (S27, T71N, R03W) to mouth (S4, T70N, R03W)
Dickinson	Little Sioux River	South county line (S32, T98N, R37W) to north county line (S10, T100N, R37W)
	Milford Creek	Middle (S12, T98N, R37W) to mouth (S14, T98N, R37W)
	Stony Creek	South county line (S34, T98N, R38W) to confluence with Drainage Ditch 41 (S27, T98N, R38W)
	West Branch Little Sioux River	South line (S27, T100N, R38W) to mouth (S36, T100N, R38W)
	West Fork Little Sioux River	South line (S24, T100N, R38W) to mouth (S7, T99N, R37W)
Dubuque	Catfish Creek	Mouth (S5, T88N, R03E) to north line (S16, T88N, R02E)
	Hewitt Creek	Mouth (S30, T89N, R02W) to confluence with Hickory Creek (S21, T89N, R02W)
	Little Maquoketa River	Mouth (S26, T90N, R02E) to confluence with North Fork Little Maquoketa River (S31, T90N, R02E)
	Lytle Creek	South county line (S31, T87N, R02E) to confluence with Prairie Creek (S24, T87N, R01E)
	Mississippi River	South county line (S34, T88N, R04E) to west county line (S30, T91N, R01E)
	North Fork Little Maquoketa River	Mouth (S31, T90N, R02E) to confluence with Middle Fork Little Maquoketa River (S35, T90N, R01E)
	North Fork Maquoketa River	South county line (S32, T87N, R01W) to confluence with Hewitt Creek (S29, T89N, R02W)
	Tetes Des Morts Creek	Mouth (S34, T88N, R04E) to south county line (S34, T88N, R04E)
	Whitewater Creek	South county line (S35, T87N, R01W) to confluence with Curran Creek (S12, T87N, R01W)
Emmet	Des Moines River	South county line (S33, T98N, R33W) to north county line (S7, T100N, R34W)
	East Branch Des Moines River	Tuttle Lake (S11, T100N, R32W) to east county line (S36, T99N, R31W)

County	River/Stream	Location
Fayette	Crane Creek	Mouth (S31, T95N, R09W) to west county line (S30, T95N, R10W)
	Little Turkey River	Mouth (S18, T95N, R08W) to north county line (S5, T95N, R10W)
	Little Volga River	Mouth (S2, T92N, R09W) to confluence with unnamed tributary (S2, T92N, R09W)
	Little Wapsipinicon River	South county line (S32, T91N, R10W) to west county line (S18, T92N, R10W)
	Otter Creek	South county line (S33, T91N, R09W) to confluence with unnamed tributary (S18, T91N, R09W)
	Turkey River	East county line (S13, T94N, R07W) to north county line (S3, T95N, R09W)
	Volga River	East county line (S25, T93N, R07W) to confluence with Little Volga River (S2, T92N, R09W)
Floyd	Cedar River	East county line (S12, T94N, R15W) to north county line (S24, T97N, R17W)
	Flood Creek	South county line (S34, T94N, R16W) to road crossing (S32, T96N, R17W)
	Little Cedar River	East county line (S1, T95N, R15W) to north county line (S24, T97N, R16W)
	Rock Creek	Mouth (S24, T97N, R17W) to north county line (S22, T97N, R17W)
	Shell Rock River	Mouth (S35, T94N, R17W) to west county line (S7, T96N, R18W)
	Winnebago River	Mouth (S14, T95N, R18W) to west county line (NW 1/4, S31, T96N, R18W)
Franklin	Bailey Creek	East line (S13, T93N, R20W) to mouth (S19, T93N, R19W)
	Beaverdam Creek	North county line (S2, T93N, R20W) to mouth (S19, T93N, R19W)
	Hartgrave Creek	Confluence of Otter Creek and Spring Creek (S29, T92N, R19W) to east county line (S25, T92N, R19W)
	Iowa River	South county line (S36, T90N, R22W) to west county line (S19, T91N, R22W)
	Maynes Creek	East line (S30, T91N, R20W) to east county line (S13, T91N, R19W)
	Otter Creek	East line (S31, T93N, R20W) to mouth (S29, T92N, R19W)
	Spring Creek	Beeds Lake Outlet (S20, T92N, R20W) to mouth (S29, T92N, R19W)
	West Fork Cedar River	Confluence of Bailey Creek and Beaverdam Creek (S19, T93N, R19W) to east county line (S12, T92N, R19W)
Fremont	East Nishnabotna River	Mouth (S2, T67N, R42W) to east county line (S13, T69N, R40W)
	Missouri River	South county line (S34, T67N, R43W) to north county line (S5, T70N, R43W)

County	River/Stream	Location
	Nishnabotna River	South county line (S35, T67N, R42W) to confluence of East and West Nishnabotna Rivers (S2, T67N, R42W)
	West Nishnabotna River	Mouth (S2, T67N, R42W) to north county line (S5, T70N, R41W)
Greene	Buttrick Creek	Mouth (S26, T83N, R30W) to confluence of East Branch and West Branch (S25, T84N, R30W)
	Cedar Creek	Mouth (S33, T85N, R32W) to north county line (S3, T85N, R32W)
	North Raccoon River	South county line (S32, T82N, R29W) to west county line (S18, T84N, R32W)
	Willow Creek	South county line (S31, T82N, R32W) to confluence with Drainage Ditch 117 (S21, T82N, R32W)
Grundy	Black Hawk Creek	East line (S35, T88N, R17W) to east county line (S1, T87N, R15W)
	Middle Fork South Beaver Creek	Mouth (S28, T89N, R17W) to confluence with North Fork South Beaver Creek (S28, T89N, R17W)
	North Black Hawk Creek	NE 1/4, S8, T88N, R15W to mouth (S1, T87N, R15W)
	South Beaver Creek	E 1/2, S3, T88N, R18W to north county line (S2, T89N, R17W)
	Wolf Creek	N 1/2, S31, T86N, R17W to east county line (S36, T86N, R17W)
Guthrie	Beaver Creek	Mouth (S5, T78N, R30W) to confluence with Spring Branch (S3, T78N, R31W)
	Brushy Creek	Mouth (S22, T79N, R31W) to west county line (S35, T81N, R33W)
	Middle Raccoon River	East county line (S36, T79N, R30W) to north county line (S3, T81N, R33W)
	Middle River	South county line (S36, T78N, R32W) to County Road N54 (S36, T79N, R33W)
	Mosquito Creek	East county line (SE 1/4, S1, T80N, R30W) to Hwy. 4 (S17, T81N, R30W)
	South Raccoon River	East county line (S12, T78N, R30W) to confluence with Frost Creek (S18, T80N, R32W)
	Troublesome Creek	West county line (S31, T79N, R33W) to confluence with North Branch Troublesome Creek (S20, T79N, R33W)
	Willow Creek	Mouth (S27, T81N, R32W) to north county line (S6, T81N, R32W)
Hamilton	Boone River	West county line (S30, T87N, R26W) to north county line (S3, T89N, R26W)
	Brewers Creek	Mouth (S6, T88N, R25W) to County Road R27 (S12, T88N, R26W)
	Eagle Creek	Mouth (S6, T89N, R25W) to north county line (S6, T89N, R25W)
	South Skunk River	South county line (S31, T86N, R23W) to County Road D41 (S36, T88N, R24W)

County	River/Stream	Location
	White Fox Creek	Mouth (S33, T89N, R25W) to north county line (S3, T89N, R25W)
Hancock	East Branch Iowa River	South county line (S32, T94N, R23W) to Hwy. 18 (S25, T96N, R24W)
	West Branch Iowa River	South county line (S35, T94N, R24W) to County Road B55 (S31, T95N, R24W)
	Winnebago River	East county line (S24, T97N, R23W) to north county line (S1, T97N, R24W)
Hardin	Elk Creek	Mouth (S28, T88N, R19W) to County Road D35 (S27, T88N, R19W)
	Honey Creek	South county line (S31, T86N, R19W) to County Road D65 (S24, T86N, R20W)
	Iowa River	South county line (SW 1/4, S35, T86N, R19W) to north county line (NW 1/4, NW 1/4, S1, T89N, R22W)
	South Fork Iowa River	Mouth (S4, T86N, R19W) to Hwy. 359 (S11, T88N, R22W)
Harrison	Boyer River	South county line (S33, T78N, R44W) to north county line (S3, T81N, R41W)
	Little Sioux River	Mouth (S27, T81N, R45W) to north county line (S5, T81N, R44W)
	Missouri River	South county line (S32, T78N, R45W) to north county line (S1, T81N, R46W)
	Monona Harrison Ditch	Mouth (S22, T81N, R45W) to north county line (S1, T81N, R45W)
	Soldier River	Mouth (S16, T80N, R45W) to north county line (S1, T81N, R44W)
Henry	Big Creek	South county line (S31, T72N, R05W) to mouth (S19, T70N, R05W)
	Brush Creek	West county line (S31, T72N, R07W) to mouth (S30, T72N, R07W)
	Cedar Creek	West county line (S6, T70N, R07W) to mouth (S6, T71N, R07W)
	Crooked Creek	West county line (S6, T73N, R07W) to north county line (S6, T73N, R07W)
	East Fork Crooked Creek	North county line (S1, T73N, R06W) to east county line (S36, T73N, R05W)
	Little Cedar Creek	South county line (S33, T70N, R07W) to mouth (S17, T70N, R07W)
	Mud Creek	South line (S15, T70N, R05W) to mouth (S34, T70N, R05W)
	Skunk River	South county line (S35, T70N, R05W) to west county line (S19, T73N, R07W)
Howard	Crane Creek	South county line (S16, T97N, R12W) to Hwy. 9 (S29, T99N, R13W)
	Little Wapsipinicon River	South county line (S13, T97N, R14W) to northwest line (S23, T98N, R14W)
	North Branch Turkey River	Mouth (S31, T99N, R11W) to Hwy. 9 (S25, T99N, R12W)
	Turkey River	East county line (S12, T98N, R11W) to west line (S1, T98N, R12W)

County	River/Stream	Location
	Upper Iowa River	East county line (S12, T100N, R11W) to north county line (NW 1/4, NE 1/4, S11, T100N, R14W)
	Wapsipinicon River	South county line (S17, T97N, R14W) to west county line (S18, T98N, R14W)
Humboldt	Des Moines River	South county line (S31, T91N, R28W) to west county line (S6, T92N, R30W)
	East Branch Des Moines River	Mouth (S19, T91N, R28W) to north county line (S1, T93N, R29W)
	Prairie Creek	West county line (S25, T93N, R27W) to north county line (S4, T93N, R27W)
Ida	Little Sioux River	West county line (S7, T89N, R41W) to north county line (S6, T89N, R41W)
	Maple River	West county line (S7, T86N, R41W) to north county line (S3, T89N, R39W)
	Odebolt Creek	Mouth (S15, T87N, R40W) to confluence with unnamed tributary (S24, T87N, R39W)
	Soldier River	South county line (S36, T86N, R41W) to confluence with unnamed tributary (NW 1/4, SE 1/4, S20, T86N, R40W)
Iowa	Big Bear Creek	West county line (S18, T80N, R12W) to mouth (S24, T81N, R11W)
	English River	South county line (S31, T78N, R09W) to west county line (S19, T79N, R12W)
	Honey Creek	Mouth (S12, T81N, R12W) to confluence with unnamed tributary (NE 1/4, SW 1/4, S28, T81N, R12W)
	Iowa River	East county line (S36, T81N, R09W) to north county line (S6, T81N, R12W)
	Old Mans Creek	West line (S35, T79N, R10W) to east county line (S36, T79N, R09W)
	Price Creek	Mouth (S36, T81N, R09W) to confluence with Mill Race (S26, T81N, R09W)
	Walnut Creek	North county line (S6, T81N, R12W) to west county line (S6, T81N, R12W)
Jackson	Bear Creek	Mouth (S13, T84N, R01E) to west county line (S30, T84N, R01E)
	Brush Creek	North line (S23, T85N, R03E) to Hwy. 62 bridge (S11, T85N, R03E)
	Deep Creek	Mouth (S18, T84N, R05E) to south county line (S31, T84N, R05E)
	Little Mill Creek	Mouth (S13, T86N, R04E) to west line (S23, T86N, R04E)
	Lytle Creek	Mouth (S8, T85N, R02E) to north county line (S6, T86N, R02E)
	Maquoketa River	Mouth (S7, T85N, R06E) to west county line (S18, T85N, R01E)
	Mill Creek	Mouth (S19, T86N, R05E) to west line (S9, T86N, R04E)
	Mississippi River	South county line (S32, T84N, R07E) to north county line (S3, T87N, R04E)

County	River/Stream	Location
	North Fork Maquoketa River	West county line (S31, T86N, R01E) to mouth (S13, T84N, R02E)
	Prairie Creek	Mouth (S17, T84N, R03E) to Hwy. 64 (S20, T84N, R03E)
	Tetes Des Morts Creek	North county line (S3, T87N, R04E) to confluence with unnamed tributary (S23, T87N, R03E)
Jasper	Clear Creek	Mouth (S2, T80N, R21W) to confluence with Mud Creek (S24, T81N, R21W)
	Indian Creek	Mouth (S32, T80N, R20W) to west county line (S18, T81N, R21W)
	North Skunk River	East county line (S13, T78N, R17W) to north county line (S6, T81N, R19W)
	South Skunk River	South county line (S32, T78N, R18W) to west county line (S30, T80N, R21W)
	Squaw Creek	Mouth (S2, T79N, R21W) to confluence with unnamed tributary (S10, T79N, R21W)
Jefferson	Brush Creek	South line (S18, T72N, R08W) to east county line (S36, T72N, R08W)
	Cedar Creek	South county line (S35, T71N, R08W) to west county line (S18, T72N, R11W)
	Competine Creek	West county line (S31, T73N, R11W) to mouth (S28, T72N, R11W)
	Crooked Creek	Mouth (S1, T73N, R08W) to east county line (S1, T73N, R08W)
	Lick Creek	South county line (S32, T71N, R10W) to confluence with East Branch Lick Creek (S30, T71N, R10W)
	Middle Walnut Creek	Mouth (S26, T73N, R09W) to east line (S22, T73N, R09W)
	Skunk River	East county line (S13, T72N, R08W) to north county line (S1, T73N, R08W)
	Walnut Creek	Confluence of South and Middle Walnut Creeks (S26, T73N, R09W) to mouth (S2, T72N, R08W)
Johnson	Buck Creek	Mouth (S2, T77N, R06W) to confluence with Pechman Creek (S2, T77N, R06W)
	Cedar River	East county line (S13, T81N, R05W) to north county line (S3, T81N, R05W)
	Clear Creek	West county line (S30, T80N, R08W) to mouth (S8, T79N, R06W)
	Iowa River	South county line (S32, T77N, R05W) to west county line (S31, T81N, R08W)
	Old Mans Creek	West county line (S31, T79N, R08W) to mouth (S27, T78N, R06W)
	Rapid Creek	Mouth (S34, T80N, R06W) to confluence with unnamed tributary (S21, T80N, R05W)
Jones	Bear Creek	East county line (S25, T84N, R01W) to confluence with Little Bear Creek (S30, T84N, R01W)

County	River/Stream	Location
	Buffalo Creek	West county line (S19, T85N, R04W) to mouth (S10, T84N, R04W)
	Maquoketa River	East county line (SE 1/4, S24, T85N, RO1W) to north county line (S6, T86N, R03W)
	North Fork Maquoketa River	East county line (SE 1/4, S36, T86N, R01W) to north county line (S6, T86N, R01W)
	Silver Creek	Mouth (S8, T86N, R03W) to confluence with Grove Creek (S11, T86N, R04W)
	Walnut Creek	Mouth (S18, T83N, R02W) to confluence of North and South Fork Walnut Creeks (S13, T83N, R04W)
	Wapsipinicon River	South county line (S36, T83N, R01W) to west county line (S6, T84N, R04W)
	Whitewater Creek	Mouth (S10, T86N, R01W) to north county line (S2, T86N, R01W)
Keokuk	Bridge Creek	South line (S23, T76N, R12W) to mouth (S18, T75N, R11W)
	Cedar Creek	East line (S19, T76N, R13W) to mouth (S15, T75N, R12W)
	North Skunk River	West county line (S6, T75N, R13W) to mouth (S5, T74N, R10W)
	Rock Creek	South line (S21, T76N, R12W) to mouth (S9, T75N, R12W)
	Skunk River	East county line (S12, T74N, R10W) to confluence of North and South Skunk Rivers (S5, T74N, R10W)
	South English River	East county line (S12, T77N, R10W) to west county line (S6, T77N, R13W)
	South Skunk River	West county line (S30, T75N, R13W) to mouth (S5, T74N, R10W)
Kossuth	Buffalo Creek	West line (S4, T97N, R27W) to mouth (S21, T97N, R28W)
	East Branch Des Moines River	South county line (S36, T94N, R29W) to west county line (S31, T99N, R30W)
	Prairie Creek	South county line (S33, T94N, R27W) to confluence with Drainage Ditch 177 (S5, T94N, R27W)
Lee	Des Moines River	Mouth (S34, T65N, R05W) to west county line (S19, T67N, R07W)
	Lost Creek	South line (S32, T69N, R04W) to mouth (S36, T68N, R04W)
	Mississippi River	South county line (S34, T65N, R05W) to north county line (S8, T68N, R02W)
	Pitman Creek	South line (S10, T68N, R05W) to mouth (S29, T68N, R05W)
	Skunk River	Mouth (S8, T68N, R02W) to north county line (S2, T69N, R05W)
	Sugar Creek	South line (S24, T68N, R07W) to mouth (S25, T65N, R06W)

County	River/Stream	Location
	Sugar Creek	South line (S26, T69N, R06W) to mouth (S26, T67N, R05W)
Linn	Bear Creek	West county line (S18, T84N, R08W) to mouth (S21, T84N, R08W)
	Big Creek	Mouth (S9, T82N, R06W) to confluence with Abbe Creek (S34, T83N, R06W)
	Blue Creek	Mouth (S18, T85N, R08W) to west county line (S19, T86N, R08W)
	Buffalo Creek	East county line (S24, T85N, R05W) to north county line (S4, T86N, R06W)
	Cedar River	South county line (S34, T82N, R05W) to west county line (S18, T85N, R08W)
	Indian Creek	Mouth (S30, T83N, R06W) to confluence with Dry Creek (S1, T83N, R07W)
	Prairie Creek	West county line (S7, T82N, R08W) to mouth (S34, T83N, R07W)
	Wapsipinicon River	East county line (S1, T84N, R05W) to north county line (S6, T86N, R07W)
Louisa	Big Slough Creek	East line (S7, T74N, R05W) to mouth (S14, T74N, R05W)
	Buffington Creek	Mouth (S13, T74N, R05W) to west line (S18, T74N, R05W)
	Cedar River	Mouth (S20, T75N, R04W) to north county line (S5, T75N, R04W)
	East Fork Crooked Creek	West county line (S31, T73N, R04W) to south county line (S32, T73N, R04W)
	Goose Creek	West county line (S19, T76N, R05W) to mouth (S27, T76N, R05W)
	Honey Creek	Mouth (S1, T75N, R05W) to east county line (S25, T76N, R05W)
	Honey Creek	Mouth (S14, T73N, R03W) to south county line (S32, T73N, R03W)
	Indian Creek	Mouth (S7, T74N, R03W) to south line (S1, T75N, R04W)
	Iowa River	Mouth (S31, T74N, R01W) to north county line (NW 1/4, S6, T76N, R05W)
	Johnny Creek	Mouth (S12, T74N, R05W) to east line (S6, T74N, R04W)
	Long Creek	West line (S30, T75N, R05W) to mouth (S1, T74N, R04W)
	Mississippi River	South county line (S34, T73N, R01W) to north county line (S3, T75N, R02W)
	Muscatine Slough	North county line (S1, T75N, R03W) to county road bridge (S31, T75N, R02W)
	Muskrat Lake	Mouth at the Iowa River (S16, T74N, R03W) to SE 1/4, S16, T74N, R03W
	Otter Creek	Mouth (S19, T73N, R02W) to middle (S16, T73N, R04W)
	Roff Creek	Mouth (S1, T73N, R04W) to south county line (S36, T73N, R04W)

County	River/Stream	Location
	Short Creek	Mouth (S19, T75N, R04W) to west county line (S6, T75N, R05W)
	Smith Creek	Mouth (S28, T73N, R02W) to south county line (S35, T73N, R03W)
Lucas	Chariton River	Rathbun Lake (S36, T71N, R20W) to Hwy. 14 (S32, T72N, R21W)
	Otter Creek	North county line (S5, T73N, R23W) to confluence with South Otter Creek (S8, T73N, R23W)
	White Breast Creek	North county line (S2, T73N, R22W) to west county line (S6, T71N, R23W)
Lyon	Big Sioux River	South county line (S31, T98N, R48W) to north county line (S11, T100N, R49W)
	Kanaranzi Creek	Mouth (S28, T100N, R45W) to north county line (S11, T100N, R45W)
	Little Rock River	East county line (S25, T100N, R43W) to mouth (S35, T98N, R46W)
	Mud Creek	Mouth (S26, T98N, R46W) to confluence with first unnamed tributary (SW 1/4, S29, T99N, R46W)
	Otter Creek	Mouth (S21, T98N, R44W) to west county line (S36, T98N, R43W)
	Rock River	South county line (S35, T98N, R46W) to north county line (S8, T100N, R45W)
	Tom Creek	Mouth (S4, T99N, R45W) to confluence with unnamed tributary (S22, T100N, R44W)
Madison	Badger Creek	East county line (S24, T77N, R26W) to confluence with Cherry Creek (S13, T77N, R26W)
	Bush Branch	Mouth (S8, T75N, R29W) to west county line (S18, T75N, R29W)
	Clanton Creek	East county line (S12, T75N, R26W) to confluence of North Fork and South Fork Clanton Creek (S15, T74N, R27W)
	Middle River	West county line (NW 1/4, S31, T76N, R29W) to east county line (S25, T76N, R26W)
	North Branch North River	Mouth (S35, T77N, R27W) to west county line (S7, T77N, R29W)
	North River	East county line (S1, T76N, R26W) to east line (S17, T76N, R28W)
	South Fork Clanton Creek	Mouth (S15, T74N, R27W) to confluence with Bird Creek (S15, T74N, R27W)
	Thompson River	South county line (S34, T74N, R29W) to west county line (S7, T74N, R29W)
	West Branch Creek	Mouth (S34, T74N, R29W) to confluence with unnamed tributary (S19, T74N, R29W)
Mahaska	Cedar Creek	West county line (S31, T75N, R17W) to mouth (S33, T75N, R17W)
	Coal Creek	Mouth (S1, T74N, R17W) to confluence with North Coal Creek (S1, T74N, R17W)

County	River/Stream	Location
	Des Moines River	South county line (S36, T74N, R16W) to west county line (S18, T75N, R17W)
	English Creek	Mouth (S18, T75N, R17W) to west county line (S18, T75N, R17W)
	Middle Creek	Mouth (S35, T76N, R14W) to confluence with unnamed tributary (S16, T76N, R15W)
	Moon Creek	Mouth (S30, T77N, R14W) to north county line (S1, T77N, R15W)
	Muchakinock Creek	South county line (S36, T74N, R16W) to confluence with Little Muchakinock Creek (S34, T75N, R16W)
	North Skunk River	East county line (S1, T75N, R14W) to north county line (S1, T77N, R16W)
	South English River	East county line (S1, T77N, R14W) to confluence with unnamed tributary (S1, T77N, R14W)
	South Skunk River	East county line (S25, T75N, R14W) to west county line (S19, T77N, R17W)
Marion	Carruthers Creek	Mouth (S33, T74N, R19W) to confluence with Hickory Creek (S33, T74N, R19W)
	Cedar Creek	East county line (S36, T75N, R18W) to south county line (S31, T74N, R18W)
	Coal Creek	West county line (S7, T76N, R21W) to confluence with Coon Creek (S29, T76N, R21W)
	Des Moines River	East county line (S13, T75N, R18W) to west county line (S7, T77N, R21W)
	English Creek	East county line (S13, T75N, R18W) to confluence with Long Branch (S16, T74N, R20W)
	North Cedar Creek	Mouth (S15, T74N, R18W) to confluence with Carruthers Creek (S33, T74N, R19W)
	South Skunk River	East county line (S24, T77N, R18W) to north county line (S5, T77N, R18W)
	White Breast Creek	West county line (S18, T74N, R21W) to mouth (S16, T76N, R19W)
Marshall	Honey Creek	North county line (S6, T85N, R19W) to mouth (S27, T85N, R19W)
	Iowa River	East county line (S1, T83N, R17W) to north county line (S2, T85N, R19W)
	Minerva Creek	Mouth (S2, T84N, R19W) to NW 1/4, S9, T85N, R20W
	South Timber Creek	Mouth (S17, T83N, R17W) to confluence with Brush Creek (S32, T83N, R17W)
	Timber Creek	County road bridge (S24, T83N, R18W) to mouth (S3, T83N, R17W)
	Wolf Creek	North county line (S2, T85N, R17W) to north county line (S2, T85N, R17W)
Mills	Farm Creek	Mouth (S9, T73N, R40W) to north county line (S1, T73N, R40W)

County	River/Stream	Location
	Keg Creek	Mouth (S6, T71N, R43W) to confluence with Snake Creek (S8, T73N, R42W)
	Missouri River	South county line (S32, T71N, R43W) to north county line (S2, T73N, R44W)
	Silver Creek	Mouth (S21, T71N, R41W) to north county line (S6, T73N, R41W)
	West Nishnabotna River	South county line (S32, T71N, R41W) to north county line (S3, T73N, R40W)
Mitchell	Cedar River	South county line (S13, T97N, R17W) to north county line (S8, T100N, R18W)
	Deer Creek	Mouth (S23, T99N, R18W) to west county line (S6, T99N, R18W)
	Little Cedar River	South county line (S13, T97N, R16W) to north county line (S9, T100N, R16W)
	Otter Creek	Mouth (S21, T100N, R18W) to north county line (S11, T100N, R18W)
	Rock Creek	South county line (S14, T97N, R17W) to west line (S7, T97N, R17W)
	Spring Creek	Mouth (S13, T97N, R17W) to north line (S29, T98N, R16W)
	Turtle Creek	Mouth (S23, T99N, R18W) to north line (S8, T99N, R17W)
	Wapsipinicon River	East county line (S13, T98N, R15W) to north line (S20, T100N, R15W)
Monona	East Soldier River	Mouth (S34, T84N, R42W) to east county line (S36, T84N, R42W)
	Farmers Garretson Outlet Ditch	Mouth (S9, T85N, R45W) to north county line (S5, T85N, R45W)
	Haitz Ditch	Mouth (S12, T84N, R45W) to north county line (S2, T85N, R45W)
	Little Sioux River	South county line (S32, T82N, R44W) to north county line (S2, T85N, R44W)
	Maple River	Mouth (S16, T83N, R44W) to north county line (S5, T85N, R42W)
	Missouri River	South county line (S36, T82N, R46W) to north county line (S6, T85N, R47W)
	Monona Harrison Ditch	South county line (S31, T82N, R44W) to confluence of West Fork Ditch and Haitz Ditch (S12, T84N, R45W)
	Soldier River	South county line (S31, T82N, R43W) to east county line (S25, T85N, R42W)
	West Fork Ditch	Mouth (S12, T84N, R45W) to north county line (S4, T85N, R45W)
Monroe	Cedar Creek	North county line (S6, T73N, R18W) to confluence with Mormon Branch (S5, T71N, R18W)
	Des Moines River	East county line (S1, T73N, R16W) to north county line (S1, T73N, R16W)
	Mormon Branch	Mouth (S5, T71N, R18W) to confluence with Moffatt Branch (S21, T71N, R18W)
	Muchakinock Creek	East county line (S1, T73N, R16W) to north county line (S1, T73N, R16W)

County	River/Stream	Location
	Soap Creek	South county line (S32, T71N, R16W) to confluence with Mormon Creek (S31, T71N, R16W)
	Whites Creek	Mouth (S21, T73N, R18W) to confluence with English Branch (S30, T73N, R18W)
Montgomery	East Nishnabotna River	South county line (S36, T71N, R39W) to north county line (S1, T73N, R38W)
	Middle Nodaway River	Mouth (S33, T71N, R36W) to east county line (S36, T72N, R36W)
	Sevenmile Creek	Mouth (S33, T73N, R36W) to north county line (S6, T73N, R36W)
	Tarkio River	South county line (S32, T71N, R37W) to confluence with Little Tarkio Creek (S4, T71N, R37W)
	West Nodaway River	South county line (S33, T71N, R36W) to north county line (S2, T73N, R36W)
Muscatine	Cedar River	South county line (S32, T76N, R04W) to north county line (S6, T78N, R02W)
	Mississippi River	South county line (S34, T76N, R02W) to east county line (S24, T77N, R01E)
	Mud Creek	Mouth (S10, T78N, R02W) to west line (S5, T78N, R01E)
	Muscatine Slough	South county line (S36, T76N, R03W) to south line (S5, T76N, R02W)
	Pike Run	Mouth (S19, T77N, R03W) to south line (S34, T78N, R03W)
	Pine Creek	Mouth (S21, T77N, R01E) to confluence with East Branch Pine Creek (S17, T77N, R01E)
	Sugar Creek	Mouth (S17, T78N, R02W) to north county line (S3, T78N, R02W)
	Wapsinonoc Creek	Mouth (S19, T77N, R03W) to confluence of East Branch and Middle Branch (S6, T78N, R03W)
	Weise Slough	S19, T78N, R02W
	West Branch Wapsinonoc Creek	Mouth (S24, T78N, R04W) to north county line (S4, T78N, R04W)
O'Brien	Floyd River	West county line (S30, T97N, R42W) to confluence with North Fork Floyd River (S9, T97N, R41W)
	Little Sioux River	South county line (S34, T94N, R39W) to east county line (S25, T94N, R39W)
	Mill Creek	South county line (S34, T94N, R41W) to confluence with West Branch Mill Creek (S4, T95N, R41W)
	Ocheyedan River	East county line (S12, T97N, R39W) to north county line (S2, T97N, R39W)
	Waterman Creek	Mouth (S26, T94N, R39W) to confluence with Little Waterman Creek (S4, T95N, R39W)
Osceola	Little Rock River	West county line (S30, T100N, R42W) to north county line (S7, T100N, R42W)

County	River/Stream	Location
	Ocheyedan River	South county line (S35, T98N, R39W) to north county line (S12, T100N, R41W)
	Otter Creek	West county line (S31, T98N, R42W) to confluence with Cloverdale Creek (S31, T99N, R41W)
Page	East Nishnabotna River	West county line (S18, T69N, R39W) to north county line (S1, T70N, R39W)
	East Nodaway River	Mouth (S7, T67N, R36W) to east county line (S1, T69N, R36W)
	Nodaway River	South county line (S31, T67N, R36W) to confluence of East and West Nodaway Rivers (S7, T67N, R36W)
	Tarkio River	South county line (S32, T67N, R38W) to north county line (S5, T70N, R37W)
	West Nodaway River	Mouth (S7, T67N, R36W) to north county line (S4, T70N, R36W)
Palo Alto	Cylinder Creek	Mouth (S28, T94N, R31W) to confluence with Dry Ditch (S24, T95N, R32W)
	Des Moines River	South county line (S35, T94N, R31W) to north county line (S4, T97N, R33W)
	Jack Creek	Mouth (S35, T97N, R33W) to west line (S11, T97N, R33W)
Plymouth	Big Sioux River	South county line (S34, T90N, R48W) to north county line (S5, T93N, R48W)
	Broken Kettle Creek	Mouth (S9, T90N, R48W) to confluence with Bull Run (S25, T92N, R48W)
	Deep Creek	Mouth (S2, T92N, R45W) to confluence with unnamed tributary (SE 1/4, NW 1/4, S28, T93N, R43W)
	Floyd River	South county line (S31, T90N, R46W) to north county line (S6, T93N, R44W)
	Indian Creek	Mouth (S9, T93N, R48W) to north county line (S4, T93N, R47W)
	Mink Creek	Mouth (S35, T92N, R46W) to confluence with unnamed tributary (S16, T92N, R46W)
	Perry Creek	South county line (S33, T90N, R47W) to confluence with West Branch Perry Creek (S33, T90N, R47W)
	West Branch Floyd River	Mouth (S2, T91N, R46W) to north county line (S5, T93N, R45W)
	West Fork Little Sioux River	South county line (S34, T90N, R44W) to east county line (S36, T91N, R43W)
	Whiskey Creek	Mouth (S36, T91N, R43W) to confluence with unnamed tributary (NE 1/4, NW 1/4, S2, T91N, R43W)
	Willow Creek	Mouth (S9, T92N, R45W) to confluence with Deep Creek (S2, T92N, R45W)
Pocahontas	Des Moines River	East county line (S1, T92N, R31W) to north county line (S2, T93N, R31W)
	Lizard Creek	East county line (S13, T90N, R31W) to west line (S2, T90N, R31W)

County	River/Stream	Location
	North Branch Lizard Creek	Mouth (S2, T90N, R31W) to north line (S6, T91N, R31W)
	Pilot Creek	Mouth (S1, T92N, R31W) to west line (S4, T92N, R31W)
Polk	Beaver Creek	Mouth (S17, T79N, R24W) to west county line (S18, T80N, R25W)
	Des Moines River	East county line (S12, T77N, R22W) to west county line (S30, T81N, R25W)
	Fourmile Creek	Mouth (S16, T78N, R23W) to south line (S1, T80N, R24W)
	Indian Creek	East county line (S13, T81N, R22W) to north county line (S3, T81N, R22W)
	North River	Mouth (S36, T78N, R23W) to south county line (SW 1/4, SW 1/4, S34, T78N, R23W)
	Raccoon River	Mouth (S10, T78N, R24W) to west county line (S30, T78N, R25W)
	South River	Mouth (S12, T77N, R22W) to south county line (S12, T77N, R22W)
	South Skunk River	East county line (S25, T80N, R22W) to north county line (S3, T81N, R23W)
	Walnut Creek	Mouth (S13, T78N, R25W) to west county line (S30, T79N, R25W)
Pottawattamie	Boyer River	Mouth (S20, T77N, R44W) to north county line (S4, T77N, R44W)
	East Branch West Nishnabotna River	Mouth (S29, T77N, R39W) to north county line (S3, T77N, R39W)
	East Nishnabotna River	South county line (S36, T74N, R38W) to east county line (S36, T75N, R38W)
	Farm Creek	South county line (S36, T74N, R40W) to confluence with Jordan Creek (S31, T74N, R39W)
	Missouri River	South county line (S35, T74N, R44W) to north county line (S3, T77N, R45W)
	Mosquito Creek	Mouth (S30, T74N, R43W) to confluence with unnamed tributary (NW 1/4, S10, T76N, R42W)
	Pigeon Creek	Mouth (S3, T75N, R44W) to confluence with Potato Creek (S23, T77N, R43W)
	Pony Creek	Mouth (S30, T74N, R43W) to confluence with unnamed tributary (center of S28, T74N, R43W)
	Silver Creek	South county line (S31, T74N, R41W) to confluence with Middle Silver Creek (S31, T74N, R41W)
	West Nishnabotna River	South county line (S34, T74N, R40W) to north county line (S5, T77N, R39W)
Poweshiek	Big Bear Creek	East county line (S13, T80N, R13W) to confluence with unnamed tributary (NW 1/4, S8, T80N, R14W)
	English River	East county line (S24, T79N, R13W) to confluence with Dugout Creek (S15, T79N, R14W)

County	River/Stream	Location
	Moon Creek	South county line (S36, T78N, R15W) to confluence with unnamed tributary (NE 1/4, S26, T78N, R15W)
	North Skunk River	South county line (S36, T78N, R16W) to west county line (S18, T78N, R16W)
	Sugar Creek	Mouth (S20, T78N, R16W) to confluence with unnamed tributary (NW 1/4, S31, T79N, R16W)
	Walnut Creek	East county line (S1, T81N, R13W) to confluence with North Walnut Creek (S7, T81N, R13W)
Ringgold	East Fork Grand River	South county line (S25, T67N, R30W) to confluence with Hackberry Creek (S13, T70N, R29W)
	Grand River	South county line (S30, T67N, R31W) to confluence with Plum Creek (S29, T70N, R30W)
	Platte River	West county line (S31, T68N, R31W) to north county line (S6, T70N, R31W)
	Thompson River	East county line (S1, T70N, R28W) to north county line (S1, T70N, R28W)
Sac	Boyer River	South county line (S31, T86N, R37W) to west line (S5, T89N, R37W)
	Cedar Creek	Mouth (S25, T88N, R36W) to west line (S10, T88N, R35W)
	Drainage Ditch 57	Mouth (S23, T87N, R36W) to east line (S35, T87N, R36W)
	Indian Creek	Mouth (S24, T87N, R36W) to north line (S7, T87N, R36W)
	North Raccoon River	East county line (S1, T86N, R35W) to north county line (S1, T89N, R36W)
Scott	Hickory Creek	Mouth (S31, T80N, R02E) to confluence with unnamed tributary (S8, T79N, R02E)
	Lost Creek	Mouth (S15, T80N, R05E) to east line (S32, T80N, R05E)
	Mississippi River	West county line (S19, T77N, R02E) to north county line (S13, T80N, R05E)
	Mud Creek	Mouth (S12, T80N, R02E) to county road bridge (S11, T79N, R01E)
	Wapsipinicon River	Mouth (S13, T80N, R05E) to north county line (S1, T80N, R01E)
Shelby	East Branch West Nishnabotna River	South county line (S34, T78N, R39W) to east county line (S13, T80N, R37W)
	Indian Creek	South county line (S32, T78N, R37W) to confluence with unnamed tributary (S8, T78N, R37W)
	West Fork West Nishnabotna River	Mouth (S17, T79N, R38W) to north county line (S5, T81N, R38W)
	West Nishnabotna River	South county line (S32, T78N, R39W) to north county line (S2, T81N, R37W)
Sioux	Big Sioux River	South county line (S32, T94N, R48W) to west county line (S6, T97N, R48W)

County	River/Stream	Location
	Floyd River	South county line (S31, T94N, R44W) to east county line (S25, T97N, R43W)
	Indian Creek	South county line (S33, T94N, R47W) to confluence with unnamed tributary (S33, T94N, R47W)
	Otter Creek	North county line (S2, T97N, R44W) to north county line (S1, T97N, R43W)
	Rock River	Mouth (S1, T95N, R48W) to north county line (S2, T97N, R46W)
	Sixmile Creek	Mouth (S28, T94N, R48W) to confluence with unnamed tributary (S19, T95N, R46W)
	West Branch Floyd River	South county line (S32, T94N, R45W) to confluence with unnamed tributary (S8, T96N, R44W)
Story	East Indian Creek	Mouth (S16, T82N, R22W) to Hwy. 30 (S14, T83N, R22W)
	Indian Creek	Mouth (S34, T82N, R22W) to confluence of East and West Indian Creeks (S16, T82N, R22W)
	South Skunk River	South county line (S34, T82N, R23W) to north county line (S6, T85N, R23W)
	Squaw Creek	Mouth (S12, T83N, R24W) to west county line (S7, T84N, R24W)
	West Indian Creek	Mouth (S16, T82N, R22W) to Hwy. 30 (S18, T83N, R22W)
Tama	Deer Creek	Mouth (S34, T83N, R15W) to confluence with Crystal Creek (S10, T84N, R16W)
	East Branch Salt Creek	Mouth (S34, T84N, R13W) to confluence with Stein Creek (S26, T84N, R13W)
	Iowa River	East county line (S36, T82N, R13W) to west county line (S6, T83N, R16W)
	Salt Creek	East county line (S36, T82N, R13W) to confluence with Simpson Creek (S18, T84N, R13W)
	Stein Creek	Mouth (S26, T84N, R13W) to confluence with unnamed tributary (S24, T84N, R13W)
	Twelvemile Creek	Mouth (S19, T86N, R13W) to confluence with Rock Creek (S23, T86N, R14W)
	Wolf Creek	East county line (S24, T86N, R13W) to west county line (S31, T86N, R16W)
Taylor	East Fork One Hundred Two River	South county line (S31, T67N, R34W) to Hwy. 49 (S1, T69N, R33W)
	East Nodaway River	West county line (S6, T69N, R25W) to north county line (S6, T70N, R35W)
	Platte River	South county line (S28, T67N, R32W) to east county line (S36, T68N, R32W)
	West Branch One Hundred Two River	Mouth (S10, T68N, R35W) to confluence with Middle Branch One Hundred Two River (S6, T69N, R34W)

County	River/Stream	Location
	West Fork One Hundred Two River	South county line (S34, T67N, R35W) to confluence with West Branch One Hundred Two River (S10, T68, R35W)
Union	Platte River	South county line (S31, T71N, R31W) to S2, T73N, R31W
	Thompson River	South county line (S36, T71N, R28W) to north county line (S3, T73N, R29W)
	Threemile Creek	Mouth (S18, T72N, R28W) to confluence with Twomile Creek (S11, T72N, R29W)
	West Branch Creek	North county line (NE 1/4, S3, T73N, R29W) to north county line (NW 1/4, S3, T73N, R29W)
Van Buren	Cedar Creek	East county line (SE 1/4, S12, T70N, R08W) to north county line (S5, T70N, R08W)
	Chequest Creek	Mouth (S27, T69N, R10W) to west county line (S7, T69N, R11W)
	Des Moines River	East county line (S13, T67N, R08W) to west county line (S7, T70N, R11W)
	Fox River	South county line (S17, T67N, R09W) to west county line (S6, T68N, R11W)
	Lick Creek	Mouth (S1, T69N, R10W) to north county line (S5, T70N, R10W)
Wapello	Cedar Creek	East county line (S13, T72N, R12W) to confluence with Spring Creek (S17, T73N, R13W)
	Des Moines River	South county line (S35, T71N, R12W) to west county line (S6, T73N, R15W)
	Muchakinock Creek	Mouth (S6, T73N, R15W) to west county line (S6, T73N, R15W)
	Soap Creek	South county line (S35, T71N, R12W) to south county line (S34, T71N, R12W)
Warren	Badger Creek	Mouth (S33, T77N, R25W) to west county line (S19, T77N, R25W)
	Clanton Creek	Mouth (S28, T76N, R25W) to west county line (S7, T75N, R25W)
	Coal Creek	Mouth (S14, T77N, R22W) to east county line (S12, T76N, R22W)
	Des Moines River	East county line (S12, T77N, R22W) to north county line (S6, T77N, R22W)
	Middle River	Mouth (S9, T77N, R22W) to west county line (S30, T76N, R25W)
	North River	North county line (S2, T77N, R23W) to west county line (S6, T76N, R25W)
	Otter Creek	Mouth (S34, T76N, R23W) to south county line (S32, T74N, R23W)
	South River	Mouth (S12, T77N, R22W) to west county line (S19, T74N, R25W)
	Squaw Creek	Mouth (S2, T75N, R24W) to south county line (S36, T74N, R25W)
	White Breast Creek	East county line (S13, T74N, R22W) to south county line (S35, T74N, R22W)

County	River/Stream	Location
Washington	Camp Creek	Mouth (S17, T77N, R07W) to north line (S33, T77N, R07W)
	Clemons Creek	Mouth (S14, T75N, R08W) to west line (S9, T75N, R08W)
	Crooked Creek	South county line (S31, T74N, R07W) to confluence of East and West Forks (S24, T74N, R07W)
	Dutch Creek	Mouth (S8, T74N, R09W) to south line (S21, T75N, R09W)
	East Fork Crooked Creek	Mouth (S24, T74N, R07W) to south county line (S35, T74N, R06W)
	English River	East county line (S11, T77N, R06W) to north county line (S6, T77N, R09W)
	Goose Creek	East county line (S24, T76N, R06W) to east line (S22, T76N, R06W)
	Honey Creek	Mouth (S9, T74N, R09W) to Lake Darling (S21, T74N, R09W)
	Iowa River	East county line (S36, T77N, R06W) to north county line (S3, T77N, R06W)
	Lime Creek	Mouth (S9, T77N, R08W) to confluence with Smith Creek (S16, T77N, R08W)
	Long Creek	East county line (S25, T75N, R06W) to confluence of North and South Forks (S26, T75N, R06W)
	North Fork Long Creek	Mouth (S26, T75N, R06W) to east line (S3, T75N, R07W)
	Skunk River	South county line (S36, T74N, R08W) to west county line (S6, T74N, R09W)
	Smith Creek	Mouth (S16, T77N, R08W) to west county line (S19, T77N, R09W)
	South English River	Mouth (S6, T77N, R09W) to west county line (S7, T77N, R09W)
	South Fork Long Creek	Mouth (S26, T75N, R06W) to County Road W61 (S4, T75N, R07W)
	West Fork Crooked Creek	Mouth (S24, T74N, R07W) to east line (S28, T76N, R09W)
	Williams Creek	Mouth (S31, T74N, R07W) to south county line (S32, T74N, R06W)
Wayne	Chariton River	East county line (S1, T70N, R20W) to north county line (S1, T70N, R20W)
	South Fork Chariton River	East county line (S36, T70N, R20W) to confluence with Dick Creek (S16, T69N, R22W)
Webster	Boone River	Mouth (S36, T87N, R27W) to east county line (S25, T87N, R27W)
	Brushy Creek	Mouth (S15, T87N, R27W) to north line (S8, T88N, R27W)
	Deer Creek	Mouth (S24, T90N, R29W) to north line (S16, T90N, R29W)
	Des Moines River	South county line (S34, T86N, R27W) to north county line (S6, T90N, R28W)

County	River/Stream	Location
	Lizard Creek	Mouth (S19, T89N, R28W) to west county line (S18, T90N, R30W)
	Prairie Creek	Mouth (S35, T88N, R28W) to west line (S29, T88N, R28W)
	South Branch Lizard Creek	Mouth (S23, T89N, R29W) to west county line (S7, T89N, R30W)
Winnebago	Winnebago River	South county line (S36, T98N, R24W) to north county line (S9, T100N, R23W)
Winneshiek	Bear Creek	East county line (S25, T100N, R07W) to confluence of North and South Bear Creeks (S25, T100N, R07W)
	Canoe Creek	Mouth (S25, T99N, R07W) to west line (S8, T99N, R08W)
	Little Turkey River	South county line (S32, T96N, R10W) to west county line (S30, T96N, R10W)
	North Bear Creek	Mouth (S25, T100N, R07W) to confluence with Middle Bear Creek (S14, T100N, R07W)
	Paint Creek	East county line (S13, T99N, R07W) to west line (S11, T99N, R07W)
	South Bear Creek	Mouth (S25, T100N, R07W) to confluence with unnamed tributary (NW 1/4, S34, T100N, R07W)
	Turkey River	South county line (S34, T96N, R09W) to west county line (S7, T98N, R10W)
	Upper Iowa River	East county line (NE 1/4, NE 1/4, S25, T99N, R07W) to west county line (S7, T100N, R10W)
	Yellow River	East county line (S13, T96N, R07W) to confluence with North Fork Yellow River (S13, T96N, R07W)
Woodbury	Big Sioux River	Mouth (S31, T89N, R47W) to north county line (S3, T89N, R48W)
	Farmers Ditch	Mouth (S32, T86N, R45W) to confluence with Big Whiskey Creek (S31, T88N, R46W)
	Farmers Garretson Outlet Ditch	South county line (S32, T86N, R45W) to confluence with Farmers Ditch (S32, T86N, R45W)
	Floyd River	Mouth (S33, T89N, R47W) to north county line (S6, T89N, R46W)
	Garretson Ditch	Mouth (S32, T86N, R45W) to confluence with Camp Creek (S15, T87N, R46W)
	Haitz Ditch	South county line (S35, T86N, R45W) to confluence with Cottonwood Hollow (S35, T86N, R45W)
	Little Sioux River	South county line (S35, T86N, R44W) to east county line (S12, T89N, R42W)
	Maple River	South county line (S32, T86N, R42W) to east county line (S13, T86N, R42W)
	Missouri River	South county line (S31, T86N, R47W) to confluence with Big Sioux River (S31, T89N, R47W)

County	River/Stream	Location
	Perry Creek	Mouth (S32, T89N, R47W) to north county line (S4, T89N, R47W)
	West Fork Ditch	South county line (S33, T86N, R45W) to confluence with West Fork Little Sioux River (S9, T86N, R45W)
	West Fork Little Sioux River	Confluence with West Fork Ditch (S9, T86N, R45W) to north county line (S2, T89N, R44W)
	Wolf Creek	South county line (S35, T86N, R45W) to confluence with East Fork Wolf Creek (S30, T87N, R44W)
Worth	Beaver Creek	Mouth (S34, T98N, R22W) to Hwy. 9 (S28, T98N, R22W)
	Deer Creek	East county line (S1, T99N, R19W) to County Road S56 (S17, T100N, R19W)
	Elk Creek	Mouth (S27, T99N, R20W) to Hwy. 105 (S5, T99N, R22W)
	Shell Rock River	South county line (S32, T98N, R19W) to north county line (S12, T100N, R21W)
	Willow Creek	Mouth (S32, T98N, R21W) to Hwy. 9 (S20, T98N, R21W)
	Winans Creek	Mouth (S36, T98N, R22W) to Hwy. 9 (S24, T98N, R22W)
	Winnebago River	South county line (SE 1/4, SW 1/4, S32, T98N, R21W) to south county line (S34, T98N, R22W)
Wright	Boone River	South county line (S34, T90N, R26W) to north county line (S2, T93N, R26W)
	Eagle Creek	South county line (S31, T90N, R25W) to County Road R33 (S30, T91N, R25W)
	East Branch Iowa River	Mouth (S19, T93N, R23W) to north county line (S6, T93N, R23W)
	Iowa River	East county line (S13, T90N, R23W) to confluence of East Branch Iowa River and West Branch Iowa River (S19, T93N, R23W)
	Otter Creek	Mouth (S29, T92N, R26W) to west line (S11, T92N, R26W)
	Prairie Creek	Mouth (S30, T93N, R26W) to west county line (S30, T93N, R26W)
	West Branch Iowa River	Mouth (S19, T93N, R23W) to north county line (S2, T93N, R24W)
	White Fox Creek	South county line (S34, T90N, R25W) to County Road R38 (S36, T91N, R25W)

TABLE 2

Major Water Sources — Lakes

County	Lake Name	Easting	Northing	Location
Adair	Greenfield Lake	375999.79	4572927.56	1 mile southwest of Greenfield
	Meadow Lake	379665.66	4582459.52	6 miles northeast of Greenfield
	Meadow Lake Watershed Pond 1	379413	4582674	
	Meadow Lake Watershed Pond 2	379575	4581649	
	Mormon Trail Lake	363054.22	4566934.26	1½ miles southeast of Bridgewater
	Nodaway Lake	374770.59	4571870.36	2 miles southwest of Greenfield
	Orient Lake	379552.53	4561682.24	1 mile southwest of Orient
Adams	Binder Lake	356117.08	4540974.27	1 mile northeast of Corning
	Lake Icaria	353123.81	4545985.84	4 miles north of Corning
	Spring Lake	354110	4538035	
	West Lake Corning	354797.09	4540213.74	North edge of Corning
Allamakee	Big Lake (Lansing)	644291	4807674	3 miles north of Lansing
	Big Slough	642493	4809417	
	Butler Lake	652484	4785589	
	Conway Lake	657161	4738737	Pool 11, Mississippi River
	Founders Pond	646809.86	4771777.37	
	Gimmel Lake	653020	4786756	
	Harper's Slough	652820	4787292	
	Japan Slough	649975	4781589	
	Joyce Lake	651789	4786453	
	Lansing Lake	644132.62	4806470.39	
	Lost Channel	643012	4814948	
	Martelle Lake	652046	4785558	
	McDonald Slough	643396	4807291	
	Middle Slough	643004	4806779	
	Minnesota Slough	641882	4816293	
	Mud Hen Lake	650260.15	4780202.09	
	New Albin Big Lake	642649.71	4815967.5	
	Off Slough	649525	4778400	
	Oil Spring Creek	652475	4786953	
	Phillipi Lake	642729	4806240	
	Pigpen Slough	640087	4817194	
	Rittenhouse Lake	653227	4785541	
	Saint Paul Slough	654608	4788421	
	Taylor Lake	650782	4782728	
	Upper Iowa River	642871	4814120	
	Village Creek	645559	4800999	
	Waukon Pond	623664	4790199	South end of Waukon
	Yellow River Pond	643657	4781904	
	Zoll Lake	641939	4808167	

County	Lake Name	Easting	Northing	Location
Appanoose	Lower Centerville Reservoir	509891.81	4507010.42	2 miles south of Centerville
	Mystic Reservoir	504475.03	4515541.19	North edge of Mystic
	Rathbun Reservoir	507933.71	4521817.24	8 miles northwest of Centerville
	Stephen's Forest - Unionville Area Pond	528645.58	4518825.61	
	Upper Centerville Reservoir	508646.64	4506155.89	South edge of Centerville
Audubon	Littlefield Lake	351168.93	4602359.81	4 miles east of Exira
	Nabotna Pond	343511.71	4624705.94	
Benton	Hannen Lake	573568.05	4635295.78	4 miles southwest of Blairstown
	Polk Township Lake	587024	4681784	5.5 miles northwest of Urbana on west side of I-380
	Rodgers Park Lake	576162.03	4672389	3.5 miles northwest of Vinton
	Winegar Lake	579835.17	4682491.94	9 miles north of Vinton
Black Hawk	Alice Wyth Lake	547459.69	4708746.55	North edge of Waterloo
	Big Woods Lake	546383	4711126	Northwest edge of Cedar Falls
	Black Hawk Park Pond 1	541989	4715777	
	Black Hawk Park Pond 2	542020	4716091	
	Brinker Lake	549696.62	4707599.56	North edge of Waterloo
	Casey Lake (a.k.a. Hickory Hills Lake)	556658.34	4679465.31	12 miles south of Waterloo
	Cedar Falls Impoundment	545219.5	4709795.29	North edge of Cedar Falls
	Cedar River N.R.A. Pond	564167	4693201	
	City Park Pond (Waterloo)	551267.77	4707955.43	
	Deerwood Park Lake	557153	4701012	
	Fisher Lake	548451.46	4709310.52	North edge of Waterloo
	Fox Township W.A. Pond	576669	4699847	
	George Wyth Lake	549304.53	4709368.04	North edge of Waterloo
	Green Belt Lake	550302.63	4703101.58	West edge of Waterloo
	Harold Getty Lake	556343	4703053	Located in southeast Waterloo about 1 mile north of the intersection of Highway 20 and Highway 218 (follow Mitchell Street about 0.25 miles east from Highway 218 to the Riverview Recreation Area)
	Hope Martin Pond	551368	4704345	
	Meyers Lake	558310	4701247	Evansdale
	North Hartman Pond	548427	4708601	North edge of Waterloo
	North Prairie Lake	544206.21	4703495.88	Southwest edge of Cedar Falls
	Railroad Lake (Falls Access S.W.M.A.)	540750.04	4714257.34	
	Roger Birdsall Memorial Park Lake	542025.53	4709221.17	
	Singing Bird Lake	551500.52	4704389.09	
	South Hartman Pond	548882	4708243	North edge of Waterloo
	South Prairie Lake	544294.1	4702973.87	
	Thunder Woman Park Pond	538081	4720051	
	Turkey Ridge	539901	4720235	

County	Lake Name	Easting	Northing	Location
	West Hartman Pond	548157	4708610	
Boone	Dickcissell Lake	432318.99	4654283.46	4 miles east of Boone
	Don Williams Lake	415725.47	4663301.65	5 miles north of Ogden
	Fraser	419267	4664205	West edge of Fraser
	Fraser Pit	419643	4663787	
	Jay Carlson (south)	422516	4654138	3 miles west of Boone
	Jay Carlson Pit (east)	422807	4654169	
	Jay Carlson Pit (west)	422427.57	4654299.59	3 miles west of Boone
	McHose Park Pond	426458.23	4654856	
Bremer	Avenue of the Saints Pond	537967.5	4728531.17	2 miles southwest of Waverly
	Frederika Impoundment	556332.06	4748108.86	
	Horton Pond	543076	4737673	
	Three Rivers Pond	543567	4731680	
	Waverly Impoundment	543351.73	4730767.74	
	Wilson Grove North	574521	4747448	
	Wilson Grove South	574556	4747158	
Buchanan	Fairbank Impoundment	577705.32	4721261.98	
	Fontana Mill Lake	589338.93	4717700.81	.5 miles south of Hazleton
	Grover Pond	597864	4694570	
	Independence Impoundment	590394.01	4703679.18	Independence
	Koutny Pond	585334.5	4683990.61	2.5 miles southeast of Brandon
	Quasqueton Impoundment	601853.66	4694358.61	
	Sand Creek Access Area Lake	604060.74	4688360.98	
	Triangle Park Pond	590366	4700259	
Buena Vista	Gustafson Lake	324410.66	4749539.68	1 mile south of Sioux Rapids
	Marathon City Park Pond	336282.51	4747522.39	
	Pickerel Lake	343178.2	4752172.72	7 miles northwest of Marathon
	Storm Lake (incl. Little Storm Lake)	320724	4720589.78	South edge of Storm Lake
	Sturchler Pit (Newell Pit)	332561.65	4720157.73	1½ miles northwest of Newell
	Three Waters W.A. Lake	332361.81	4723241.67	2 miles west, 3 miles north of Newell
Butler	Shell Rock County Park Lake	533481.5	4730230.8	
	South Fork Park Pond	501014	4732423	
	Sportsman's Pond	526024.24	4737139.8	
Calhoun	Calhoun W.A. Pond	380550.56	4708274.59	
	Highway 4 R.A. Pond	364318.22	4693540.94	Southwest edge of Rockwell City
	North Twin Lake	366058.06	4704861.72	4 miles north of Rockwell City
	Rockwell City City Pond	365301.56	4695663.29	
Carroll	Daniel Davis Timber Pond	350975.82	4639598.71	
	Great Western Park Lake	327502.29	4640943.67	¼ mile west of Manning
	Swan Lake	347387.38	4655754.9	3 miles southeast of Carroll
	Tigges Pond Dedham	350202	4637381	
	Tigges Pond Willey	346242	4648362	

County	Lake Name	Easting	Northing	Location
Cass	Atlantic Quarry Pond 1	331184	4587055	
	Atlantic Quarry Pond 2	331584	4587075	
	Atlantic Quarry Pond 3	331194	4586765	
	Atlantic Quarry Pond 4	330814	4586305	
	Cass County Education Pond	355709	4565459	
	Cocklin Fish Farm	321115.02	4569144.05	2 miles north of Griswold
	Cold Springs Lake	325247.74	4573271.32	1 mile south of Lewis
	Iranistan Pond	321341.31	4575142.81	5½ miles north of Griswold
	Lake Anita	351183.86	4587776.12	½ mile south of Anita
	Nodaway W.A. Pond	348909.57	4562168.2	4 miles southwest of Massena
Cedar	Bennett Lake	673027.94	4623719.41	3 miles east of Bennett
	Cedar Valley Park Quarries	646463.9	4620838.45	7.5 miles southwest of Tipton
Cerro Gordo	Black Pit	481804.02	4776426.15	Southwest edge of Mason City
	Blair Meadows Preserve Pond	478617.97	4779040.49	
	Blue Pit	482111.48	4776398.89	Southwest edge of Mason City
	Bluebill Lake	472575	4772317	4 miles south of Clear Lake
	Clark Lake (Mike Zack W.A.)	484789.14	4772323.49	4 miles southeast of Mason City
	Clear Lake	468223.96	4775662.73	South edge of Clear Lake
	Fin and Feather Lake	484532.82	4772256.57	3 miles south, 1 mile east of Mason City
	Georgia Hanford Park Ponds	484772.71	4774447.16	
	Kuhn W.A. Quarry	461019.75	4784286.67	
	Lime Creek Conservation Area Pond	483422.38	4781958.78	
	Mason City East Park Pond	485146.14	4777980.74	
	Rockfall Pond	493523.87	4783404.37	
	Rockwell Pond	483665.34	4757598.17	
	Wilkinson Pioneer Park Pond	495812.85	4781094.28	1 mile southwest of Rock Falls
Cherokee	Larson Lake	304430.57	4733431.63	2½ miles east, 2 miles north of Aurelia
	Spring Lake	288123.89	4736797.97	South edge of Cherokee
Chickasaw	Airport Lake	553186.11	4770705.14	2 miles northwest of New Hampton
	Goodale Conservation Area Pond	538694.07	4781787.04	
	Johnny Walnut Seed Conservation Area Pond	558890.16	4783221.4	
	Nashua Impoundment (Cedar Lake)	537601.88	4756074.71	East edge of Nashua
	New Hampton Pond (Garnant)	556648	4766778	On south 4th Avenue
	Ringneck Haven	546180	4776920	1.5 miles north, 1 mile west of North Washington
	Sluggo's Pond	572129.68	4775728.49	
	Split Rock Lake	562232.53	4751215.46	4 miles south, 2 miles west of Fredericksburg
	Twin Ponds	549570.09	4762052.06	

County	Lake Name	Easting	Northing	Location
Clarke	East Lake (Osceola)	437595.56	4542703.74	½ mile east of Osceola
	Grade Lake	435244.38	4541428.82	
	Green Pines W.A. Pond	440396.84	4554345.48	
	Q Pond City Park	434442.65	4543865.34	Northwest edge of Osceola
	West Lake (Osceola)	432377.34	4543057.65	2 miles west of Osceola
Clay	Brugeman Park Pond	306038.38	4784675.59	
	Dicken's Pit	336663.27	4776416.47	
	Elk Lake	343505.42	4771935.39	1 mile west, 3 miles south of Ruthven
	Hawk Valley Pond (east)	330877	4777520	
	Hawk Valley Pond (west)	330799.83	4777354.35	
	James W.A. Lake	320881.12	4754827.39	
	Scharnberg Pond	313589.42	4780323.5	3 miles east of Everly
	Schmerse W.A. Pond	330762.31	4789429.12	
	Stolley Pit	322147	4780318	
	Trumbull Lake	341588.03	4783433.66	4 miles west, 5 miles north of Ruthven
Clayton	Ackerman Cut	657357	4737376	
	Big Pond	657273.37	4738200.61	
	Bussey Lake	654925.65	4740888.84	2 miles north of Guttenberg
	Cassville Iowa Slough	659190	4733838	
	Dead Lake	664841	4728559	
	Elkader Impoundment	630271.33	4746096.02	Elkader
	Ferry Slough	656672	4741212	
	Frenchtown Lake	655025.87	4745546.55	
	Guttenberg Waterfowl Ponds	650096	4755972	
	Johnsons Slough	649854	4758013	
	Methodist Lake	650333	4754252	
	Norwegian Lake	650299	4756882	
	Osborne Pond	627996.1	4739466.54	4.5 miles southwest of Elkader on Highway 13
	Picayune Chute	667499	4727985	
	Sny Magill Ponds (3)	646906	4757322	
	Spring Lake	663898	4728959	
	State Line Slough	655794	4749192	
	Swift Slough	656481	4738566	
	Wachendorf Lake	665673	4728599	
	Wood Duck Lake	664082	4729894	
	Wood Duck Slough	665193	4728551	
	Wyalusing Slough	649971	4754957	
	Wyoming Slough	649926	4755032	
Clinton	Beaver Slough	731464	4633122	
	Blue Bill Slough	729968	4630504	
	Cook Slough	735828	4656142	
	Dark Chute	734997	4656669	
	Elk River Slough	735246	4651042	

County	Lake Name	Easting	Northing	Location
	Gomers Lake	734043	4650592	
	Grass Lake	732753	4632465	
	Hagenson Pond	719775.71	4624673.83	.25 miles south of Folletts
	Killdeer R.A. Lake	711769.49	4632533.72	5 miles east of DeWitt
	Lower Lake	731111	4631776	
	Lyons Chute	735004	4642186	
	Malone Park Pond	711349.2	4632124.6	5 miles east of DeWitt
	McAndrews Wildlife Area Pond	676287	4655308	
	Pond Lily Lake	725811	4628290	
	Rock Creek	723154	4625541	
	Schricker Slough	724198	4627207	
	Sodus Slough	723474	4625535	
	Swan Slough	726432	4628308	
	The Tubes	725042	4627687	
	Tyler Lake	724150	4627546	
	Upper Lake	731782	4632342	
Crawford	Ahart/Rudd N.R.A. Pond	291176.1	4641904.72	1 mile west, 1.5 miles south of Dow City
	Nelson Park Lake	285370.38	4646138.79	3 miles west, 3 miles north of Dow City
	Newcom/Riggelman N.R.A. Pond	311386.82	4668258.97	
	Sunset Lake	303325.19	4652690.91	
	Yellow Smoke Park Lake	307776.43	4655290.27	2 miles east, 2 miles north of Denison
Dallas	Beaver Lake	398938.68	4598600.26	1½ miles north of Dexter
	Glissman Pond	407406	4602545	
	Siglund Pond	429979	4628676	
	Snyder Pit	412198	4621032	
Davis	Bloomfield City Park Pond	550631.24	4511403.99	
	Davis County Pond 1 (N-S)	551262	4511060	
	Davis County Pond 10 (N-N)	551330	4511330	
	Davis County Pond 2 (S-NE)	551448	4510774.28	
	Davis County Pond 3 (S-NW)	550946	4510770	
	Davis County Pond 4 (S-NM2)	551166	4510721	
	Davis County Pond 5 (S-M1)	551147	4510550	
	Davis County Pond 6 (S-S)	551277	4510162	
	Davis County Pond 7 (S-NM1)	551246	4510808	
	Davis County Pond 8 (S-M2)	551212	4510377	
	Davis County Pond 9 (N-M)	551274	4511217	
	Drakesville Ponds	544053.7	4516907.98	
	Lake Fisher	547145.17	4511858.74	2 miles northwest of Bloomfield
	Lake Wapello	535775.58	4518715.47	7 miles west of Drakesville

County	Lake Name	Easting	Northing	Location
Decatur	Home Pond	419485.75	4497642.68	
	Lake LeShane	417531.16	4498385.73	
	Little River Watershed Lake	434102.76	4512932.22	1 mile west of Leon
	Nine Eagles Lake	434841.62	4494456.68	3½ miles southeast of Davis City
	Slip Bluff Lake	427969.88	4500576.02	2 miles northwest of Davis City
Delaware	Backbone Lake	620098.06	4717575.34	4 miles southwest of Strawberry Point
	Schram Pond	627204	4703162	
	Silver Lake (Delaware)	637956.2	4698315.57	Southeast edge of Delhi
Des Moines	4th Pumping Plant (Iowa Slough Lake)	670782.93	4547982.17	6 miles north, 5 miles east of Kingston
	Big Hollow Lake	648948	4534137	3 miles west of Sperry
	Black Hawk Bottoms	658961	4507637	
	Buffalo Slough	670919	4545162	
	Camp Island	672008	4540145	
	Charlie Island	672115	4542329	
	Cody Chute	671688	4543373	
	Gahn Wildlife Refuge Pond	652570.62	4522956.11	Northwest of West Burlington, 1 mile north of Highway 34
	Gates Lake	670341	4546373	
	Gorge Pond	648629	4534554	5 miles west of Sperry
	Gun Chute	671255	4544681	
	Half Moon Lake	658047	4508487	
	Huron Chute	670493	4546373	
	Izaak Walton Lake	656013.69	4521699.42	
	Johnson Island	672127	4541237	
	Leaky Pond	649971	4535213	5 miles west of Sperry
	Linder Pond	648842	4534364	5 miles west of Sperry
	O'Connell Slough	661110	4523877	
	Otter Bay	663051	4523701	
	Otter Slough	662762	4524286	
	Round Lake	657613	4509914	
	Rush Chute	661527	4523059	
	Shelter D	649433	4535145	5 miles west of Sperry
	Shelter E	650161	4535176	5 miles west of Sperry
	Swift Slough	665024	4527309	
	Twin Ponds	671560	4545138	
	West Lake	655836.8	4521930.26	
	Yeager Lake	660748.37	4521923.82	
Dickinson	Big Spirit Lake	329966.96	4812894.29	1 mile north of Spirit Lake
	Center Lake	327070.22	4808772.86	2 miles west, ½ mile south of Spirit Lake
	Diamond Lake	322816.82	4816686.45	2 miles east, 2 miles north of Montgomery
	East Okoboji Lake	328394.92	4805141.83	East edge of Okoboji
	Little Spirit Lake	328213.3	4818249.82	4 miles north of Orleans
	Little Swan Lake	342370	4813624	
	Lower Gar Lake	328234.54	4801799.84	½ mile south of Arnolds Park

County	Lake Name	Easting	Northing	Location
	Minnewashta Lake	327875.2	4803006.35	½ mile south of Arnolds Park
	Pleasant Lake	335821.28	4807755.65	3 miles east, 1 mile south of Spirit Lake
	Prairie Lake	332924.42	4805076.72	2.5 miles east of Arnolds Park
	Silver Lake (Dickinson)	310997.28	4813089.18	West edge of Lake Park
	Swan Lake	342395.86	4813752.52	2 miles north of Superior
	Upper Gar Lake	328141.26	4803845.34	East of Arnolds Park
	Welch Lake	324264.45	4814314.92	
	West Okoboji Lake	326658.64	4804352.38	Northwest edge of Arnolds Park
	Westport Park Pond	309177.54	4798208.23	
Dubuque	Basswood Creek	679703	4724434	
	Bluebell Creek	661458	4730249	
	Bunker Chute	672453	4726563	
	Dubuque Harbor	692288	4706960	
	East Bergfeld	682823	4706318	
	Greens Lake	699375	4700686	
	Heritage Pond	688309.91	4713704.08	North edge of Dubuque
	Horseshoe Lake	700143	4700256	
	Lake Peosta Channel	692993	4710087	
	Molo Slough	698268	4701301	
	Mud Lake Park	688390.25	4720447.61	
	Shawon Dasse Slough	698520	4701375	
	West Bergfeld	682370	4706457	
Emmet	High Lake	361493.8	4796057.25	6 miles east of Wallingford
	Ingham Lake	362567.49	4797656.25	6 miles east of Wallingford
	Iowa Lake	382161.54	4817021.05	6 miles north of Armstrong
	Jim Hall Habitat Area Wetland	356559.58	4791861.6	
	Tuttle Lake	371345.55	4817077.11	1 mile east, 2 miles north of Dolliver
	West Swan Lake S.W.M.A.	364028.85	4801616.77	3 miles southeast of Gruver
Fayette	Gilbertson Area Lake	613397.36	4756833.09	East of Elgin off of County Highway B64
	Lake Oelwein	588798.64	4722337.49	South edge of Oelwein
	Maynard Impoundment	591414	4737075	
	Volga Lake	600326.81	4750319.41	3 miles north of Fayette
	Waucoma Impoundment	578691.97	4767409.38	
Floyd	Charles City Impoundment	525968.93	4768270.7	Charles City
	Fossil Park Pond	502010	4766025	1 mile west of Rockford
	Marble Rock Impoundment	510448.27	4757045.24	West edge of Marble Rock
	Rudd Lake	509045	4774695	East of Rudd
Franklin	Beeds Lake	480055.88	4735292.12	2 miles west, 1 mile north of Hampton
	Interstate Park Lake	465846.02	4730889.95	1 mile west, 2 miles south of I-35 and Hwy 3
	Maynes Grove Lake	483119.56	4724728.86	5 miles south of Hampton
	Pope Joy Pond	464203	4714636.42	
	Prairie Bridges Park Ponds	495240.66	4712345.37	1 mile north of Ackley
	Robinsons Pond	485757.14	4733568.17	

County	Lake Name	Easting	Northing	Location
	Sheffield G.M.A. Pond	477136.67	4750562.81	
	Toft Pit	459592.79	4723669.33	
Fremont	Lake Virginia	272866	4504644	5 miles west of Riverton
	McPaul A Pond	263645.55	4525103.08	2 miles south of Bartlett
	McPaul B Pond	263506.35	4523459.15	2 miles south of Bartlett
	Percival Lake	262829.68	4517831.28	1 mile north of Percival
	Pinky's Glen Pond	270951.36	4530967.33	2 miles west of Tabor
	Scott Lake A	263972.86	4527917.37	1½ miles south of Bartlett
	Scott Lake B	263966.46	4527143.86	1½ miles south of Bartlett
	Waubonsie Access Lake	261509.74	4507347	
Greene	Pound Pit	396860	4658722	
	Pound Pit middle W	396775	4658797	
	Pound Pit NE	396775	4658894	3 miles north of Grand Junction
	Pound Pit NW	396654	4658891	
	Pound Pit SW	396723	4658550	
	Spring Lake	393381.93	4657295.83	4 miles northwest of Grand Junction
Grundy	Grundy County Lake	529801.87	4700900.07	South side of Hwy 20 at Dike exit
	Rodman Park Ponds	527694.71	4702110.46	2 miles west of Dike
	Stoehr Lake (Wellsburg)	509535.39	4693577.21	4 miles southeast of Wellsburg
Guthrie	Springbrook Lake	378112.1	4626039.93	7 miles north of Guthrie Center
	Sutcliff Woodland Pond	363708.79	4613110.19	10 miles north of Adair
Hamilton	Briggs Woods Lake	434799.38	4698625.1	2 miles south of Webster City
	Little Wall Lake	447509.22	4679896.07	1½ miles south of Jewell
Hancock	Crystal Lake	435751.69	4786527.29	North edge of Crystal Lake
	Crystal Lake Sediment Pond	436272	4787244	Off the northeast corner of Crystal Lake
	Eight Mile Pits	439357.12	4787963.53	
	Eldred Sherwood Lake	453975.09	4754473.17	3 miles east, 1 mile north of Goodell
	Pilot Knob Lake	454452.32	4788839.96	3 miles east of Forest City
	Torkelson Pit W.A. (north)	456166.98	4783852.84	
	Torkelson Pit W.A. (southeast)	456317	4783649	
	Torkelson Pit W.A. (southwest)	456186	4783743	
	West Twin Lake	440160.83	4754061.28	3 miles east of Kanawha
Hardin	Alden	469050	4707733	
	Lower Pine Lake	493819.22	4690719.67	½ mile east of Eldora
	Meiers Access	472688	4684011	
	Pine Ridge R.A. Lake	494327.5	4696097.19	
	Steamboat Rock	494022	4695110	
	Upper Pine Lake	494761.55	4691675.65	½ mile east of Eldora
Harrison	DeSoto Bend at DeSoto National Wildlife Refuge	247652.14	4603538.94	5 miles west of Missouri Valley at DeSoto National Wildlife Refuge
	Dunlap Pond	285083.69	4636573.63	East edge of Dunlap
	Nobles	251377	4599685	6 miles southwest of Missouri Valley
	Sawmill Hollow W.A. Pond	257535.24	4614482.5	4 miles southwest of Magnolia

County	Lake Name	Easting	Northing	Location
	Schaben Pond	278081.43	4631303.92	5½ miles northeast of Woodbine
	Schley Park Pond	287078.68	4606215.77	1 mile east of Persia
	Willow Lake	268199.26	4627939.86	5½ miles west of Woodbine
Henry	East Lake Park	624600.28	4533827.73	Mount Pleasant - city park
	Gibson Area Pond	611978	4531418	East of Oakland Mills (Henry CCB)
	Lake Geode	636087.98	4519878.79	4 miles southwest of Danville
	Lake Geode Pond #1	637003	4520751	
	Lake Geode Pond #3	637089	4520269	
	Lake Geode Pond #4	636941	4520357	
	Lake Geode Pond #5	636535	4520217	
	Lake Geode Pond #6	634992	4520680	
	Lake Geode Pond #7			
	Lake Geode Pond #8			
	Oakland Mills Impoundment	616371.43	4532547.37	
Howard	Lake Hendricks	536796.76	4802511.8	.5 miles northeast of Riceville
	Lidtke Impoundment	558360	4812676	
	Lime Springs Impoundment	558117.58	4812991.97	
	Merrick Pond	538801.89	4788117.94	
	Taylor Park Pond	571816.29	4789408.51	3 miles northwest of Protivin
	Vernon Springs Park Pond	569748.29	4799739.76	
Humboldt	Humboldt Impoundment	399264.31	4731291.08	
	Rutland Impoundment	393915	4734434	
Ida	Crawford Creek Impoundment	285080.77	4683549.46	3½ miles south of Battle Creek
	Moorehead Park Pond	295746.77	4692499.69	½ mile north of Ida Grove
Iowa	Gateway Park North	577527	4629168	North edge of Marengo
	Gateway Park South	577522	4628800	North edge of Marengo
	Iowa Lake	568747.08	4609827.89	5 miles north of Millersburg
	Lake Iowa Pond	568387	4609231	Behind the nature center in Lake Iowa Park
	Williamsburg Pond	581687.98	4612442.9	In the town of Williamsburg
Jackson	Alligator Lake	733398	4662712	
	Bards Lake	732439	4662936	
	Barge Lake	734038	4662695	
	Bellevue Pond	713018	4680766	South edge of Bellevue, near Bellevue State Park
	Bellevue Slough	711881	4688370	
	Big Keller Lake	733142	4667124	
	Big Sieber Lake	732910	4664862	
	Blake's Lake	726130	4672042	
	Bonnie Lake	717312.92	4675010.51	
	Bowman's Slough	717091	4676230	
	Dead Lake	733310	4664175	
	Densmore Lake	724280.63	4671708.49	
	Doc Wood Lake	733494	4664015	

County	Lake Name	Easting	Northing	Location
	Eldridge Slough	734109	4663128	
	Esmay Slough	733497	4665008	
	Fish Lake	722936.54	4672600.4	
	Flat Lake (A)	719274	4674318	
	Flat Lake (B)	733522	4663968	
	Golden Lake	718898.04	4675105.93	
	Goose Lake	720185.32	4674528.7	
	Green Island Lake	724532.96	4671513.05	1 mile east of Green Island
	Harrington Slough	713758	4679680	
	Horseshoe Pond	693445.62	4658581.92	
	Hubble Slough	733897	4659264	
	Hurstville Pond	691433	4662547	1 mile north of Maquoketa
	Israel Day Lake	733606	4662720	
	Jackson Lake	719474	4674965	
	Joe Day Lake	732671	4664015	
	Lainsville Slough	729361	4669432	
	Little Keller Lake	732659.32	4667065.9	
	Little Sawmill Lake	724477.32	4672495.39	
	Little Sieber Lake	733166	4664662	
	Lower Brown Lake	727674	4670384	
	Lower Y Lake	733727.34	4666349.11	
	McGann's Lake	725645	4672141	
	Middle Sabula Lake	733211.42	4661003.42	West edge of Sabula
	Pin Oak Lake	729142.03	4670312.65	
	Running Slough	733678	4666005	
	Sawmill Lake	724778.68	4672601.1	
	Scarborough Lake	727305	4670619	
	Sheepshead Bay	734325	4665286	
	Snag Slough	723628	4672682	
	Snider Lake	722807.84	4673524.84	
	South Sabula Lake	733677.57	4660163.34	
	Sunfish Lake	732412.16	4666850.65	
	Town Lake	732718	4662632	
	Twin Lakes	721080.93	4674100.26	
	Upper Brown Lake	726110.52	4670430.27	
	Upper Sabula Lake	732981.25	4661695.68	
	Upper Y Lake	733574.41	4666792.15	
	Western Pond	718108.96	4674401.97	
Jasper	Clear Creek Pond	480600	4628525	
	Deppe Pond (north)	511167	4623933	4 miles northeast of Kellogg
	Deppe Pond (south)	511161	4623426	4 miles northeast of Kellogg
	Jacob Krumm Nature Preserve Lake (east)	517620	4617110	
	Jacob Krumm Nature Preserve Lake (west)	518446.58	4617485.07	6 miles southeast of Kellogg

County	Lake Name	Easting	Northing	Location
	Mariposa Lake	502975.97	4625216.65	5 miles northeast of Newton
	Reimer Refuge Pond	507460	4619070	
	Rock Creek Lake	512179.64	4620967.25	4 miles northeast of Kellogg
	Rock Creek Lake Park Pond (east)	513967	4621454	
	Rock Creek Lake Park Pond (north)	512526	4621802	
	Rock Creek Lake Park Pond (west)	511190	4620719	
	Stephens State Forest Reichelt Unit Lake	511067.31	4616575.07	
Jefferson	Bonnifield Lake	587914.03	4541523.96	
	Jefferson Co. Park New Pond	584904	4537775	Southwest edge of Fairfield
	Jefferson Co. Pond #1	584866	4537540	Southwest edge of Fairfield
	Jefferson Co. Pond #2	585164	4537540	Southwest edge of Fairfield
	Jefferson Co. Pond #3	585084	4538602	Southwest edge of Fairfield
	Jefferson Co. Pond #4	585272	4538373	Southwest edge of Fairfield
	Pleasant Lake	588370.59	4542079.46	
	Round Prairie Park Entry Pond	600087	4529881	12 miles southeast of Fairfield
	Round Prairie Park Quarry Pond	600304	4529660	
	Walton Reservoir	589629.66	4540841.99	
	Whitham Woods Pond	583314	4540070	1 mile west of Fairfield
	Zilman's Pond	592387	4536617	
Johnson	Broodmoor Pond	616993	4621423	East side of North Liberty
	Burlington Street Dam	621477	4612805	On the Iowa River in Iowa City under the Burlington Street bridge
	Coralville Reservoir	622294.37	4620498.12	4 miles north of Iowa City
	Dovetail Pond	620021	4617910	
	Ewalt Pond	614915	4617216	West side of Coralville
	Fox Run Pond	615638	4624756	North side of North Liberty
	Fox Valley Pond	614671	4619683	Southwest of North Liberty
	Freedom Pond	614993	4621721	North Liberty
	Goose Pond	613471	4624028	West side of North Liberty by I-380
	Iowa River Landing Pond	620047	4615397	Just south of I-80 at Iowa River landing
	Kent Park Lake	605587.26	4620021.73	2.5 miles west of Tiffin
	Lake Macbride	619078.11	4628229.25	4 miles west of Solon
	Liberty Centre Pond	615500	4622936	One block west off Hwy 965 on Cherry Street
	North Ridge Park Pond	616966.57	4616718.45	Just north of I-80 in Coralville
	Oakdale Ponds	616042	4618778	East of Hwy 965
	Redbird Farms W.A. Ponds	607294.48	4607914.17	9 miles southwest of Iowa City
	S.T. Morrison	617764	4615107	Coralville
	Terry Trueblood Lake	622528	4608957	1.5 miles south of Hwy 6 on Gilbert Street in Iowa City

County	Lake Name	Easting	Northing	Location
	Town Dam	619489	4614596	On the Iowa River along 1st Avenue in Iowa City
	West Pond	613582	4621842	
Jones	Central Park Lake	653870.14	4663855.76	2 miles west of Center Junction
	Hale Ponds	663097	4654211	3 miles east of Hale
	Monticello Dam	650809	4678560	On the Maquoketa River on the east side of Monticello
	Olin R.A. Pond	654322.31	4652393.1	1 mile north of Olin
Keokuk	Belva Deer Park Pond #1	572399	4580789	5 miles northeast of Sigourney
	Belva Deer Park Pond #2	572552	4580701	5 miles northeast of Sigourney in the campground
	Belva Deer Park Pond #3	572712	4580705	5 miles northeast of Sigourney in the campground
	Griffin Lake	554502.09	4582351.74	Southeast corner of What Cheer
	Griffin Pond #1	554809	4582606	
	Griffin Pond #2	555034	4582531	
	Lake Belva Deer	573367	4581022	5 miles northeast of Sigourney
	Yenruogis Pond	566866.17	4581105.04	2 miles north of Sigourney
Kossuth	Burt Lake	387755.38	4817117.51	4 miles west, 8 miles north of Swea City
	Hurlburt W.A. Pond	400846.96	4772904.56	
	Lake Smith	399004.66	4775327.52	3 miles north of Algona
	Plum Creek W.A. Pond	403565.97	4776155.8	
	St. Benedict W.A. Pond	411428.97	4763547.16	2 miles southwest of St. Benedict
	Whittemore Pit	386031.74	4767988.65	1.5 miles southeast of Whittemore
Lee	Bitternut	607002	4502463	3 miles north of Farmington
	Black Oak	608922	4499870	2 miles northeast of Farmington
	Chatfield Lake	631418.04	4477352.55	3 miles northwest of Keokuk
	Devil's Creek Lake	635244	4494311	
	Grape Chute	655552	4502801	
	Lead Island Chute	648559	4501028	
	Martens Pond	612682	4498974	Just off Highway 2 in Shimek State Forest
	Martin Pond	612689	4498943	
	Pollmiller Park Lake	632044.15	4508067.78	East edge of West Point
	Rabbit Island Lake	638603	4497196	
	Shagbark	612763	4500242	6 miles northeast of Farmington
	White Oak	609402	4498526	2 miles east of Farmington
	Wilson Lake	627747	4500241	4 miles east of Donnellson
	Wilson Pond #1	627532	4500070	
	Wilson Pond #2	627327	4500075	
Linn	Central City Ponds	620723.06	4674042	
	Coggon Impoundment	620851.21	4682196.87	On Buffalo Creek on the northwest edge of Coggon
	Five in One Dam	609949	4648267	On Cedar River under I-380 in Cedar Rapids
	Manhattan Robbins Lake Park	607509.52	4651345.38	On the Cedar River in northwest Cedar Rapids

County	Lake Name	Easting	Northing	Location
	Mohawk Park Lake	608932	4650761	East side of the Cedar River off J Avenue
	Mount Vernon Quarry	631572	4641831	Between Mount Vernon and Lisbon on the north side of Highway 30
	Murphy Lake	619876	4645502	1 mile northwest of Bertram on the west side of Highway 13
	Pleasant Creek Lake	598199.61	4664125.85	4 miles north of Palo
	Prairie Park Fishery	613355	4644988	1.5 miles south-southeast of Cargill on Otis Road, along the Cedar River in Cedar Rapids
	Seminole Valley Park Lakes	605042.16	4650789.19	Along the Cedar River in northwest Cedar Rapids
	South Cedar Pond	630066.45	4638533.71	
	Wakpicada Natural Area Pit 1	621944	4671998	1 mile south of Central City
	Wakpicada Natural Area Pit 2	622013	4670928	1 mile south of Central City
Louisa	Beebe Pond	660348	4562333	
	Big Goose Pond	660725	4561162	
	Big Timber Complex	658059	4569957	
	Blackhawk Chute	670734	4551602	
	Cairo Woods Pond	638996.46	4562293.45	
	Coolegar Slough	658114.44	4570795.74	
	Fox Pond	659185	4564105	
	Hidden Acres	657929	4566569	
	Kilpeck Island Chute	660469	4574879	
	Lake Odessa	660024.13	4560444.9	5 miles east of Wapello
	Little Fox Pond	659618	4563856	
	Louisa Interpretive Center Pond	654884	4569511	
	Otter Island	662381	4561346	
	Prairie Pocket	659290	4565212	
	Swarms Pond	659731	4562325	
	Turkey Chute	660327	4563388	
	Virginia Grove R.A. Pond	640596.11	4556176.98	4 miles northwest of Morning Sun
Lucas	Ellis Lake	478118	4539959.96	1 mile east of Chariton
	Morris Lake	479091.71	4540050.46	3 miles east of Chariton
	Red Haw Lake	477089.37	4538562.46	1 mile east of Chariton
	Red Haw Pond 1 (east)	476871	4537515	
	Red Haw Pond 2 (middle)	476686	4537455	
	Red Haw Pond 3 (north)	476651	4537780	
	Stephen's Forest Lucas Unit Pond 1	458776.18	4541052.58	
	Stephen's Forest Lucas Unit Pond 2	459618.26	4540360.97	
	Stephen's Forest Whitebreast Pond 1	458068.38	4537864.95	
	Stephen's Forest Whitebreast Pond 2	457718.44	4536796.84	8 miles west of Chariton

County	Lake Name	Easting	Northing	Location
	Williamson Pond	482052.92	4549089.51	2 miles east of Williamson
Lyon	Jasper Pool	209438.86	4822553.45	
	Lake Pahoja	219000.7	4809227.87	4 miles south, 2 miles west of Larchwood
	Locker Park Pond	256720.45	4803663.21	In city park in George
Madison	Badger Creek Lake	423893.93	4591432.25	5 miles southeast of Van Meter
	Badger Creek Pond	423780	4592988	6 miles southeast of Van Meter
	Cedar Lake	416544.42	4580433.65	2 miles northeast of Winterset
	Criss Cove County Park Pond	412630.06	4562897.31	7 miles south of Winterset
	Deer Creek Wildlife Unit Pond	416883.11	4560928.89	
	Fellowship Forest Pond	410740	4570020	
Mahaska	Cedar Bluffs N.A. Pond	514213.22	4566947.03	
	Edmunson Pond	528946.31	4570391.36	
	Hawthorn Lake (a.k.a. Barnes City Lake)	545229.09	4591852.64	1 mile south of Barnes City
	Hawthorn Lake Watershed Ponds			
	Lake Keomah	538546.94	4571495.74	6 miles east of Oskaloosa
	Russell W.A. Pond	531042.96	4578939.74	6 miles north of Oskaloosa
	White Oak Conservation Area Lake	543838.8	4569253.88	2 miles south of Rose Hill
Marion	Bauer Park	473515.3	4561127.02	4 miles west of Melcher-Dallas
	Knoxville Pond	489340.69	4573756.55	1 mile southwest of Knoxville
	Pella S.G.M.A. Ponds	508282.51	4580049.2	
	Red Rock Reservoir	500001.33	4581031.68	4 miles north of Knoxville
	Roberts Creek Lake	495830.2	4585975.08	6 miles northeast of Knoxville
	Sand Pit	503020.85	4579588.17	
	Sunken Gardens Park Pond	507044.28	4584467.25	
	Tower Pond	501083.29	4578269.23	
	Wilcox W.A. Pond	504275.37	4566180.27	4 miles east of Attica
Marshall	Center Street Dam	506615	4656548	On the Iowa River on the north edge of Marshalltown
	Green Castle Lake	511581.56	4641843.27	1 mile south of Ferguson
	Marshall County Lake	501181.94	4653756.22	4 miles west of Marshalltown
	Sand Lake	511500	4655700	On the northeast edge of Marshalltown
Mills	Folsom Lake	262956.75	4551866.61	2 miles west of Glenwood
	Glenwood Lake	270109.51	4547391.54	East edge of Glenwood
	Keg Creek Lake	264085.12	4541300.49	2 miles southwest of Pacific Junction
	Lake George	293010.52	4544369.48	
	Malvern Pond (a.k.a. Bohner Pond)	282046	4542498	West edge of Malvern
	Mile Hill Lake	265997.5	4548659.57	2 miles west of Glenwood
Mitchell	Interstate Lake (Mitchell Impoundment)	509569.33	4796205.54	West edge of Mitchell
	Otranto Impoundment	501476.14	4811770.78	
	Stacyville Impoundment	517933.94	4809237.57	

County	Lake Name	Easting	Northing	Location
Monona	Blue Lake	238595.91	4659728.09	3 miles west of Onawa
	I-29 Access Area borrow pit – Dry	242812.82	4646066.83	
	Johnston Pit	257800	4676400	1 mile east of Rodney
	Loess Hills State Forest – Jones Creek	257215	4639517	
	McDonald Pit	257276	4675844	1 mile east of Rodney
	Middle Decatur Lake	234152.8	4655809.5	
	Oldham Lake	268988.65	4654477.44	1 mile north of Soldier
	Pawnee Rec. Area Pit (NE)	258042	4677144	
	Pawnee Rec. Area Pit (SW)	257900	4677000	
	Peters Park	256800	4676000	1 mile east of Rodney
	Savery Pond	263720.03	4638997.9	2 miles southeast of Moorhead
	Upper Decatur Bend	232403	4655429	
	Whiting Woods Pond	261406.53	4669982.78	
Monroe	Albia (lower)	515300	4544600	1 mile north of Albia
	Albia City Reservoir	514850	4544350	1 mile north of Albia
	Carmack Park Pond	505562.4	4552081.85	2 miles west of Lovilia
	Lake Miami	512952.93	4551706.67	5 miles southeast of Lovilia
Montgomery	Anderson Area Pond 1	316415.17	4544876.14	2 miles east of Red Oak
	Anderson Area Pond 2	316156.26	4543807.56	2 miles east of Red Oak
	Hacklebarney East	334300	4538900	4 miles north of Villisca
	Hacklebarney West	333600	4538400	4 miles north of Villisca
	Pilot Grove Lake	328614.32	4557101.13	5 miles east of Elliott
	Viking Lake	329002.05	4538071.21	4 miles east of Stanton
Muscatine	Cedar Bluffs R.A. Ponds	640775.91	4578442.02	
	Chicken Creek Lake	653073	4595470	8 miles northwest of Muscatine (CCB)
	Deep Lakes	660751	4581647	
	Drury Slough	672542	4587295	
	Environmental Discovery Park North Pond	660000	4588800	Muscatine CCB, east of Muscatine
	Environmental Discovery Park South Pond	659750	4588600	Muscatine CCB, east of Muscatine
	Gedney Lake	641241.83	4584761.77	
	Hershey Slough	671496	4588165	
	Hog Island	665859	4588186	
	Muscatine Slough (Kent-Stein Park)	661049.98	4586403.35	Southwest edge of Muscatine
	Spring Lake	660814	4577870	
	Wyoming Slough	671745	4588758	
O'Brien	Dog Creek (Lake)	298538.13	4756818.5	2 miles east, ½ mile south of Sutherland
	Douma Area Pond	279975.69	4782398.84	2 miles west, 1 mile south of Sanborn
	Mill Creek (Lake)	282302	4762515	1 mile east of Paullina
	Negus Recreation Area Pond	297040.75	4756751.02	
	Sheldon Community Pond	271108.1	4784622.5	

County	Lake Name	Easting	Northing	Location
	Tjossem Pond	286969.84	4771788.04	
Osceola	Ashton Park Pond	274303.65	4799335.56	
	Ashton Pits Wildlife Management Area	274931.84	4800219.8	
	May City Pit	298016.91	4800337.63	
	Ocheyedan Pit #1	294636.06	4806765.04	2 miles south of Ocheyedan
	Ocheyedan Pit #2	294509	4807219	2 miles south of Ocheyedan
	Ocheyedan Pit #3	294291	4807392	2 miles south of Ocheyedan
	Peters Pit	269633.43	4817562.63	
	Thomas Pit	295840.01	4802894.09	
	Willow Creek	288284	4812127	4 miles west of Ocheyedan
Page	Pierce Creek Pond	301186.8	4522851.23	5 miles north of Shenandoah
	Pioneer Park Pond	312336.38	4512741.41	10 miles north of Clarinda
	RAPP Park Lakes	300880	4517554	North edge of Shenandoah
	Ross Area Pit	334046.4	4497246.63	8 miles southeast of Clarinda
Palo Alto	Five Island Lake	364129.71	4776858.57	North edge of Emmetsburg
	Lost Island Lake	345236.73	4781980.63	3 miles north of Ruthven
	Mulroney Recreation W.A. Pond	371544.92	4763574.23	
	Silver Lake (Palo Alto)	346427.93	4766118.97	2 miles west of Ayrshire
	Sportsman Park Pond	373841.73	4774577.66	
	Virgin Lake	345799.11	4773993.31	2 miles south of Ruthven
Plymouth	Hillview R.A. Pond	227889.37	4726319.16	2 miles west of Hinton
	LeMars Pit	246489.6	4739176.68	
	Meadow W.A. Pond	260939.3	4748626.59	
	Rivers Bend Wildlife Area Lake	206448	4743942	
	Silver Maple County Park Pond	206580.89	4745257.62	
	Southeast Wildwood Park Pond	253515.73	4720561.95	
Pocahontas	Cooper's Cove Park Pond	379947.83	4720030.24	7 miles east of Palmer
	Fonda Reservoir	348315.07	4715687.24	
	Lizard Lake	377543.34	4725444.04	
	Meredith Park Pond	367541.9	4751724.52	1.5 miles north of Plover
	Northwest Recreational Park Pond	349680.49	4745166.51	Southeast edge of Laurens
Polk	Acorn Valley Pond	440086	4620848	Within Acorn Valley campground on the west side of Saylorville Reservoir 3 miles north of Johnston
	Ankeny Lake (DMACC)	449512	4617135	Ankeny, DMACC campus
	Big Creek Lake	438321.15	4629479.46	2 miles north of Polk City
	Birdland Park Pond	448932.83	4606930.51	
	Blue Heron Lake (Raccoon River Park)	439020.58	4599899.06	Southwest of West Des Moines; Raccoon River Park
	Copper Creek	455930	4605980	North side of University Avenue in Pleasant Hill along Four Mile Creek

County	Lake Name	Easting	Northing	Location
	Dale Maffitt Reservoir	434202.42	4596457.29	6 miles southwest of Des Moines
	Discovery Pond	434952.67	4626039.47	
	Donald McRae Park Pond	448020.25	4602131.04	
	Easter Lake	453737.61	4599264.29	Southeast edge of Des Moines
	Ewing Park Pond	451685.09	4598800.16	
	Fort Des Moines Pond	449107	4596329	
	Grays Lake	446619.95	4602226.81	Fleur Drive, Des Moines
	Greenwood/Ashworth Park Pond	443179.91	4603320.13	
	Hawkeye Park Pond	449411.16	4620502.87	Ankeny
	Lake Petocka	463217.99	4617300.7	Northeast edge of Bondurant
	Lake View Pond	439386	4609789	
	McHenry Park Lagoon	447691.3	4608112.63	
	Saylorville Reservoir	442684.68	4618588.91	North edge of Des Moines
	Skull Pond	434961	4626036	Within Jester Park 2.5 miles northeast of Granger
	Teal Pond	434504	4625778	Within Jester Park 2.5 miles northeast of Granger
	Terra Lake	441169	4612454	Within city of Johnston south of Pioneer Parkway
	Thomas Mitchell Lake	468053.88	4610166.83	3 miles southwest of Mitchellville
	Walker-Johnston Pond	438255	4608532	Within Walker-Johnston Park in the city of Urbandale
	Witmer Park Pond	444651.4	4606515.45	
	Yellow Banks Park Pond	461572.92	4598783.73	Southeast edge of Des Moines
Pottawattamie	Arrowhead Pond	283406.45	4590411.46	1½ miles southeast of Neola
	Big Lake (incl. Gilbert's Pond)	260371.03	4575268.64	North 25th Street exit off Interstate 29, Nash Blvd. to Big Lake Road, northeast Council Bluffs
	Carter Lake	255489.46	4576242.85	North edge of Carter Lake
	Farm Creek Lake	305790	4565600	5 miles east of Carson
	Lake Manawa	260203.21	4565635.29	Southwest edge of Council Bluffs
	Riepe Pond	307915	4565321	
	Saganaush Pond	256320	4568090	On grounds of Western Historic Trails Center in western Council Bluffs, accessed via Richard Downing Avenue
Poweshiek	Arbor Lake	522262.02	4620025.39	On the southwest edge of Grinnell
	Diamond Lake	537371.4	4604053.83	1 mile west of Montezuma
	Diamond Lake Pond	538009	4604190	1 mile west of Montezuma
	Miller	523211	4620090	On the southeast edge of Grinnell
Ringgold	Fife's Grove Park Pond	395138.61	4510343.9	1 mile north of Mount Ayr
	Fogle Lake S.W.A.	386067.75	4519129.71	½ mile west of Diagonal
	Kokesh R.A. Pond	387027.06	4516600.61	
	Loch Ayr	395377.92	4511185.33	2 miles north of Mount Ayr
	Mount Ayr Game Area Ponds	388320.85	4504889.89	5 miles southwest of Mount Ayr
	Mount Ayr Old Reservoir	396421.06	4509142.84	½ mile north of Mount Ayr

County	Lake Name	Easting	Northing	Location
	Poe Hollow Park Pond	399172.78	4507465.25	
	Ringgold CCB Ponds	395164	4510341	1 mile north of Mount Ayr
	Ringgold Management Area Ponds	404084.61	4494965.08	11 miles southeast of Mount Ayr
Sac	Almer Noyd W.A. Pit	343857.65	4683121.44	
	Arrowhead Lake	330911.52	4684793.63	South side of Lake View
	Black Hawk Lake	333592.47	4684763.6	East edge of Lake View
	Black Hawk Pits	330522	4682062	1½ miles south of Lake View
	Eden Prairie R.A. Pits	319758.78	4707958.74	
	Jana R.A. Pit	338824.24	4687134.39	
	L Pond	330582	4681897	
	Reiff Park Pond	323169.89	4700594.24	
Scott	Bluegrass Lake	692799.99	4599833.86	.25 miles west of Davenport (CCB)
	Buena Vista Public Use Area Ponds	688198.91	4622022.22	
	Cody Lake	705361.42	4620767.89	
	Cordova Slough	722599	4620589	
	Crow Creek W.A. Lake	703587.12	4609911.64	East edge of Mount Joy
	Davenport Harbor	698411	4596521	
	Enchanted Island	695840	4593464	
	Grant Slough	722010	4620391	
	Lake of the Hills	693798.96	4599251.97	.25 miles west of Davenport (CCB)
	Lambach Lake	693953.02	4599816.3	.25 miles west of Davenport
	Le Claire Canal	717084	4606489	
	Lost Grove Lake	713121	4616355	6 miles east of Eldridge
	Lost Grove Lake Pond			
	Pride Lake	705741.49	4619857.29	
	Railroad Lake	693213.11	4599729.1	.25 miles west of Davenport (CCB)
	Steamboat Slough	722736	4620149	
	Wapsi River Center Pond	683785.63	4626415.39	
Shelby	Elk Horn Creek Pond	325720.04	4604192.81	
	Manteno Park Pond	295232.85	4636522.07	8 miles northwest of Defiance
	Nishna Bend R.A. Ponds	305993.99	4604617.39	4 miles south of Harlan
	Pioneer Park Pond	306202	4613751	Within Harlan city limits
	Prairie Rose Lake	315022.56	4608076.17	8 miles southeast of Harlan
	Schimeroski Pond	299608.55	4627446.47	East edge of Earling
	Speery Pond	305460	4612920	Within Harlan city limits
Sioux	Alton Roadside Park Pond	254874.7	4764719.04	.5 miles north of Alton
	Big Sioux Recreation Area	214559	4765664	
	Fairview Area Impoundment	217068.02	4792010.78	5 miles south, 3 miles west of Inwood
	Nassau W.A. Pond	252253.29	4758384.74	
	Oak Grove Pond	216911.5	4773041.27	Oak Grove County Park
	Otter Creek R.A. Pond	256088.72	4793184.47	4.5 miles north of Boyden on L14
	Rock Valley Pit	230911.25	4789780.59	In city park in Rock Valley
	Sandy Hollow Park Lake	246404.47	4772715.56	

County	Lake Name	Easting	Northing	Location
	Sioux Center Pit	240949.87	4769579.74	
	Vander Weerd Pit	259830	4767780	
	Winterfield Pond (a.k.a. Van Zee Pit)	232630.55	4789617.55	North edge of Rock Valley
Story	Ada Hayden Heritage Park Lake	448174.92	4657208.55	North side of Ames, west of Grand Avenue/Highway 69
	Cambridge Pond	454936.39	4642902.35	
	Dakin Lake	475677.46	4668780.3	2 miles northeast of Zearing
	Hickory Grove Lake	470564.02	4648264.23	3 miles southwest of Colo
	Lake Laverne	446406.96	4652629.02	
	McFarland Pond	452861.05	4660393.21	4 miles northeast of Ames
	Moore Memorial Park Pond	446172.06	4654939.44	
	Petersons Pit (west)	450738.3	4659450.24	4 miles northeast of Ames
	Robison Wildlife Acres Pond	463583.65	4641878.25	
Tama	Cherry Lake	534572	4645482	On the southwest edge of Tama
	Columbia W.A. Pond	538064.71	4639700.32	4 miles southeast of Tama
	Otter Creek Lake	539761.59	4654810.53	6 miles northeast of Toledo
	Otter Creek Pond	540216	4654983	Just east of Otter Creek Lake, within county park
	Union Grove Lake	522799.61	4664064.32	4 miles south of Gladbrook
	Union Grove W.A. Pond	522365.05	4663357.32	4 miles south of Gladbrook, on southwest corner of Union Grove State Park
Taylor	Bedford Impoundment	355314	4504855	
	East Lake (Lenox)	369538.35	4528640.04	½ mile north of Lenox
	Lake of Three Fires	357231.61	4508111.37	3 miles northeast of Bedford
	Sands Timber Lake (Blockton Reservoir)	373269.1	4498496.49	1 mile northwest of Blockton
	West Lake (Lenox)	369018.64	4528368.21	1 mile north of Lenox
	Wilson Park Lake	369940.42	4521759.13	2½ miles southeast of Lenox
	Windmill Lake	345779.77	4510308.98	3½ miles east of New Market
Union	Afton City Reservoir	398287.94	4543422.16	1 mile west of Afton
	Green Valley Lake	383661.65	4550950.63	2½ miles northwest of Creston
	Groesbeck W.A. Lake	404231.4	4550318.84	
	McKinley Lake	383582.18	4545574.05	
	Summit Lake	382469.75	4546927.06	West edge of Creston
	Talmadge Hill Lake/Marsh	407807.79	4542658.84	5 miles east of Afton
	Thayer Lake	410388.46	4541669.78	1 mile south of Thayer
	Three Mile Lake	397910.93	4547597.32	3 miles northwest of Afton
	Twelve Mile Creek Lake	394545.86	4545747.38	4 miles east of Creston
Van Buren	Cantril Pond	578466.3	4499991.73	
	Indian Lake	605465.38	4498406.87	1 mile southwest of Farmington
	Lacey Keosauqua Park Lake	586944.13	4507027.86	1 mile southwest of Keosauqua
	Lake Miss (Tug Fork W)	582203.21	4506424.17	5 miles southwest of Keosauqua
	Lake Sugema	585661.49	4504193.59	3 miles southwest of Keosauqua
	Morris Memorial Park Pond	601368.13	4527099.57	

County	Lake Name	Easting	Northing	Location
	Piper's Pond (Tug Fork E)	582409.8	4506415.2	5 miles southwest of Keosauqua
Wapello	Arrowhead Lake	555813.87	4535928.93	3 miles east of Ottumwa
	East Greater Ottumwa Central Park Pond	548123	4540330	Inside Ottumwa city limits
	Eldon Pond	567256.76	4529893.75	
	Memorial Park Pond	550420.63	4542425.32	
	North Greater Ottumwa Central Park Pond	547952	4540649	Inside Ottumwa city limits
	Ottumwa - Waterworks Dam	549101	4540659	
	Ottumwa Lagoon	548207	4539654	Southeast edge of Ottumwa
	Pioneer Ridge Nature Area Pond (Nature Center)	550055.85	4527975.72	
	Pioneer Ridge Nature Area Pond (Parking lot pond)	550334	4527929	
	Pioneer Ridge Nature Area Pond (south pond)	549872	4528018	
	South Greater Ottumwa Central Park Pond	548065	4540029	Inside Ottumwa city limits
	Unmanaged Greater Ottumwa Central Park Ponds	548330	4540159	
	West Greater Ottumwa Central Park Pond	547996	4540189	
Warren	Annett Nature Center Pond (Lester)	451693.92	4571892.04	4 miles south of Indianola
	Banner Lake (north)	454077	4588169	4½ miles north of Indianola
	Banner Lake (south)	453834.69	4587561.79	4½ miles north of Indianola
	Grant Nature Land Pond	472357.58	4585777.95	5 miles south of Swan off Fenton Street
	Hickory Hills Park Pond	448921.8	4558819.73	
	Hooper Area Pond	450695.82	4569434.84	6 miles southwest of Indianola
	Lake Ahquabi	450319.32	4571145.83	5 miles southwest of Indianola
	Otter Creek Park Pond	455547.34	4565886.93	
Washington	Clemons Creek Area Pond	605490	4573460	2 miles west of Washington, CCB
	Crawford Pond	621826.79	4577093.39	3 miles north of Ainsworth
	Darling Campground pond	592365	4560165	Lake Darling State Park
	Darling Youth Camp pond	592865	4561394	
	Foster Pond	622590	4557960	
	Foster Woods Pond	596014.92	4589260.98	1.5 miles southwest of Wellman
	Iowa Township Pond	618490.31	4593583.71	.5 miles north of Riverside
	Lake Darling	592526.11	4561019.3	4 miles west of Brighton
	Lake Darling Watershed Pond 1	591959	4561972	
	Lake Darling Watershed Pond 10	594554	4560251	
	Lake Darling Watershed Pond 11	594322	4560139	
	Lake Darling Watershed Pond 12	593874	4559921	

County	Lake Name	Easting	Northing	Location
	Lake Darling Watershed Pond 13	593969	4559630	
	Lake Darling Watershed Pond 14	593653	4559630	
	Lake Darling Watershed Pond 15	593521	4559890	
	Lake Darling Watershed Pond 16	593109	4560079	
	Lake Darling Watershed Pond 17	592332	4560184	
	Lake Darling Watershed Pond 18	591972	4559932	
	Lake Darling Watershed Pond 19	591707	4559840	
	Lake Darling Watershed Pond 2	592051	4561895	
	Lake Darling Watershed Pond 20	591264	4559919	
	Lake Darling Watershed Pond 21	591168	4559920	
	Lake Darling Watershed Pond 22	590959	4559865	
	Lake Darling Watershed Pond 23	592146	4560997	
	Lake Darling Watershed Pond 24	591935	4561227	
	Lake Darling Watershed Pond 25	591700	4561404	
	Lake Darling Watershed Pond 3	592168	4561808	
	Lake Darling Watershed Pond 4	592250	4561693	
	Lake Darling Watershed Pond 5	592629	4561526	
	Lake Darling Watershed Pond 6	592821	4561744	
	Lake Darling Watershed Pond 7	592936	4560961	
	Lake Darling Watershed Pond 8	593121	4560812	
	Lake Darling Watershed Pond 9	594664	4560228	
	Marr Park Lake	619220	4571485	1 mile west of Ainsworth
	Marr Park Pond	619159.71	4571622.68	1 mile west of Ainsworth
	Schmitter Pond (north)	594190	4563450	
	Schmitter Pond (south)	594155	4563164	
	Sokum Ridge Pond	612791.94	4563691.64	5 miles south of Washington
	Willow Pond	607059	4535425	
Wayne	Bob White Lake	466282.9	4507270.67	1 mile west of Allerton
	Corydon Reservoir	471714.34	4511517.65	West edge of Corydon

County	Lake Name	Easting	Northing	Location
	Humeston Reservoir	457368.6	4525586.56	1 mile north of Humeston
	Lineville Reservoir	456747.3	4494458.64	North edge of Lineville
	Seymour Reservoir	489648.91	4502091.94	.5 miles south of Seymour
Webster	Armstrong Park Pond	402127.19	4707563.34	
	Badger Lake	402117.43	4715601.85	4½ miles north of Fort Dodge
	Bob Hay Memorial Conservation Area Pond	399087.96	4704626.41	
	Brushy Creek Lake	419317.11	4693493.89	5 miles east of Lehigh
	Ft. Dodge - Lower Dam	402435	4705264	
	Ft. Dodge - Upper Dam	401405	4707790	
	Lake Ole	411729.41	4678897.29	
	Moorland Pond	394584.84	4700601.82	
Winnebago	Ambroson Pit (east)	448224	4796718	3½ miles north of Forest City
	Ambroson Pit (middle)	448083.53	4796806.07	3½ miles north of Forest City
	Ambroson Pit (north)	448219	4797019	3½ miles north of Forest City
	Ambroson Pit (west)	447981	4796879	3½ miles north of Forest City
	Dahle Park Pond	453467.21	4812755.4	
	Florence Park Pond	431055.17	4803054.02	
	Hadacek R.A. Pond	446604.45	4794340.68	
	Lake Catherine	438336.32	4789827.68	6 miles west of Forest City
	Lande River Conservation W.A. Pond	452220.22	4810136.14	
	Rice Lake	458817.54	4804514.54	1 mile south, 1 mile east of Lake Mills
Winneshiek	Lake Meyer	588587.31	4780856.03	2.5 miles southwest of Calmar
	Lower Dam Impoundment	610007.88	4799419.9	
	Silver Springs Pond	599452.68	4776706.39	
	Upper Dam Impoundment	607370.28	4797024.26	
Woodbury	Bacon Creek Lake	225556.49	4710043.68	East edge of Sioux City
	Browns Lake	226224.76	4689445.5	2 miles west of Salix
	Little Sioux Park Lake	269611.94	4703249.66	2 miles south of Correctionville
	Midway Park Lake	251408.28	4714219.6	3 miles northeast of Moville
	Snyder Bend Lake	225516.18	4684455.41	1½ miles west of Salix
	Southwood Conservation Area Pond (east)	256098.42	4678037.87	½ mile west, ½ mile south of Smithland
	Southwood Conservation Area Pond (west)	256014	4677987	½ mile west, ½ mile south of Smithland
	Stone State Park Pond	214847.43	4716891.21	
Worth	Kuennen's Pit W.A. (north)	483241	4806793	2 miles south, ½ mile east of Northwood
	Kuennen's Pit W.A. (south)	483262.09	4806542.03	2 miles south, ½ mile east of Northwood

County	Lake Name	Easting	Northing	Location
	Mill Pond	465620.81	4790170.28	
	Silver Lake (Worth)	466247.61	4814365.2	10 miles west, 3½ miles north of Northwood
	Worth County Lake	485623.1	4801876.18	2 miles northeast of Kensett
Wright	Fishpond Park	426518.28	4724992.42	
	Lake Cornelia	443606.06	4737316.08	3½ miles north, 2 miles east of Clarion
	Morse Lake	443361.94	4743180.96	3½ miles west of Belmond

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

TABLE 3

Annual Pounds of Nitrogen Per Space of Capacity

Confinement Operations

Swine	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Nursery, 25 lb.	1 head	2	1	5
Wean-finish, 130 lb.				
Formed storage*				
Dry feeders	1 head	15		34
Wet/dry feeders	1 head	13		34
Grow-finish, 150 lb.				
Formed storage*				
Dry feeders	1 head	21		29
Wet/dry feeders	1 head	19		29
Earthen storage**	1 head	14		
Lagoon***	1 head		6	
Gestation, 400 lb.	1 head	27	5	39
Sow & Litter, 450 lb.	1 crate	32	11	86
Farrow-nursery	Per sow in breeding herd	22	8	85
Farrow-finish	Per sow in breeding herd	150	44	172

Dairy, Confined	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Cows, 1200 & up lb.	1 head	164	59	140
Heifers, 900 lb.	1 head	81	44	65
Calves, 500 lb.	1 head	45	24	15
Veal calves, 250 lb.	1 head	22	12	10
Dairy herd	Per productive cow in herd	169	87	180

Beef, Confined	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Mature cows, 1000 lb.	1 head	105	23	147
Finishing, 900 lb.	1 head	95	19	132
Feeder calves, 500 lb.	1 head	53	11	73

Poultry	Space	Dry Manure
Layer, cages	1000 head	367
Broiler, litter	1000 head	585
Turkeys, litter	1000 head	1400

Open Feedlot Operations

		Runoff – liquids		
Species	Space	Earthen lots	Concrete lots	Solids-scraped
Beef, 400 sq. ft./hd.	1 head	5	3	66
Dairy, 1000 sq. ft./hd.	1 head	15	7	127
Swine, 50 sq. ft./hd.	1 head	1	3	18

* Formed manure storage structure

** Earthen manure storage basin

*** Anaerobic lagoon

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10]

TABLE 3a

Annual Pounds of Phosphorus (as P_2O_5) Per Space of Capacity

Confinement Operations

Swine	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Nursery, 25 lb.	1 head	1	0.7	3
Wean-finish, 130 lb.				
Formed storage*				
Dry feeders	1 head	12		21
Wet/dry feeders	1 head	9		21
Grow-finish, 150 lb.				
Formed storage*				
Dry feeders	1 head	18		18
Wet/dry feeders	1 head	13		18
Earthen storage**	1 head	10		
Lagoon***	1 head		5	
Gestation, 400 lb.	1 head	27	4	25
Sow & Litter, 450 lb.	1 crate	26	8	55
Farrow-nursery	Per sow in breeding herd	18	6	55
Farrow-finish	Per sow in breeding herd	109	33	110

Dairy, Confined	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Cows, 1200 & up lb.	1 head	78	44	42
Heifers, 900 lb.	1 head	38	33	20
Calves, 500 lb.	1 head	22	18	5
Veal calves, 250 lb.	1 head	10	9	3
Dairy herd	Per productive cow in herd	80	66	80

Beef, Confined	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Mature cows, 1000 lb.	1 head	66	17	73
Finishing, 900 lb.	1 head	59	14	66
Feeder calves, 500 lb.	1 head	33	8	37

Poultry	Space	Dry Manure
Layer, cages	1000 head	840
Broiler, litter	1000 head	585
Turkeys, litter	1000 head	1400

Open Feedlot Operations

		Runoff – liquids		
Species	Space	Earthen lots	Concrete lots	Solids-scraped
Beef, 400 sq. ft./hd.	1 head	2	1	48
Dairy, 1000 sq. ft./hd.	1 head	5	2	69
Swine, 50 sq. ft./hd.	1 head	0.3	1	17

* Formed manure storage structure

** Earthen manure storage basin

*** Anaerobic lagoon

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10]

TABLE 4

Crop Nitrogen Usage Rate Factors

Corn	Zone 1	0.9 lbs/bu	Orchard grass	38.0 lbs/ton
	Zone 2	1.1 lbs/bu	Tall fescue	38.0 lbs/ton
	Zone 3	1.2 lbs/bu	Switch grass	21.0 lbs/ton
Corn silage		7.5 lbs/ton	Vetch	56.0 lbs/ton
Soybeans		3.8 lbs/bu	Red clover	43.0 lbs/ton
Oats		0.75 lbs/bu	Perennial rye grass	24.0 lbs/ton
Alfalfa		50.0 lbs/ton	Timothy	25.0 lbs/ton
Wheat		1.3 lbs/bu	Wheat straw	13.0 lbs/ton
Smooth brome		40.0 lbs/ton	Oat straw	12.0 lbs/ton
Sorghum or Sudan grass		40.0 lbs/ton		

The following map outlines the three zones for the corn nitrogen usage rates indicated in the Table 4. Zone 1 corresponds to the Moody soil association. Zone 2 corresponds to the Marshall, Monona-Ida-Hamburg, and Galva-Primghar-Sac soil associations. Zone 3 corresponds to the remaining soil associations.

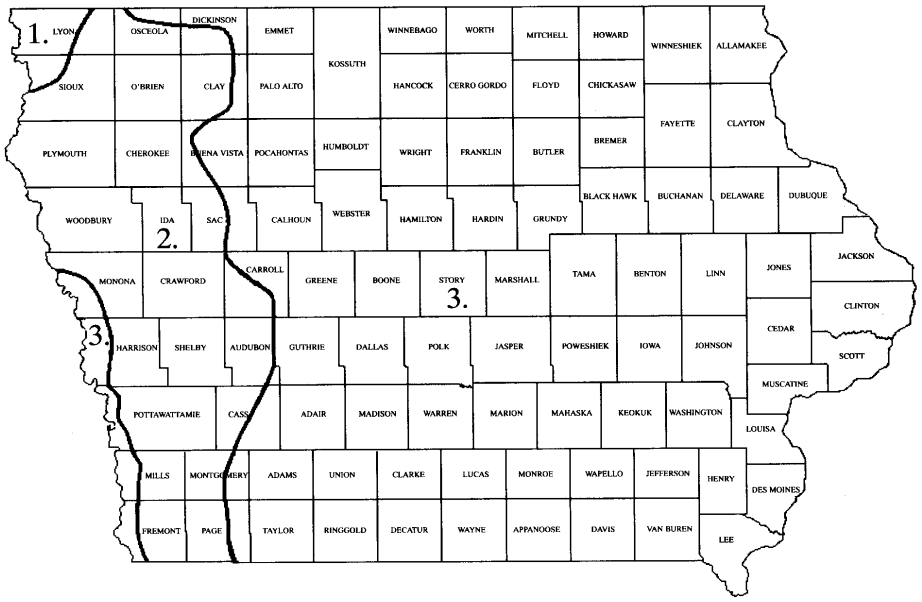


TABLE 4a

Phosphorus Removal for Iowa Crops

Source: PM 1688, A General Guide for Crop Nutrient and Limestone Recommendations in Iowa, revised October 2013

CROP	UNITS	P_2O_5 (pounds/unit)
Corn	bu.	0.32
Corn silage	ton (65% H_2O)	3.5
Soybeans	bu.	0.72
Alfalfa, alfalfa grass	ton	13
Oat	bu.	0.294
Wheat	bu.	0.55
Smooth brome	ton	7.9
Orchard grass	ton	12
Tall fescue	ton	11
Switch grass	ton	11
Sorghum-Sudan	ton	11
Red clover-grass	ton	11
Perennial rye grass	ton	11
Timothy	ton	7.9
Wheat straw	ton	3.7
Oat straw	ton	6.4

[**ARC 2798C**, IAB 11/9/16, effective 12/14/16]

TABLE 5

Manure Production Per Space of Capacity

		Daily		Yearly
Swine	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Nursery, 25 lb.	1 head	0.2 gal	0.7 gal	0.34 tons
Wean-finish, 130 lb.				
Formed storage*				
Dry feeders	1 head	0.86 gal		2.39 tons
Wet/dry feeders	1 head	0.66 gal		2.39 tons
Grow-finish, 150 lb.				
Formed storage*				
Dry feeders	1 head	1.2 gal		2.05 tons
Wet/dry feeders	1 head	0.90 gal		2.05 tons
Earthen storage**	1 head	1.2 gal		2.05 tons
Lagoon***	1 head		4.1 gal	2.05 tons
Gestation, 400 lb.	1 head	3.0 gal	3.7 gal	2.77 tons
Sow & Litter, 450 lb.	1 crate	3.5 gal	7.5 gal	6.16 tons
Farrow-nursery	Per sow in breeding herd	2.2 gal	5.4 gal	6.09 tons
Farrow-finish	Per sow in breeding herd	9.4 gal	30 gal	12.25 tons
Dairy, Confined	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Cows, 1200 & up lb.	1 head	18.0 gal	40.1 gal	14 tons
Heifers, 900 lb.	1 head	8.8 gal	29.9 gal	6.5 tons
Calves, 500 lb.	1 head	4.9 gal	16.5 gal	1.5 tons
Veal calves, 250 lb.	1 head	2.5 gal	8.2 gal	1.1 tons
Dairy herd	Per productive cow in herd	18.5 gal	59.8 gal	20 tons
Beef, Confined	Space	Liquid, Pit* or Basin**	Liquid, Lagoon***	Solid Manure
Mature cows, 1000 lb.	1 head	7.2 gal	15.7 gal	12.23 tons
Finishing, 900 lb.	1 head	6.5 gal	13.1 gal	11.00 tons
Feeder calves, 500 lb.	1 head	3.6 gal	7.3 gal	6.11 tons
Poultry	Space			Dry Manure
Layer, cages	1000 head			10.5 tons
Broiler, litter	1000 head			9.00 tons
Turkeys, litter	1000 head			35.00 tons

* Formed manure storage structure

** Earthen manure storage basin

*** Anaerobic lagoon

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10]

TABLE 6

Required Separation Distances for Confinement Feeding Operations Constructed on or after March 1, 2003—Swine, Sheep, Horses, Poultry, and Beef and Dairy Cattle

DISTANCES TO BUILDINGS AND PUBLIC USE AREAS[1]				
Type of Structure	Animal Unit (AU) Capacity	Residences, Businesses, Churches, Schools		Public Use Areas
		Unincorporated Areas	Incorporated Areas	
Anaerobic lagoons and uncovered earthen manure storage basins	500 AU or less	1,875 feet	1,875 feet	1,875 feet
	>500 AU to <1,000 AU	1,875 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	2,500 feet	2,500 feet	2,500 feet
	3,000 AU or more	3,000 feet	3,000 feet	3,000 feet
Covered earthen manure storage basins	500 AU or less	1,250 feet	1,875 feet	1,875 feet
	>500 AU to <1,000 AU	1,250 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	1,875 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,375 feet	3,000 feet	3,000 feet
Uncovered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <1,000 AU	1,500 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	2,000 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,500 feet	3,000 feet	3,000 feet
Confinement buildings and covered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <1,000 AU	1,250 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	1,875 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,375 feet	3,000 feet	3,000 feet
Egg washwater storage structures	500 AU or less	None	None	None
	>500 AU to <1,000 AU	1,000 feet	1,875 feet	1,875 feet
	1,000 AU to <3,000 AU	1,500 feet	2,500 feet	2,500 feet
	3,000 AU or more	2,000 feet	3,000 feet	3,000 feet

DISTANCES TO WATER WELLS				
Type of Structure	Public Well		Private Well	
	Shallow	Deep	Shallow	Deep
Unformed manure storage structure and egg washwater storage structure	1,000 feet	400 feet	400 feet	400 feet
Formed manure storage structure and confinement building	200 feet	100 feet	200 feet	100 feet

OTHER DISTANCES FOR CONFINEMENT FEEDING OPERATION STRUCTURES regardless of animal unit capacity	
Surface intake of an agricultural drainage well or water source other than major (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	500 feet*
Wellhead or cistern of agricultural drainage well, known sinkhole or major water source (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	1,000 feet
Designated wetlands pursuant to subrule 65.11(4) and Iowa Code section 459.310	2,500 feet
Right-of-way of a thoroughfare maintained by a political subdivision (Exemptions provided in subrule 65.12(2))	100 feet

[1]See rule 567—65.12(459,459B) for exemptions available from the above distances.
*200 feet from a water source required for a dry bedded confinement feeding operation structure.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

TABLE 6a

Required Separation Distances for Confinement Feeding Operations Constructed on or after January 1, 1999, but prior to March 1, 2003—Swine, Sheep, Horses and Poultry

DISTANCES TO BUILDINGS AND PUBLIC USE AREAS[1]				
Type of Structure	Animal Unit (AU) Capacity and Animal Weight Capacity	Residences, Businesses, Churches, Schools		Public Use Areas
		Unincorporated Areas	Incorporated Areas	
Anaerobic lagoons and uncovered earthen manure storage basins	500 AU or less	1,250 feet	1,250 feet	1,250 feet
	>500 AU to <625,000 lbs	1,250 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,875 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	2,500 feet	2,500 feet	2,500 feet
Covered earthen manure storage basins	500 AU or less	1,000 feet	1,250 feet	1,250 feet
	>500 AU to <625,000 lbs	1,000 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,250 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	1,875 feet	2,500 feet	2,500 feet
Uncovered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <625,000 lbs	1,250 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,500 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	2,000 feet	2,500 feet	2,500 feet
Confinement buildings and covered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <625,000 lbs	1,000 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,250 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	1,875 feet	2,500 feet	2,500 feet
Egg washwater storage structures	500 AU or less	None	None	None
	>500 AU to <625,000 lbs	750 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,000 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	1,500 feet	2,500 feet	2,500 feet

DISTANCES TO WATER WELLS				
Type of Structure	Public Well		Private Well	
	Shallow	Deep	Shallow	Deep
Unformed manure storage structure and egg washwater storage structure	1,000 feet	400 feet	400 feet	400 feet
Formed manure storage structure and confinement building	200 feet	100 feet	200 feet	100 feet

OTHER DISTANCES FOR CONFINEMENT FEEDING OPERATION STRUCTURES regardless of animal unit capacity	
Surface intake of an agricultural drainage well or water source other than major (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	500 feet
Wellhead or cistern of agricultural drainage well, known sinkhole or major water source (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	1,000 feet
Designated wetlands pursuant to subrule 65.11(4) and Iowa Code section 459.310	2,500 feet
Right-of-way of a thoroughfare maintained by a political subdivision (Exemptions provided in subrule 65.12(2))	100 feet

[1]See rule 567—65.12(459,459B) for exemptions available from the above distances.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

TABLE 6b

Required Separation Distances for Confinement Feeding Operations Constructed on or after January 1, 1999, but prior to March 1, 2003—Beef and Dairy Cattle

DISTANCES TO BUILDINGS AND PUBLIC USE AREAS[1]				
Type of Structure	Animal Unit (AU) Capacity and Animal Weight Capacity	Residences, Businesses, Churches, Schools		Public Use Areas
		Unincorporated Areas	Incorporated Areas	
Anaerobic lagoons and uncovered earthen manure storage basins	500 AU or less	1,250 feet	1,250 feet	1,250 feet
	>500 AU to <1,600,000 lbs	1,250 feet	1,250 feet	1,250 feet
	1,600,000 lbs to <4,000,000 lbs	1,875 feet	1,875 feet	1,875 feet
	4,000,000 lbs or more	2,500 feet	2,500 feet	2,500 feet
Covered earthen manure storage basins	500 AU or less	1,000 feet	1,250 feet	1,250 feet
	>500 AU to <1,600,000 lbs	1,000 feet	1,250 feet	1,250 feet
	1,600,000 lbs to <4,000,000 lbs	1,250 feet	1,875 feet	1,875 feet
	4,000,000 lbs or more	1,875 feet	2,500 feet	2,500 feet
Uncovered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <1,600,000 lbs	1,250 feet	1,250 feet	1,250 feet
	1,600,000 lbs to <4,000,000 lbs	1,500 feet	1,875 feet	1,875 feet
	4,000,000 lbs or more	2,000 feet	2,500 feet	2,500 feet
Confinement buildings and covered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <1,600,000 lbs	1,000 feet	1,250 feet	1,250 feet
	1,600,000 lbs to <4,000,000 lbs	1,250 feet	1,875 feet	1,875 feet
	4,000,000 lbs or more	1,875 feet	2,500 feet	2,500 feet

DISTANCES TO WATER WELLS				
Type of Structure	Public Well		Private Well	
	Shallow	Deep	Shallow	Deep
Unformed manure storage structure and egg washwater storage structure	1,000 feet	400 feet	400 feet	400 feet
Formed manure storage structure and confinement building	200 feet	100 feet	200 feet	100 feet

OTHER DISTANCES FOR CONFINEMENT FEEDING OPERATION STRUCTURES regardless of animal unit capacity	
Surface intake of an agricultural drainage well or water source other than major (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	500 feet
Wellhead or cistern of agricultural drainage well, known sinkhole or major water source (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	1,000 feet
Designated wetlands pursuant to subrule 65.11(4) and Iowa Code section 459.310	2,500 feet
Right-of-way of a thoroughfare maintained by a political subdivision (Exemptions provided in subrule 65.12(2))	100 feet

[1]See rule 567—65.12(459,459B) for exemptions available from the above distances.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

TABLE 6c

Required Separation Distances for Confinement Feeding Operations Constructed prior to January 1, 1999—Swine, Sheep, Horses and Poultry

DISTANCES TO BUILDINGS AND PUBLIC USE AREAS[1]				
Type of Structure	Animal Unit (AU) Capacity and Animal Weight Capacity	Residences, Businesses, Churches, Schools		Public Use Areas
		Unincorporated Areas	Incorporated Areas	
Anaerobic lagoons and uncovered earthen manure storage basins	500 AU or less	1,250 feet	1,250 feet	1,250 feet
	>500 AU to <625,000 lbs	1,250 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,875 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	2,500 feet	2,500 feet	2,500 feet
Covered earthen manure storage basins	500 AU or less	750 feet	1,250 feet	1,250 feet
	>500 AU to <625,000 lbs	750 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,000 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	1,500 feet	2,500 feet	2,500 feet
Uncovered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <625,000 lbs	1,000 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,500 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	2,000 feet	2,500 feet	2,500 feet
Confinement buildings and covered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <625,000 lbs	750 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,000 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	1,500 feet	2,500 feet	2,500 feet
Egg washwater storage structures	500 AU or less	None	None	None
	>500 AU to <625,000 lbs	750 feet	1,250 feet	1,250 feet
	625,000 lbs to <1,250,000 lbs	1,000 feet	1,875 feet	1,875 feet
	1,250,000 lbs or more	1,500 feet	2,500 feet	2,500 feet

DISTANCES TO WATER WELLS				
Type of Structure	Public Well		Private Well	
	Shallow	Deep	Shallow	Deep
Unformed manure storage structure and egg washwater storage structure	1,000 feet	400 feet	400 feet	400 feet
Formed manure storage structure and confinement building	200 feet	100 feet	200 feet	100 feet

OTHER DISTANCES FOR CONFINEMENT FEEDING OPERATION STRUCTURES regardless of animal unit capacity	
Surface intake of an agricultural drainage well or water source other than major (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	500 feet
Wellhead or cistern of agricultural drainage well, known sinkhole or major water source (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	1,000 feet
Designated wetlands pursuant to subrule 65.11(4) and Iowa Code section 459.310	2,500 feet
Right-of-way of a thoroughfare maintained by a political subdivision (Exemptions provided in subrule 65.12(2))	100 feet

[1]See rule 567—65.12(459,459B) for exemptions available from the above distances.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

TABLE 6d

Required Separation Distances for Confinement Feeding Operations Constructed prior to January 1, 1999—Beef and Dairy Cattle

DISTANCES TO BUILDINGS AND PUBLIC USE AREAS[1]				
Type of Structure	Animal Unit (AU) Capacity and Animal Weight Capacity	Residences, Businesses, Churches, Schools		Public Use Areas
		Unincorporated Areas	Incorporated Areas	
Anaerobic lagoons and uncovered earthen manure storage basins	500 AU or less	1,250 feet	1,250 feet	1,250 feet
	>500 AU to <1,600,000 lbs	1,250 feet	1,250 feet	1,250 feet
	1,600,000 lbs to <4,000,000 lbs	1,875 feet	1,875 feet	1,875 feet
	4,000,000 lbs or more	2,500 feet	2,500 feet	2,500 feet
Covered earthen manure storage basins	500 AU or less	750 feet	1,250 feet	1,250 feet
	>500 AU to <1,600,000 lbs	750 feet	1,250 feet	1,250 feet
	1,600,000 lbs to <4,000,000 lbs	1,000 feet	1,875 feet	1,875 feet
	4,000,000 lbs or more	1,500 feet	2,500 feet	2,500 feet
Uncovered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <1,600,000 lbs	1,000 feet	1,250 feet	1,250 feet
	1,600,000 lbs to <4,000,000 lbs	1,500 feet	1,875 feet	1,875 feet
	4,000,000 lbs or more	2,000 feet	2,500 feet	2,500 feet
Confinement buildings and covered formed manure storage structures	500 AU or less	None	None	None
	>500 AU to <1,600,000 lbs	750 feet	1,250 feet	1,250 feet
	1,600,000 lbs to <4,000,000 lbs	1,000 feet	1,875 feet	1,875 feet
	4,000,000 lbs or more	1,500 feet	2,500 feet	2,500 feet

DISTANCES TO WATER WELLS				
Type of Structure	Public Well		Private Well	
	Shallow	Deep	Shallow	Deep
Unformed manure storage structure and egg washwater storage structure	1,000 feet	400 feet	400 feet	400 feet
Formed manure storage structure and confinement building	200 feet	100 feet	200 feet	100 feet

OTHER DISTANCES FOR CONFINEMENT FEEDING OPERATION STRUCTURES regardless of animal unit capacity	
Surface intake of an agricultural drainage well or water source other than major (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	500 feet
Wellhead or cistern of agricultural drainage well, known sinkhole or major water source (Excluding farm ponds, privately owned lakes or when a secondary containment barrier is provided)	1,000 feet
Designated wetlands pursuant to subrule 65.11(4) and Iowa Code section 459.310	2,500 feet
Right-of-way of a thoroughfare maintained by a political subdivision (Exemptions provided in subrule 65.12(2))	100 feet

[1]See rule 567—65.12(459,459B) for exemptions available from the above distances.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

TABLE 7

Required Separation Distances for Open Feedlot Operations, Stockpiles from Open Feedlot Operations, Stockpiles from Dry Manure Confinement Operations and Stockpiles from Dry Bedded Confinement Operations

DISTANCES TO WELLS FOR OPEN FEEDLOT STRUCTURES				
Type of Structure	Public Well		Private Well	
	Shallow	Deep	Shallow	Deep
Unformed settled open feedlot effluent basin	1,000 feet	400 feet	400 feet	400 feet
Open feedlot, open feedlot solids settling facility, formed settled open feedlot effluent basin, AT system and feed storage runoff basin	200 feet	100 feet	200 feet	100 feet
DISTANCES TO RESIDENCES AND SPECIAL AREAS FOR MANURE STOCKPILES[1, 2]				
Residence, commercial enterprise, bona fide religious institution, educational institution, or public use area (does not apply to stockpiles from SAFO sized confinements and open feedlots)				1,250 feet
Designated area other than a high-quality water resource				400 feet[3]
High-quality water resource				800 feet
Terrace tile inlet or surface tile inlet – unless methods, structures or practices are implemented to contain the stockpiled manure				200 feet

[1]Manure stockpiles are prohibited on grassed waterways or where water pools on the surface. Manure stockpiles are also prohibited on land with slopes greater than 3% unless methods, structures or practices are implemented to contain the stockpiled manure to prevent or diminish precipitation-induced runoff from the stockpiled manure.
[2]See subparagraph 65.2(3)*"d"*(4) and paragraph 65.11(8)*"c"* for exemptions pertaining to dry manure stockpiles.
[3]For stockpiles from dry manure confinement operations, the separation distance is 800 feet to agricultural drainage wells and known sinkholes.

[**ARC 8998B**, IAB 8/11/10, effective 9/15/10; **ARC 2798C**, IAB 11/9/16, effective 12/14/16]

TABLE 8

Summary of Credit for Mechanical Aeration

	Pounds Volatile Solids per 1000 cubic feet			
% of Oxygen Supplied	Beef	Other than Beef		
	Daily max in all counties	Less than or equal to 6000 lb vs. daily max	Less than or equal to 6000 lb vs. daily max in counties listed in 65.15(13)*"b"*(2) above	Greater than 6000 lb vs. daily max in all counties
0-50	10.0	5.0	4.5	4.0
50	12.5	6.3	5.6	5.0
60	13.3	6.6	6.1	5.5
70	14.0	7.0	6.5	6.0
80	14.8	7.4	6.9	6.5
90	15.5	7.8	7.4	7.0
100	16.3	8.1	7.8	7.5
110	17.0	8.5	8.3	8.0
120	17.8	8.9	8.7	8.5
130	18.5	9.3	9.1	9.0
140	19.3	9.6	9.6	9.5
150	20.0	10.0	10.0	10.0

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[1] Effective date of Chapter 65 [DEQ, ch 20] delayed by the Administrative Rules Review Committee until October 25, 1976, pursuant to Iowa Code section 17A.4 amended by S.F. 1288, §8.

[2] Effective date of 65.17(13)*"e"* delayed 70 days by the Administrative Rules Review Committee at its meeting held August 11, 2004.

OBJECTION

At its August 8, 2006, meeting, the Administrative Rules Review Committee voted to object to the provisions of **ARC 5243B***, rules 567 IAC 65.5(3) and 65.103(5), on the grounds they are beyond the authority delegated to the Department of Natural Resources (Department). This filing was adopted by the Environmental Protection Commission (EPC) and published in IAB Vol. XXIX, No. 2 (7-19-2006). The Committee takes this action pursuant to the authority of Code section 17A.4, subsection 5.

This filing allows the Department to evaluate proposed animal feeding operation sites based on a number of factors that are specifically set out in the rules. After completing its evaluation, the adopted rules authorize the director of the Department to take a variety of actions to condition or deny a construction permit, to modify or disapprove a manure management plan, or to prohibit construction of a proposed confinement feeding operation that is otherwise in compliance with the provisions of Chapter 65 of the EPC rules.

It is the opinion of the Committee that Code chapters 459 and 459A establish the procedures and standards relating to the issuance of construction permits and the approval of manure management plans, and that the Department does not have authority to create additional procedures and standards by rule. The master matrix was created by Code section 459.305 in order "...to provide a *comprehensive* [emphasis added] assessment mechanism in order to produce a statistically verifiable basis for determining whether to approve or disapprove an application for the construction, including expansion, of a confinement feeding operation structure..." Section 459.305, subsection 1, paragraph "a", further states:

> "The master matrix shall be used to establish conditions for the construction of a confinement feeding operation structure and for the implementation of manure management practices, which conditions shall be included in the approval of the construction permit or the original manure management plan as applicable."

The Committee believes this statutory language demonstrates a clear legislative intent that the matrix is the exclusive mechanism for the evaluation and approval of an application for the construction or expansion of a confinement feeding operation structure and for the implementation of manure management practices.

*Objection to 567 IAC 65.5(3) and 65.103(5) filed October 10, 2006.

CHAPTER 66
PESTICIDE APPLICATION TO WATERS

567—66.1(455B) Aquatic pesticide.

66.1(1) *Prohibited discharges.* Pesticides shall not be applied to any water of the United States (as defined in 40 CFR Part 122.2) except as provided in 66.1(2) and 567—Chapter 64.

66.1(2) *Allowable applications.* Pesticides may be applied to any water of the United States (as defined in 40 CFR Part 122.2) in accordance with 567—Chapter 64 and NPDES General Permit No. 7, "Pesticide General Permit (PGP) for Point Source Discharges to Waters of the United States From the Application of Pesticides."

66.1(3) *Requirements to obtain a permit to apply an aquatic pesticide.* Rescinded IAB 2/9/11, effective 3/30/11.

66.1(4) *Basis for permit denial.* Rescinded IAB 2/9/11, effective 3/30/11.

66.1(5) *Special considerations.* Rescinded IAB 2/9/11, effective 3/30/11.

[**ARC 9365B**, IAB 2/9/11, effective 3/30/11]

This chapter is intended to implement Iowa Code section 455B.186.

[Filed 5/24/91, Notice 3/20/91—published 6/12/91, effective 7/17/91]

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CHAPTER 67
STANDARDS FOR THE LAND APPLICATION OF SEWAGE SLUDGE

567—67.1(455B) Land application of sewage sludge.

67.1(1) General. This chapter establishes standards for the land application of sewage sludge generated during the treatment of domestic sewage in a treatment works. This chapter applies to any person who prepares sewage sludge (generator), to any person who applies sewage sludge to the land (applicator), and to sewage sludge applied to the land. No person shall land apply sewage sludge through any practice for which requirements are established in this chapter except in accordance with such requirements.

In areas that are not specifically addressed in this chapter, but which are addressed in federal regulations at 40 CFR Part 503, the federal regulations shall apply under this rule and are hereby adopted by reference under this chapter.

On a case-by-case basis, this department may impose requirements for the land application of sewage sludge in addition to or more stringent than the requirements in this chapter when necessary to protect public health and the environment from any adverse effect of a pollutant in the sewage sludge.

67.1(2) Sewage sludge generators shall ensure that the applicable requirements in this chapter are met when the sewage sludge is applied to the land.

If the sewage sludge generator determines that a person being supplied sewage sludge for land application is not complying with applicable requirements of the land application program, the generator shall work with the applicator to obtain compliance with the requirements. If subsequent compliance cannot be achieved, the generator shall not supply additional sewage sludge to the applicator.

[**ARC 2482C**, IAB 4/13/16, effective 5/18/16]

567—67.2(455B) Exclusions. This chapter does not establish requirements for the land application of the following solid wastes.

67.2(1) Sludge generated at an industrial facility.

67.2(2) Hazardous sewage sludge—sewage sludge determined to be hazardous in accordance with 40 CFR Part 261.

67.2(3) Sewage sludge with a PCB concentration of 50 mg/kg or higher.

67.2(4) Incinerator ash.

67.2(5) Grit and screenings.

67.2(6) Drinking water treatment sludge.

567—67.3(455B) Sampling and analysis. Any sewage sludge generator who intends to land apply sewage sludge shall:

67.3(1) Sample and analyze the waste to determine whether it meets the criteria for sewage sludge Class I, II, or III.

67.3(2) Analyze the waste to determine if any sources exist which may contribute significant quantities of potentially hazardous chemicals or other toxic substances. If any are found, the generator shall inform the department of their presence and shall analyze the waste for chemicals or substances in accordance with guidelines provided by the department.

67.3(3) Unless rules for specific programs under USEPA or department authority provide otherwise, or unless other methods are approved by the department for a specific situation, samples taken and analyses made to document contamination under this chapter shall be conducted in accordance with the methods described in 567—67.10(455B).

567—67.4(455B) Land application program. All sewage sludge generators wishing to land apply sewage sludge shall establish and maintain in writing a long-range program for land application of sewage sludge. This program shall be developed for a minimum period of five years and shall be updated annually. A copy of this program shall be available at the facility for inspection by the department. At a minimum this program shall contain the following information in detail for the next calendar year and in general terms for the following four years. The plan shall include but not be limited to the following:

67.4(1) An outline of the sewage sludge sampling schedule and procedures which will be followed to ensure that the sewage sludge being applied to land continues to meet the requirements.

67.4(2) A determination of the amount of land required to allow land application to be conducted in accordance with the requirements.

67.4(3) Identification of the land and application methods which will be used for land application of the sewage sludge. Those areas and application methods shall be selected as necessary to ensure that land application can be conducted in accordance with the requirements.

67.4(4) The names of the owners and operators of all land to be used for land application, and identification of any legal arrangements made relative to use of these areas. The programs should also outline any restrictions or special conditions which exist regarding use of these areas for land application of sewage sludge.

67.4(5) An overall schedule for the land application of sewage sludge. This schedule should indicate the areas being used, the time of year that land application on each area will be conducted, and the proposed application rates for each area.

67.4(6) A determination of the types and capacities of the equipment required for land application of sewage sludge in accordance with the developed application schedule. The program shall also outline how the required application equipment will be made available and who will be responsible for conducting land application operations.

67.4(7) A determination of the volumes and types of storage and handling facilities required to allow land application of sewage sludge to be conducted in accordance with the land application schedule. The program shall also outline how any required additional sludge storage or handling facilities will be provided.

67.4(8) A plan to construct or obtain any additional sludge storage, handling or application facilities or equipment which are required by the land application program.

567—67.5(455B) Special definitions.

"Agronomic rate" is the whole sludge application rate designed to provide the amount of nitrogen needed by the crop grown on the land and to minimize the amount of nitrogen that passes to the groundwater.

"Annual whole sludge application rate" is the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365-day period.

"Bulk sewage sludge" is sewage sludge that is not sold or given away in a bag or other container for application to the land.

"Cumulative pollutant loading rate" is the maximum amount of an inorganic pollutant that can be applied to an area of land.

"Dry weight basis" means calculated on the basis of having been dried at 105 degrees Celsius until reaching a constant mass (i.e., essentially 100 percent solids content).

"Food crops" are crops consumed by humans. These include, but are not limited to, fruits, vegetables, and tobacco.

"Land with a high potential for public exposure" is land that the public uses frequently. This includes, but is not limited to, a public contact site and a reclamation site located in a populated area (e.g., a construction site located in a city).

"Land with a low potential for public exposure" is land that the public uses infrequently. This includes, but is not limited to, agricultural land, forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area).

"Person who prepares sewage sludge" is either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge.

"Sewage sludge" is solid, semisolid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge does not include the grit and screenings generated during preliminary treatment.

567—67.6(455B) Permit requirements. Prior to any land application of sewage sludge, a permit must be obtained by the sewage sludge generator in accordance with the following requirements:

67.6(1) Any treatment facility proposing to land apply sewage sludge shall apply for a permit for land application of sewage sludge on a properly completed form supplied by the department. Application forms may be obtained from:

Environmental Services Division
Iowa Department of Natural Resources
Wallace State Office Building
502 East 9th Street
Des Moines, Iowa 50319
http://www.iowadnr.gov/

Properly completed forms should be submitted in accordance with the instructions for the form.

a. Permit application for land application of sewage sludge from new facilities shall be filed at least 180 days prior to the date operation is scheduled to begin unless a shorter period of time is approved by the department.

b. Existing facilities generating sewage sludge shall file an application for land application of sewage sludge within 90 days of September 21, 1994, or at least 180 days prior to the expiration of any state operation or NPDES permit issued to the facility pursuant to 567—64.3(455B) or 567—64.4(455B), whichever date is later.

c. Sewage sludge disposal operations which are not regulated under 567—Chapter 64 shall apply for a permit for land application of sewage sludge no later than 90 days after September 21, 1994.

67.6(2) The permit for land application of sewage sludge for any sewage sludge generating facility will be issued concurrently and as part of a state operation permit or NPDES permit. The issuance process and permit terms will be the same as that specified for NPDES permits in 567—Chapter 64.

567—67.7(455B) Land application requirements for Class I sewage sludge.

67.7(1) *Class I sludge criteria.* Class I sludge is sewage sludge that has excellent quality and has been treated in a process equivalent to processes to further reduce pathogens (PFRP).

a. The concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 1.

TABLE 1—POLLUTANT CONCENTRATIONS

Pollutant	Monthly Average Concentration milligrams per kilogram*
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

*Dry weight basis

b. One of the monitoring processes in (1) below and also one of the analytical and treatment processes in (2) below shall be met for a sewage sludge to be classified as Class I sludge.

(1) Monitoring processes.

1. The density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis).

2. The density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis).

(2) Analytical and treatment processes.

1. The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis).

2. The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis).

3. Sewage sludge shall be treated in one of the Processes to Further Reduce Pathogens (PFRP) described in 567—67.11(455B).

4. Sewage sludge shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens (PFRP), as determined by the department.

c. One of the vector attraction reduction requirements shall be met for a sewage sludge to be classified as Class I sludge.

(1) The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.

(2) The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

(3) Digest a portion of the previously anaerobically digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. At the end of the 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent.

(4) Digest a portion of the previously aerobically digested sewage sludge that has a percent solids of 2 percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. At the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent.

(5) Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

(6) The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 2 hours and then at 11.5 or higher for an additional 22 hours.

(7) Sewage sludge shall be injected below the surface of the land and no significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

(8) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

67.7(2) *Management practices for Class I sewage sludge.*

a. Only Class I sewage sludge can be applied to a lawn or a home garden.

b. Sewage sludge shall not be applied to land that is 35 feet or less from an open waterway.

c. Sewage sludge shall be applied to the land at an annual whole sludge application rate that is equal to or less than the agronomic nitrogen uptake rate, unless otherwise specified by the department.

d. An information sheet shall be provided to the person who receives sewage sludge sold or given away in a container for application to the land. The label or information sheet shall contain the following information:

(1) The name and address of the sewage sludge generator.

(2) A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the information sheet.

(3) The annual application rate for the sewage sludge.

67.7(3) *Frequency of monitoring for Class I sewage sludge.*

a. The frequency of monitoring for the pollutants listed in Table 1, the pathogen density requirements, and the vector attraction reduction requirements shall be the frequency stated in Table 2.

TABLE 2—FREQUENCY OF MONITORING

Amount of sewage sludge metric tons per 365-day period dry weight basis	Monitoring Frequency
Greater than zero but less than 290 (or 325 English ton)	once per year
Equal to or greater than 290 but less than 1,500 (English ton 325 to 1,680)	once per quarter (4 times per year)
Equal to or greater than 1,500 but less than 15,000 (English ton 1,680 to 16,800)	once per 60 days (6 times per year)
Equal to or greater than 15,000 (or 16,800 English ton)	once per month (12 times per year)

b. After the sewage sludge has been monitored for two years, the department may reduce the frequency of monitoring, but in no case shall the frequency of monitoring be less than once per year when sewage sludge is applied to the land.

67.7(4) *Record keeping for Class I sewage sludge.*

a. Both the generator and bulk sludge applicator of Class I sewage sludge shall develop the following information and shall retain the information for five years:

(1) The concentration of each pollutant listed in Table 1 in the sewage sludge.

(2) The following certification statement: "I certify, under penalty of law, that the Class I sewage sludge requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(3) A description of how the Processes to Further Reduce Pathogens requirements (PFRP) are met.

(4) A description of how one of the vector attraction reduction requirements is met.

(5) A description of how the management practices are met for each site.

b. Treatment works with a design flow rate of 1 million gallons per day or greater and treatment works that serve 10,000 people or more shall submit the above information to the department by February 19 of each year for the previous calendar year.

567—67.8(455B) Land application requirements for Class II sewage sludge.

67.8(1) *Class II sludge criteria.* Class II sludge is sewage sludge that has normal quality and has been treated in a process equivalent to Processes to Significantly Reduce Pathogens (PSRP).

a. The concentration of any pollutant in the sewage sludge shall not exceed the ceiling concentration for the pollutant in Table 3.

TABLE 3—CEILING CONCENTRATIONS

Pollutant	Ceiling Concentration milligrams per kilogram*
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

*Dry weight basis

b. One of the following Processes to Significantly Reduce Pathogens requirements (PSRP) shall be met for a sewage sludge to be classified as Class II sludge.

(1) Seven samples of the sewage sludge shall be collected at the time the sewage sludge is disposed, and the geometric mean of the density of fecal coliform shall be less than 2,000,000 Most Probable Number per gram of total solids (dry weight basis).

(2) Sewage sludge shall be treated in one of the Processes to Significantly Reduce Pathogens (PSRP) described in 567—67.11(455B).

(3) Sewage sludge shall be treated in a process that is equivalent to a Process to Significantly Reduce Pathogens (PSRP), as determined by the department.

c. One of the vector attraction reduction requirements shall be met for a sewage sludge to be classified as Class II sludge.

(1) The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.

(2) The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.

(3) Digest a portion of the previously anaerobically digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. At the end of the 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent.

(4) Digest a portion of the previously aerobically digested sewage sludge that has a percent solids of 2 percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. At the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent.

(5) Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.

(6) The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 2 hours and then at 11.5 or higher for an additional 22 hours.

(7) Sewage sludge shall be injected below the surface of the land and no significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

(8) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

67.8(2) *Management practices for Class II sewage sludge.*

a. Class II sewage sludge shall not be applied to a lawn or a home garden.

b. Land application sites accepting Class II sewage sludge not meeting pollutant concentrations listed in Table 1 of subrule 67.7(1) are subject to the cumulative pollutant loading rates listed in Table 4.

TABLE 4—CUMULATIVE POLLUTANT LOADING RATES

Pollutant	Cumulative Pollutant kilograms per hectare	Loading Rate pounds per acre
Arsenic	41	36
Cadmium	39	34
Copper	1500	1335
Lead	300	267
Mercury	17	15
Nickel	420	373
Selenium	100	89
Zinc	2800	2490

c. Sewage sludge shall not be applied to the land if it is likely to adversely affect a threatened or endangered species listed under section 4 of the Endangered Species Act or its designated critical habitat.

d. Sewage sludge shall be applied to the land at an annual whole sludge application rate that is equal to or less than the agronomic nitrogen uptake rate, unless otherwise specified by the department.

e. The sewage sludge shall be applied only to soils classified as acceptable throughout the top 5 feet of soil profile. The sewage sludge shall not be applied to soils classified as sand, loamy sand and silt. The acceptability of a soil shall be determined using the USDA soil classifications.

f. Land application sites shall have soil pH maintained above 6.0, unless (1) crops prefer soils with lower pH conditions, (2) the sludge meets the pollution concentrations contained in Table 1, or (3) the site does not exceed calcium carbonate equivalent levels according to sound farm management practices. If the soil pH is below 6.0, it is acceptable to use agricultural lime to increase the pH to an acceptable level.

g. If the sewage sludge is applied to land on which the soil loss exceeds the soil loss limits established by the county soil conservation district, the sewage sludge shall be injected on the contour or shall be applied to the surface and mechanically incorporated into soil within 48 hours of application. The sewage sludge shall not be applied to ground having greater than 9 percent slope unless approved by the department.

h. Sewage sludge application on frozen or snow-covered ground should be avoided, unless special precautions are taken such as proven farm management practices to avoid runoff. If application on frozen or snow-covered ground is necessary, it shall be limited to land areas of less than 5 percent slope unless approved by the department.

i. Sewage sludge shall not be applied to the land that is 35 feet or less from an open waterway. If sewage sludge is applied within 200 feet, but no closer than 35 feet, of a stream, lake, sinkhole or tile line surface intake located downgradient of the land application site, it shall be injected or applied to the surface and mechanically incorporated into the soil within 48 hours of application unless approved by the department.

j. If the sewage sludge is applied to land subject to flooding more frequently than once in ten years, the sludge shall be injected or shall be applied to the surface and mechanically incorporated into the soil within 48 hours. Information on which land is subject to flooding more frequently than once in ten years is available from the department.

k. Sewage sludge shall not be applied within 200 feet of an occupied residence or any well. Distances may be reduced to a minimum of 35 feet with the written agreement of both the owner and occupant and an approved farm management plan which addresses soil erodibility, harvest residuals, buffer strips, and other sound farm management practices. The farm management plan shall be

approved by the local soil conservation district commission in accordance with rules implementing Iowa Code sections 161A.42 to 161A.51.

l. Food crops with harvested parts that touch the sewage sludge/soil mixture shall not be harvested for 38 months after application of sewage sludge.

m. Food crops, feed crops and fiber crops shall not be harvested for 30 days after application of sewage sludge.

n. Animals shall not be allowed to graze on the land for 30 days after application of sewage sludge.

o. Turf grown on land where sewage sludge is applied shall not be harvested for one year after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the department.

p. Public access to land with a high potential for public exposure shall be restricted for one year after application of sewage sludge.

q. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of sewage sludge.

r. When required by the director, groundwater monitoring wells and surface monitoring points shall be installed and a monitoring program implemented. Samples must be analyzed by a laboratory which is equipped and competent to perform the tests required by the director. The results shall be forwarded to the department on a stipulated schedule.

s. The sewage sludge generator shall provide the notice and necessary information to comply with the requirements to the sewage sludge applicator and landowner.

t. The sewage sludge applicator shall provide written notice, prior to the initial application of sewage sludge, to the department. The notice shall include:

(1) The location, by legal description, of the land application site and the landowner.

(2) The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) of the sewage sludge generator and the applicator.

67.8(3) *Frequency of monitoring for Class II sewage sludge.*

a. The frequency of monitoring for the pollutants listed in Table 3, the pathogen density requirements, and the vector attraction reduction requirements shall be at the frequency stated in Table 5.

TABLE 5—FREQUENCY OF MONITORING

Amount of sewage sludge metric tons per 365-day period dry weight basis	Monitoring Frequency
Greater than zero but less than 290 (or 325 English ton)	once per year
Equal to or greater than 290 but less than 1,500 (English ton 325 to 1,680)	once per quarter (4 times per year)
Equal to or greater than 1,500 but less than 15,000 (English ton 1,680 to 16,800)	once per 60 days (6 times per year)
Equal to or greater than 15,000 (or 16,800 English ton)	once per month (12 times per year)

b. After the sewage sludge has been monitored for two years, the department may reduce the frequency of monitoring, but in no case shall the frequency of monitoring be less than once per year when sewage sludge is applied to the land.

67.8(4) *Record keeping for Class II sewage sludge.*

a. Both the generator and applicator of Class II sewage sludge shall develop the following information and shall retain the information for five years:

(1) The concentration of each pollutant listed in Table 3 in the sewage sludge.

(2) The following certification statement: "I certify, under penalty of law, that the Class II sewage sludge requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(3) A description of how the Processes to Significantly Reduce Pathogens (PSRP) requirements are met.

(4) A description of how the vector attraction reduction requirements are met.

(5) A description of how the management practices for Class II sewage sludge are met for each site.

(6) The location and area of each site.

(7) The date and time and amount of sewage sludge applied to each site.

(8) If subjected to cumulative loading limits, the amount and cumulative amount of each pollutant listed in Table 4 of paragraph 67.8(2)*"b"* in the sewage sludge applied to each site.

(9) The amount of sewage sludge (i.e., metric tons) applied to each site.

b. Treatment works with a design flow rate of 1 million gallons per day or greater and treatment works that serve 10,000 people or more shall submit the above information to the department by February 19 of each year for the previous calendar year.

567—67.9(455B) Class III sewage sludge.

67.9(1) Class III sewage sludge is any sewage sludge that cannot meet either Class I sewage sludge criteria or Class II sewage sludge criteria.

67.9(2) Class III sewage sludge shall not be utilized for beneficial use for land application as specified in the chapter.

67.9(3) Class III sewage sludge shall be disposed according to the surface disposal subpart of the 40 CFR Part 503 regulation and 567—103.6(455B) or the incineration subpart of the 40 CFR Part 503 regulation.

567—67.10(455B) Sampling and analytical methods.

67.10(1) *General.* Representative samples of sewage sludge that are applied to the land shall be collected and analyzed. Methods listed below shall be used to analyze samples of sewage sludge and calculation procedures shall be used to calculate the percent of volatile solids reduction for sewage sludge.

67.10(2) *Enteric viruses.* ASTM Designation: D 4994-89, "Standard Practice for Recovery of Viruses From Wastewater Sludges," Annual Book of ASTM Standards: Section 11 - Water and Environmental Technology, ASTM, Philadelphia, PA, 1992.

67.10(3) *Fecal coliform.* Part 9221 E. or Part 9222 D., "Standard Methods for the Examination of Water and Wastewater," 18th Edition, American Public Health Association, Washington, D.C., 1992.

67.10(4) *Helminth ova.* Yanko, W.A., "Occurrence of Pathogens in Distribution and Marketing Municipal Sludges," EPA 600/1-87-014, 1987. PB 88-154273/AS, National Technical Information Service, Springfield, Virginia.

67.10(5) *Inorganic pollutants.* "Test Methods for Evaluating Solid Waste, Physical/ Chemical Methods," EPA Publication SW-846, Second Edition (1982) with Updates I and II and Third Edition (1986) with Revision I. Second Edition - PB87-120-291, National Technical Information Service, Springfield, Virginia. Third Edition-Document number 955-001-00000-1, Superintendent of Documents, Government Printing Office, Washington, D.C.

67.10(6) *Salmonella sp. bacteria.* Part 9260 D., "Standard Methods for the Examination of Water and Wastewater," 18th Edition, American Public Health Association, Washington, D.C., 1992; or Kenner, B.A. and H.P. Clark, "Detection and Enumeration of Salmonella and Pseudomonas aeruginosa," J. Water Pollution Control Federation, 46(9):2163-2171, 1974.

67.10(7) *Specific oxygen uptake rate.* Part 2710 B., "Standard Methods for the Examination of Water and Wastewater," 18th Edition, American Public Health Association, Washington, D.C. 1992.

67.10(8) *Total, fixed, and volatile solids.* Part 2540 G., "Standard Methods for the Examination of Water and Wastewater," 18th Edition, American Public Health Association, Washington, D.C., 1992.

67.10(9) *Percent volatile solids reduction calculation.* "Environmental Regulations and Technology - Control of Pathogens and Vectors in Sewage Sludge," EPA-625/R-92/013, U.S. Environmental Protection Agency, Cincinnati, Ohio, 1992.

567—67.11(455B) Pathogen treatment processes.

67.11(1) *Processes to significantly reduce pathogens (PSRP).*

a. *Aerobic digestion.* Sewage sludge is agitated with air or oxygen to maintain aerobic conditions for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 40 days at 20 degrees Celsius and 60 days at 15 degrees Celsius.

b. *Air drying.* Sewage sludge is dried on sand beds or on paved or unpaved basins. The sewage sludge dries for a minimum of three months. During two of the three months, the ambient average daily temperature is above zero degrees Celsius.

c. *Anaerobic digestion.* Sewage sludge is treated in the absence of air for a specific mean cell residence time at a specific temperature. Values for the mean cell residence time and temperature shall be between 15 days at 35 to 55 degrees Celsius and 60 days at 20 degrees Celsius.

d. *Composting.* Using either the within-vessel, static aerated pile, or windrow composting methods, the temperature of the sewage sludge is raised to 40 degrees Celsius or higher and remains at 40 degrees Celsius or higher for five days. For four hours during the five days, the temperature in the compost pile exceeds 55 degrees Celsius.

e. *Lime stabilization.* Sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 after two hours of contact.

67.11(2) *Processes to further reduce pathogens (PFRP).*

a. *Composting.* Using either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for three days.

Using the windrow composting method, the temperature of the sewage sludge is maintained at 55 degrees Celsius or higher for 15 days or longer. During the period when the compost is maintained at 55 degrees Celsius or higher, there shall be a minimum of five turnings of the windrow.

b. *Heat drying.* Sewage sludge is dried by direct or indirect contact with hot gases to reduce the moisture content of the sewage sludge to 10 percent or lower. Either the temperature of the sewage sludge particles exceeds 80 degrees Celsius or the wet bulb temperature of the gas in contact with the sewage sludge as the sewage sludge leaves the dryer exceeds 80 degrees Celsius.

c. *Heat treatment.* Liquid sewage sludge is heated to a temperature of 180 degrees Celsius or higher for 30 minutes.

d. *Thermophilic aerobic digestion.* Liquid sewage sludge is agitated with air or oxygen to maintain aerobic conditions and the mean cell residence time of the sewage sludge is ten days at 55 to 60 degrees Celsius.

e. *Beta ray irradiation.* Sewage sludge is irradiated with beta rays from an accelerator at dosages of at least 1.0 megarad at room temperature (ca. 20 degrees Celsius).

f. *Gamma ray irradiation.* Sewage sludge is irradiated with gamma rays from certain isotopes, such as Cobalt 60 and Cesium 137, at room temperature (ca. 20 degrees Celsius).

g. *Pasteurization.* The temperature of the sewage sludge is maintained at 70 degrees Celsius or higher for 30 minutes or longer.

h. *Lime treatment.*

(1) The pH of the sewage that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 hours.

(2) The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12.

(3) At the end of the 72-hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

These rules are intended to implement Iowa Code section 455B.174.

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CHAPTER 68
COMMERCIAL SEPTIC TANK CLEANERS

567—68.1(455B) Purpose and applicability. The purpose of this chapter is to implement Iowa Code subsection 455B.172(5) and 2011 Iowa Code Supplement section 455B.172A by providing standards for the commercial cleaning of and the disposal of waste from private sewage disposal systems and on-farm food processing operations and by providing licensing requirements and procedures. These rules govern the commercial cleaning of and the disposal of wastes from private sewage disposal systems and on-farm food processing operations.
[**ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—68.2(455B) Definitions. For purposes of this chapter, the following terms shall have the meanings indicated:

"Cleaning" means removal of waste from private sewage disposal systems and other actions incidental to that removal.

"Commercial septic tank cleaner" means a person or firm engaged in the business of cleaning and disposing of waste from private sewage disposal systems, including a person or firm that owns and rents or leases portable toilets.

"Department" means the Iowa department of natural resources.

"Food commodity" means any commodity that is derived from an agricultural animal or crop, both as defined in Iowa Code section 717A.1, which is intended for human consumption in its raw or processed state.

1. A food commodity in its raw state for processing includes, but is not limited to, milk, eggs, vegetables, fruits, nuts, syrup, and honey.
2. A food commodity in its processed state includes, but is not limited to, dairy products, pastries, pies, and meat or poultry products.

"Holding tank for waste" means any receptacle for the retention or storage of waste pending removal for further treatment or disposal.

"On-farm processing operation" means any place located on a farm where the form or condition of a food commodity originating from that farm or another farm is changed or packaged for human consumption, including but not limited to a dairy, creamery, winery, distillery, cannery, bakery, or meat or poultry processor. "On-farm processing operation" does not include food commodities processed by a person exclusively for use by the person and members of the person's household and the person's nonpaying guests and employees.

"Private sewage disposal system" means a system which provides for the treatment or disposal of domestic sewage from four or fewer dwelling units or the equivalent of fewer than 16 individuals on a continuing basis, including domestic waste, whether residential or nonresidential, but not including industrial waste of any flow rate except as provided for in 567—68.11(455B). "Private sewage disposal system" includes, but is not limited to, septic tanks as defined in 567—subrule 69.1(2); holding tanks for waste; and impervious vault toilets, portable toilets, and chemical toilets as described in 567—69.15(455B).

"Septage" means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or from a holding tank, when the system is cleaned or maintained.

"Tank" means any container which is placed on a vehicle to transport waste removed from a private waste facility.

"Toilet unit" means a portable or fixed tank or vessel holding untreated human waste without secondary wastewater treatment which is emptied for disposal. "Toilet unit" does not include a portable or fixed tank or vessel holding untreated human waste that is part of a recreational vehicle or marine vessel.

"Vehicle" means a device used to transport a tank, including a trailer.

"Waste" means human or animal excreta, water, scum, sludge, septage, and grease solids from private sewage disposal.
[**ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—68.3(455B) Licensing requirements. Commercial septic tank cleaners must annually apply for and obtain a license from the department before engaging in the commercial cleaning of and disposal of septage from any private sewage disposal system in the state of Iowa. The license period will run from July 1 to June 30 of the following year. The owner of a septic tank may clean the owner's own tank without being licensed if all other requirements of this chapter are met.

567—68.4(455B) Licensing procedures.

68.4(1) *Application for license.* A commercial septic tank cleaner must apply for a license by completing a form provided by the department and submitting it with an annual waste management plan and the license fee to the Department of Natural Resources, License Bureau, Henry A. Wallace Building, 502 E. 9th Street, Des Moines, Iowa 50319. In the case of a commercial septic tank cleaner which is a corporation, partnership, association or any other business entity, the entity itself must apply as provided in this rule. The entity shall designate one person, such as a partner, officer, manager, supervisor, or other full-time employee, to act as its representative for the purpose of applying for a license. Individuals employed by a commercial septic tank cleaner business are not required to be licensed, but each cleaning unit (vehicle or tank) must have the license number (except for the year) displayed and a copy of the current license with the cleaning unit.

68.4(2) *Waste management plan.* The applicant must submit as a part of the application a septage disposal management plan. The plan must also be submitted to the county board of health in each county where septage is to be land-applied. The plan shall include:

a. The volume of septage expected to be collected from private sewage disposal facilities.

b. The volume of septage to be taken to permitted publicly owned treatment works.

c. A letter of acceptance from any publicly operated treatment works where waste is proposed to be disposed.

d. The location and area of all sites where septage is to be land-applied.

e. The anticipated volume of septage applied to each site.

f. The type of crop to be planted on each site and when the crop is to be planted.

g. The type of application to be used at each site.

h. A list of vehicles to be registered.

i. Rescinded IAB 7/11/12, effective 8/15/12.

Allowance may be made in the plan for septage application on the property of the owner of the tank being pumped as long as disposal standards of this chapter are met. A license will be issued only after approval of the waste management plan. If the plan is not approved, it must be modified and resubmitted.

68.4(3) *License fee.* The application fee is $150 per year for the first registered vehicle and $50 for each additional vehicle. If the applicant intends to land-apply any septage during the year, there will be an additional application fee of $7 per 1,000 gallons of septage to be land-applied per year. Land application fees shall be based on the previous year's records. First-time applicants shall pay a $300 annual land application fee if they propose to land-apply. New license applicants will be charged monthly prorated fees until the next June 30.

68.4(4) *License renewal.* In order to remain valid, a commercial septic tank cleaner license must be renewed by June 30 of each year. Renewal application must be made on a form provided by the department and must be received by the department or postmarked at least 30 days prior to the expiration date.

68.4(5) *Change in ownership.* Within 30 days of the change in ownership of any commercial septic tank cleaner, the new owner shall furnish the department with the following information:

a. Name of business and license number;

b. Name, address, and telephone number of new owner; and

c. Date the change in ownership took place and any change in the waste management plan. The license will transfer with the ownership with no additional fee due until the next renewal date.

68.4(6) *Change in address.* Within 30 days of any change in the address or location of the business, information regarding such change must be reported to the department.

68.4(7) *Alteration of waste management plan.* An amended waste management plan must be submitted before any new property for land application not listed on the existing plan is used or waste is taken to a publicly operated treatment works not listed on the plan.
[**ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—68.5(455B) Suspension, revocation and denial of license.

68.5(1) *Basis for suspension, revocation, and denial.* The department may suspend, revoke, or deny a commercial septic tank cleaner license for any of the following reasons:

a. A material misstatement of facts in a license application.

b. Failure to provide the adequate license fee.

c. Failure to provide and adhere to an approved waste management plan.

d. Failure to satisfy the obligations of a commercial septic tank cleaner and the standards as provided in rules 567—68.6(455B), 567—68.9(455B), and 567—68.10(455B).

e. Failure to pay any fines assessed under 68.5(2).

68.5(2) *Civil penalties.* The department may assess civil penalties not to exceed $250 for violations of this rule. Each day that the violation continues constitutes a separate offense.

68.5(3) *Appeal.* A commercial septic tank cleaner may appeal the suspension, revocation, or denial of a license under the provisions of 567—Chapter 7.

68.5(4) *Reinstatement.* In the case of a denial, revocation, or suspension pursuant to paragraph 68.5(1)*"b"* or *"e,"* the department may immediately reinstate or issue a license after receipt of the requisite fee or fine and confirmation that the commercial septic tank cleaner is fulfilling the requirements of rules 567—68.6(455B) and 567—68.9(455B). In case of a denial, revocation or suspension pursuant to paragraph 68.5(1)*"a," "c,"* or *"d,"* the department may reinstate or issue a license no sooner than 60 days after the denial, revocation, or suspension if the department is satisfied that the commercial septic tank cleaner has corrected the deficiency and will comply with departmental rules in the future.

567—68.6(455B) Licensee's obligations.

68.6(1) *Supervision.* The licensee shall provide supervision for the removal and disposal of septage from private sewage disposal systems.

68.6(2) *Standards.* The licensee shall meet the standards established in this chapter for the cleaning of and disposal of septage from private sewage disposal systems.

68.6(3) *Records.* The licensee shall maintain records of private sewage disposal systems cleaned and the location, method of septage disposal, and volume of septage disposed of for each trip. Such records shall be maintained for a period of five years and shall be made readily available upon request by the administrative authority.
[**ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—68.7(455B) County obligations. The county boards of health shall enforce the standards and licensing requirements contained in this chapter and other referenced rules relating to the cleaning of private sewage disposal systems and disposal of septage from such facilities.

567—68.8(455B) Application sites and equipment inspections. All application sites specified on the waste management plan shall be inspected annually by an agent approved by the department to ensure that the sites meet the requirements for septage disposal and are properly managed. All tank trucks and related storage and handling facilities for septage shall be inspected annually to ensure compliance with these rules. The department may contract with other entities such as the local county health department to carry out the inspections. However, the department shall retain concurrent authority to determine inspection requirements.

567—68.9(455B) Standards for commercial cleaning of private sewage disposal systems.

68.9(1) *Vehicles, tanks and equipment.* For all vehicles, tanks and equipment used in the commercial cleaning of private sewage disposal systems, the licensee shall:

a. Prevent the dripping, falling, spilling, leaking, or discharging of waste onto roads, rights-of-way or other public properties.

b. Provide the equipment necessary for proper cleaning of private sewage disposal systems.

c. Ensure proper construction and repair of cleaning equipment to allow easy cleaning and maintenance in an essentially rust-free and sanitary condition and appearance.

d. If septage is to be land-applied, provide a mechanism for properly mixing lime with the septage or a means to incorporate or inject the septage.

68.9(2) *Septic tank cleaning.* Tanks shall be emptied of all waste. Sludge may be loosened by pumping liquid back into the tank or adding dilution water. The tank does not have to be washed out with fresh water; however, no more than four inches of waste shall be left in the bottom.

68.9(3) *Miscellaneous.*

a. Any tanks or equipment used for hauling septage from private sewage disposal systems shall not be used for hauling hazardous or toxic wastes as defined in 567—Chapter 131 or other wastes detrimental to land application or wastewater treatment plants and shall not be used in a manner that would contaminate a potable water supply or endanger the food chain or public health.

b. Pumps and associated piping shall be installed with watertight connections to prevent leakage.

c. Agitation capability for use in cleaning private sewage disposal systems to disperse sludge and scum into the liquid for proper cleaning shall be provided.

d. All vehicles shall display the license number (except for the year) assigned to the commercial septic tank cleaner with three-inch or larger letters and numbers on the side of the tank or vehicle.

e. The name and address of the license holder shall be prominently displayed on the side of the tank or vehicle in letters at least three inches high.

f. A direct connection shall not be made between a potable water source and the tank or equipment on the vehicle.

567—68.10(455B) Standards for disposal. Disposal of septage from private sewage disposal systems shall be carried out in accordance with the rules established by the department.

68.10(1) Waste from toilet units shall be disposed of by discharge to a publicly owned treatment works or other permitted wastewater treatment system with the treatment works owner's approval.

68.10(2) Septage from septic tanks or other types of private sewage disposal systems that normally discharge effluent for further treatment (such as mechanical/aerobic treatment tanks, siphon tanks or distribution boxes) shall be disposed of by utilizing one or more of the following methods:

a. Septage shall be discharged to a publicly owned treatment works or other permitted wastewater treatment system with the treatment works owner's approval.

b. Septage shall be discharged to permitted septage lagoons or septage drying beds with the septage system owner's approval.

c. Septage shall be land-applied in accordance with the following requirements:

(1) The maximum application rate is 30,000 gallons of septage per acre of cropland per 365-day period. The nitrogen application rate shall be no more than is utilized by the crop. A crop capable of using the nitrogen applied must be grown and harvested from the site after application of the maximum annual allocation or, at a minimum, every third year.

(2) The following site restrictions shall be met when septage is applied to land:

1. Septage shall not be applied to a lawn or a home garden.

2. Septage shall not be applied to land where there is a bedrock layer or seasonal high water table within 3 feet of the soil surface. Determination of these confining layers may be ascertained by consulting the soil types noted in the county USDA soil surveys.

3. Land application sites shall have soil pH maintained above 6.0, unless crops prefer soils with lower pH conditions. If the soil pH is below 6.0, it is acceptable to use agricultural lime to increase the pH to an acceptable level. Soil pH shall be measured and reported as part of the annual waste management plan.

4. The septage shall not be applied to ground that has greater than 9 percent slope.

5. If application on frozen or snow-covered ground is necessary, it shall be limited to land areas of less than 5 percent slope and application rates of less than 2,500 gallons per acre per day.

6. Septage shall not be applied to land that is 35 feet or less from an open waterway. If septage is applied within 200 feet of a stream, lake, sinkhole or tile line surface intake located downgradient of the land application site, it shall be injected or applied to the surface and mechanically incorporated into the soil within 48 hours of application.

7. If the septage is applied to land subject to flooding more frequently than once in ten years, the septage shall be injected or shall be applied to the surface and mechanically incorporated into the soil within 48 hours. Information on which land is subject to flooding more frequently than once in ten years is available from the department.

8. Septage shall not be applied within 750 feet of an occupied residence, except the residence of the owner of the septic tank that was pumped, nor within 500 feet of a well.

9. Crop harvesting restrictions:

- Food crops with harvested parts that touch the septage/soil mixture and are totally above ground shall not be harvested for 14 months after application of domestic septage.
- Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of domestic septage.
- Animal feed, fiber, and those food crops with harvested parts that do not touch the soil surface shall not be harvested for 30 days after application of the domestic septage. Animals shall not be allowed to graze on the land for 30 days after application of septage.

(3) One of the following vector attraction reduction requirements shall be met when septage is applied to land:

1. Septage shall be injected below the surface of the land. No significant amount of the septage shall be present on the land surface within one hour after the septage is injected.

2. Septage applied to the land surface shall be incorporated into the soil within six hours after application to or placement on the land.

3. Septage shall be stabilized by adding and thoroughly mixing sufficient alkaline material such as hydrated or quick lime to produce a mixture with a pH of 12. For example, adding and thoroughly mixing approximately 50 pounds of lime with each 1,000 gallons of septage is usually sufficient to bring the pH to 12 for 30 minutes. A minimum of 30 minutes of contact time shall be provided after mixing the lime with the septage prior to applying to land. Each container of septage shall be monitored for compliance by testing, using a pH meter or litmus paper, two representative samples of the batch of lime-treated domestic septage taken a minimum of 30 minutes apart to verify that the pH remains at 12 or greater for the minimum 30-minute time period.

(4) When septage is applied to land, the person who applies the septage shall develop the following information and shall retain the information for five years:

1. The location, by either street address or latitude and longitude, of each site on which septage is applied.

2. The number of acres and precise application area in each site on which septage is applied.

3. The gallons of septage applied each time.

4. The total gallons applied at each site to date for the year.

5. The date and time septage is applied to each site.

6. The rate, in gallons per acre, at which septage is applied to each site.

7. A description of how the vector attraction reduction requirements are met.

8. The following certification statement shall be provided with the records when the records are submitted to or requested by the department:

"I certify, under penalty of law, that the pathogen requirements and the vector attraction reduction requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

(5) Other methods of stabilization may be acceptable if shown to be equivalent to 68.10(2)*"c"*(3)"3" above.

d. Septage shall be discharged (with owner approval) to a permitted sanitary landfill in accordance with 567—Chapters 102 and 103 and the following requirements:

(1) Septage shall be stabilized by adding and thoroughly mixing sufficient lime to produce a mixture with a pH of 12.

(2) A minimum of 30 minutes of contact time shall be provided after mixing the lime with the septage prior to discharging to the landfill.

[**ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—68.11(455B) Standards for disposal of on-farm food processing wastewater. Disposal of on-farm food processing wastewater shall be carried out by utilizing one or more of the following methods:

68.11(1) On-farm food processing wastewater shall be discharged to a publicly owned treatment works or other permitted wastewater treatment system with the treatment works owner's approval.

68.11(2) On-farm food processing wastewater shall be discharged to a subsurface soil absorption system that is in compliance with 567—Chapter 69 and the United States Environmental Protection Agency's Underground Injection Control Program or other applicable regulations.

68.11(3) On-farm food processing wastewater shall be discharged through a disposal system that meets all of the following:

a. The disposal system is located on the same site as the on-farm processing operation.

b. The disposal system is constructed in conformance with a permit issued by the department in accordance with Iowa Code section 455B.183, implemented by 567—Chapter 64.

c. For a disposal system that discharges wastewater to a water of the United States, the system must be operated in conformance with a National Pollutant Discharge Elimination System permit issued by the department under Iowa Code section 455B.197.

68.11(4) Land application.

a. On-farm food processing wastewater may be land-applied if all of the following apply:

(1) The volume of wastewater produced by the on-farm processing operation is less than 1,500 gallons per day.

(2) The application rate does not exceed 30,000 gallons per acre per year.

(3) The application rate does not exceed 1,500 gallons per acre per day.

b. On-farm food processing wastewater shall be land-applied in accordance with 567—68.10(455B).

c. On-farm food processing operations that meet the requirements for land application in 68.11(4) shall not be required to obtain an operation permit as prescribed in 567—64.3(455B).

[**ARC 0208C**, IAB 7/11/12, effective 8/15/12]

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CHAPTER 69
PRIVATE SEWAGE DISPOSAL SYSTEMS

[Prior to 7/1/83, Health Dept. Ch 12]
[Prior to 11/19/86, Water, Air and Waste Management[900] Ch 69]

567—69.1(455B) General.

69.1(1) *Applicability.* These rules are applicable only to private sewage disposal systems.

69.1(2) *Definitions.*

"Administrative authority" means the department and the local board of health as authorized by Iowa Code section 455B.172 and Iowa Code chapter 137.

"Aerobic treatment unit" means a disposal system employing bacterial action which is maintained by the utilization of air or oxygen and includes the aeration plant and equipment and the method of final effluent disposal.

"Approved" means accepted or acceptable under an applicable specification stated or cited in these rules or accepted by the administrative authority as suitable for the proposed use.

"Area drain" means a drain installed to collect surface or storm water from an open area of a building or property.

"Building drain" means that part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of any building and conveys the same to the building sewer.

"Building sewer" means that part of the horizontal piping from the building wall to its connection with the main sewer or the primary treatment portion of a private sewage disposal system conveying the drainage of a building site.

"Chamber system" means a buried structure, typically with a domed or arched top, providing at least a 6-inch height of sidewall soil exposure below the invert of the inlet and creating a covered open space above a buried soil infiltrative surface.

"Conventional," when used in reference to sewage treatment, means a soil absorption system involving a series of 2- to 3-foot-wide trenches filled with gravel 1 foot deep, containing a 4-inch-diameter rigid pipe or other alternative trench technologies to convey the sewage effluent.

"Distribution box" means a structure designed to accomplish the equal distribution of wastewater to two or more soil absorption trenches.

"Domestic sewage" or *"domestic wastewater"* means the water-carried waste products from residences, public buildings, institutions, or other buildings, including bodily discharges from human beings together with groundwater infiltration and surface water as may be present.

"Drip irrigation" means a form of subsurface soil absorption using shallow pressure distribution with low-pressure drip emitters.

"Drop box" means a structure used to divert wastewater flow into a soil absorption trench. When the trench is filled to a set level, the drop box then allows any additional wastewater not absorbed by that trench to flow to the next drop box or soil absorption trench.

"Dwelling" means any house or place used or intended to be used by humans as a place of residence.

"Expanded polystyrene (EPS) aggregate systems" means cylinders comprised of expanded polystyrene (EPS) synthetic aggregate contained in high-strength polyethylene netting. The cylinders are 12 inches in diameter and are produced both with and without a distribution pipe. Cylinders may be configured in a trench, bed, at-grade and mound applications to obtain the desired width, height and length. Cylinders containing a distribution pipe shall be connected end-to-end with an internal coupling device.

"Fill soil" means clean soil, free of debris or large organic material, which has been mechanically moved onto a site and has been in place for less than one year.

"Foundation drain" means that portion of a building drainage system which is provided to drain groundwater, not including any wastewater, from the outside of the foundation or over or under the basement floor and which is not connected to the building drain.

"Free access filter" means an intermittent sand filter constructed within the natural soil or above the ground surface, with access to the distributor pipes and top of the filter media for maintenance and media replacement.

"Gravel" means stone screened from river sand or quarried and washed free of clay and clay coatings. Concrete aggregate designated as Class II by the department of transportation is acceptable.

"Gravelless pipe system" means a soil absorption system comprised of 10-inch-diameter corrugated plastic pipe, perforated with holes on a 120-degree arc centered on the bottom, wrapped in a sheath of geotextile filter wrap, and installed level in a trench without gravel bedding or cover.

"Grease interceptor" means a watertight device designed to intercept and retain or remove grease and fatty substances. The device may be located inside (grease separator) or outside (grease tank or grease trap) a facility.

"Intermittent sand filter" means a bed of granular materials 24 to 36 inches deep underlain by graded gravel and collecting tile. Wastewater is applied intermittently to the surface of the bed through distribution pipes, and the bed is underdrained to collect and discharge the final effluent. Uniform distribution is normally obtained by dosing so as to utilize the entire surface of the bed. Filters may be designed to provide free access (open filters) or may be buried in the ground (buried filters or subsurface sand filters).

"Lake" means a natural or man-made impoundment of water with more than one acre of water surface area at the high water level.

"Limiting layer" means bedrock, seasonally high groundwater level, or any layer of soil with a stabilized percolation rate exceeding 60 minutes for the water to fall one inch.

"Mound system" means an aboveground soil absorption system used to disperse effluent from septic tanks in cases in which a seasonally high water table, high bedrock conditions, slowly permeable soils, or limited land areas prevent conventional subsurface soil absorption systems.

"Packed bed media filter" means a watertight structure filled with uniformly sized media that is normally placed over an underdrain system. The wastewater is dosed onto the surface of the media through a distribution network and is allowed to percolate through the media to the underdrain system. The underdrain collects the filtrate and discharges the final effluent.

"Percolation test" means a falling water level procedure used to determine the ability of soils to absorb primary treated wastewater. (See Appendix B.)

"Pond" means a natural or man-made impoundment of water with a water surface area of one acre or less at the high water level.

"Pretreated effluent" means septic tank effluent treated through aeration or other methods that, upon laboratory analysis, meets or exceeds a monthly average for biochemical oxygen demand (BOD) of 30 mg/L and total suspended solids (TSS) of 30 mg/L.

"Primary treatment unit" means a unit or system used to separate the floating and settleable solids from the wastewater before the partially treated effluent is discharged for secondary treatment.

"Private sewage disposal system" means a system which provides for the treatment or disposal of domestic sewage from four or fewer dwelling units or the equivalent of less than 16 individuals on a continuing basis, including domestic waste, whether residential or nonresidential, but not including industrial waste of any flow rate except as provided for in 567—68.11(455B). "Private sewage disposal system" includes, but is not limited to, septic tanks, holding tanks for waste, chemical toilets, impervious vault toilets and portable toilets.

"Professional soil analysis" means an alternative to the percolation test which depends upon a knowledgeable person evaluating the soil characteristics, such as color, texture, and structure, in order to determine an equivalent percolation or loading rate. A person performing a professional soil analysis shall demonstrate training and experience in soil morphology, such as testing absorption qualities of soil by the physical examination of the soil's color, mottling, texture, structure, topography, and hillslope position.

"Qualified sampler," for the purposes of collecting compliance effluent samples required under NPDES General Permit No. 4, means one of the following persons: a city or county environmental

health staff person; an Iowa-certified wastewater treatment operator; or an individual who has received training approved by the department to conduct effluent sampling.

"Roof drain" means a drain installed to receive water collecting on the surface of a roof and discharging into an area or storm drain system.

"Secondary treatment system" means a system which provides biological treatment of the effluent from septic tanks or other primary treatment units to meet minimum effluent standards as required in these rules and NPDES General Permit No. 4. Examples include soil absorption systems, media filters, aerobic treatment units, or other systems providing equivalent treatment.

"Septage" means the liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or from a holding tank, when the system is cleaned or maintained.

"Septic tank" means a watertight structure into which wastewater is discharged for solids separation and digestion (referred to as part of the closed portion of the treatment system).

"Sewage sludge" means any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. "Sewage sludge" includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum septage, portable toilet pumpings, Type III marine device pumpings as defined in 33 CFR Part 159, and sewage sludge products. "Sewage sludge" does not include grit, screenings, or ash generated during the incineration of sewage sludge.

"Stream" means any watercourse listed as a "designated use segment" in rule 567—61.3(455B) which includes any watercourse that maintains flow throughout the year or contains sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community.

"Subsurface sand filter" means a system in which the effluent from the primary treatment unit is discharged into perforated pipes, filtered through a layer of sand, and collected by lower perforated pipes for discharge to the surface or to a subsurface soil absorption system. A subsurface sand filter is an intermittent sand filter that is placed within the ground and provided with a natural topsoil cover over the crown of the distribution pipes.

"Subsurface soil absorption system" means a system of perforated conduits connected to a distribution system, forming a series of subsurface, water-carrying channels into which the primary treated effluent is discharged for direct absorption into the soil (referred to as part of the open portion of the treatment system).

69.1(3) *General regulations.*

a. Connections to approved sewer system.

(1) No private sewage disposal system shall be installed, repaired, or rehabilitated where a publicly owned treatment works (POTW) is available or where a local ordinance requires connection to a POTW. The POTW may be considered as unavailable when such POTW, or any building or any exterior drainage facility connected thereto, is located more than 200 feet from any proposed building or exterior drainage facility on any lot or premises which abuts and is served by such POTW. Final determination of availability shall be made by the administrative authority.

(2) When a POTW becomes available within 200 feet, any building then served by a private sewage disposal system shall be connected to said POTW within a time frame or under conditions set by the administrative authority.

(3) When a POTW is not available, every building wherein persons reside, congregate, or are employed shall be provided with an approved private sewage disposal system.

(4) If a building is to be connected to an existing private sewage disposal system, that existing system shall meet the standards of these rules and be appropriately sized.

b. Discharge restrictions. It is prohibited to discharge any wastewater from private sewage disposal systems (except as permitted in this chapter) to any ditch, stream, pond, lake, natural or artificial waterway, county drain tile, surface water drain tile, or land drain tile, to the groundwater, or to the surface of the ground. Under no conditions shall effluent from private sewage disposal systems be discharged to any abandoned well, agricultural drainage well or sinkhole. Existing discharges to any of the above-listed locations or structures shall be eliminated by the construction of a system in compliance with the requirements of these rules.

c. Construction or alteration. All private sewage disposal systems constructed or altered after March 18, 2009, shall comply with this chapter. Alteration includes any changes that affect the treatment or disposal of the waste. Repair of existing components that does not change the treatment or disposal of the waste is exempt. However, the discharge restrictions in paragraph *"b"* above apply.

d. Abandonment. Private sewage disposal systems that are abandoned shall have the septic tank pumped, the tank lid crushed into the tank, and the tank filled with sand or soil.

69.1(4) *Construction permit required.* No private sewage disposal system shall be installed or altered as described in paragraph 69.1(3)*"c"* unless a construction permit issued by the administrative authority has been obtained. The installation shall be in accordance with these rules.

69.1(5) *Permit by rule.* This chapter is intended to act as a permit by rule for private sewage disposal systems. Activities in compliance with this chapter are permitted by the director for purposes of compliance with sections 455B.183 and 455B.186 of the Code of Iowa.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.2(455B) Time of transfer inspections.

69.2(1) *Inspections required.* Prior to any transfer of ownership of a building where a person resides, congregates, or is employed that is served by a private sewage disposal system, the sewage disposal system serving the building shall be inspected. In the event that weather or other temporary physical conditions prevent the certified inspection from being conducted, the buyer shall execute and submit a binding agreement with the county board of health to conduct a certified inspection of the private sewage disposal system at the earliest practicable time and to be responsible for any required modifications to the private sewage disposal system as identified by the certified inspection. In the event that all parties agree the existing private sewage disposal system will not pass inspection, the buyer may forego the inspection and execute a binding agreement with the local board of health to install a private sewage disposal system compliant with this rule at a time specified by the administrative authority. The inspection requirement applies to all types of ownership transfers not specifically exempted, including when a seller-financed real estate contract is signed.

a. Inspection exemptions. The following types of real estate transactions are exempt from the inspection requirement. However, the discharge restrictions in paragraph 69.1(3)*"b"* shall always apply.

(1) A transfer made pursuant to a court order, including but not limited to a transfer under Iowa Code chapter 633 or 633A, the execution of a judgment, the foreclosure of a real estate mortgage pursuant to Iowa Code chapter 654, the forfeiture of a real estate contract under Iowa Code chapter 656, a transfer by a trustee in bankruptcy, a transfer by eminent domain, or a transfer resulting from a decree for specific performance.

(2) A transfer to a mortgagee by a mortgagor or successor in interest who is in default, a transfer by a mortgagee who has acquired real property as a result of a deed in lieu of foreclosure or has acquired real property under Iowa Code chapter 654 or 655A, or a transfer back to a mortgagor exercising a right of first refusal pursuant to Iowa Code section 654.16A.

(3) A transfer by a fiduciary in the course of the administration of a decedent's estate, guardianship, conservatorship, or trust.

(4) A transfer between joint tenants or tenants in common.

(5) A transfer made to a spouse or to a person in the lineal line of consanguinity of a person making the transfer.

(6) A transfer between spouses resulting from a decree of dissolution of marriage, a decree of legal separation, or a property settlement agreement which is incidental to the decree, including a decree ordered pursuant to Iowa Code chapter 598.

(7) A transfer in which the transferee intends to demolish or raze the building.

(8) A transfer of property with a system that was installed not more than two years prior to the date of the transfer.

(9) A deed arising from a partition proceeding.

(10) A tax sale deed issued by the county treasurer.

(11) A transfer for which consideration is $500 or less.

(12) A deed between a family corporation, partnership, limited partnership, limited liability partnership, or limited liability company as defined in Iowa Code section 428A.2, subsection 15, and its stockholders, partners, or members for the purpose of transferring real property in an incorporation or a corporate dissolution or in the organization or dissolution of a partnership, limited partnership, limited liability partnership, or limited liability company under the laws of this state, where the deed is given for no actual consideration other than for shares or for debt securities of the family corporation, partnership, limited partnership, limited liability partnership, or limited liability company.

b. Inspection criteria. If a private sewage disposal system is failing to ensure effective wastewater treatment or is otherwise improperly functioning, the private sewage disposal system shall be renovated to meet current construction standards, as adopted by the department, either by the seller or, by agreement within a reasonable time period as determined by the administrative authority, by the buyer. If the private sewage disposal system is properly treating the wastewater and not creating an unsanitary condition in the environment at the time of inspection, the system is not required to meet current construction standards. However, the discharge restrictions in paragraph 69.1(3)*"b"* shall always apply.

c. Inspection validity. An inspection is valid for a period of two years for any ownership transfers during that period.

69.2(2) *Certified time of transfer inspectors.* Inspections shall be conducted by an inspector certified by the department. In order to be a certified time of transfer inspector, an individual shall have met the experience requirements, have successfully completed the inspection course and examination, and have been issued a current certificate by the department in accordance with this rule.

a. Experience requirements. In order to be certified by taking the inspection course and examination only, an individual must have at least two years' experience in the operation, installation, inspection, design or maintenance of private sewage disposal systems. Individuals lacking this experience must complete additional coursework before attending the inspection course with testing. The additional courses shall include, but not be limited to, "Onsite Basics 101" and "Alternative Systems" offered by the Onsite Wastewater Training Center of Iowa or courses determined by the department to be equivalent.

b. Examination application. A person wishing to take the examination necessary to become a certified inspector shall complete the Certified Time of Transfer Inspector Application, Form 542-0192. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate pertinent educational background, training and past experience in providing private sewage disposal services. The completed application and the application fee shall be sent to Time of Transfer Inspector Certification, Iowa Department of Natural Resources, 502 E. 9th Street, Des Moines, Iowa 50319-0034. An application for examination must be received by the department at least 30 days prior to the date of the examination.

c. Application evaluation. The director may designate department personnel or an experience review committee to evaluate all applications for examination. A notification of the application review decision will be sent to the applicant prior to the examination date. The applicant shall have the right to dispute the application evaluation.

d. Certification. Applicants who successfully meet the department's requirements will receive a written certification from the department. The department shall maintain a current listing of certified time of transfer inspectors. The list shall be available on the department's Web site and shall be provided to county boards of health and other interested parties.

e. Fees. The following nonrefundable fees apply:

(1) Examination fee. The fee for each examination shall be $50.

(2) Certification fee. The fee for inspector certification shall be $75 for each one-half year of a two-year period from the date of issuance of the certification to June 30 of the next even-numbered year.

(3) Certification renewal fee. The fee for certification renewal shall be $300 for the two-year period.

(4) Penalty fee. Rescinded IAB 7/11/12, effective 8/15/12.

f. Renewal period. All certificates shall expire on June 30 of even-numbered years and must be renewed every two years in order to maintain certification.

g. Renewal rights. Inspectors seeking renewal more than 45 days following expiration of the certificate shall lose the right to renew under the normal renewal process and must retake the inspector class and test to become recertified.

69.2(3) *Continuing education.*

a. CEU requirements. Continuing education units (CEUs) must be earned during each two-year period from April 1 of the even-numbered year until March 30 of the next even-numbered year. A certified inspector must earn 1.2 CEUs or 12 contact hours during each two-year period. Newly certified time of transfer inspectors (previously uncertified) who become certified after April 1 of a two-year period will not be required to earn CEUs until the next two-year period.

b. CEU approval. All activities for which CEU credit will be granted must be approved by an accredited college or university, an issuing agency, or the department and shall be related to private sewage disposal systems.

c. CEU reporting. It is the personal responsibility of the certified inspector to maintain a written record of and to notify the department of the CEUs earned during the period. The CEUs earned during the period shall be shown on the application for renewal.

69.2(4) *Certificate renewal.*

a. Certification period. All certificates shall expire on June 30 of even-numbered years and must be renewed every two years in order to stay effective.

b. Application for renewal. Renewal applications shall be submitted 60 days before the expiration date of the current certificate. Late applications or incomplete applications may lead to revocation of the certificate. Renewal of certificates will only be granted to inspectors in good standing.

c. CEUs. Only those certified inspectors fulfilling the continuing education requirements before the end of each two-year period (March 31) will be allowed to renew their certificates. The certificates of inspectors not fulfilling the continuing education requirements shall expire on June 30 of the even-numbered year.

d. Renewal fee. A renewal fee in the amount of $300 must accompany the renewal application in order for the certificate to be renewed. Failure to submit the renewal fee on time may lead to revocation of the certificate.

69.2(5) *Obligations of certified inspectors.*

a. Certified inspectors shall conduct time of transfer inspections according to this rule.

b. Following an inspection, the inspection form and any attachments shall be provided to the county environmental health department for enforcement of any follow-up mandatory improvements to the system, to the department for record, and to the person ordering the inspection.

69.2(6) *Disciplinary action.*

a. Reasons for disciplinary action. Disciplinary action may be taken against a certified time of transfer inspector on any of the grounds specified in Iowa Code section 455B.219 and the following more specific grounds.

(1) Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified inspector.

(2) Failure to submit required records of inspection or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

(3) Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

(4) Fraud in procuring a certificate.

(5) Professional incompetence.

(6) Knowingly making misleading, deceptive, untrue or fraudulent representations in the practice of the certified inspector's profession or engaging in unethical conduct or practice harmful or detrimental to the public. Proof of actual injury need not be established.

(7) Habitual intoxication or addiction to the use of drugs.

(8) Conviction of a felony related to the profession or occupation of the certified inspector. A copy of the record of conviction or plea of guilty shall be conclusive evidence.

(9) Fraud in representations as to skill or ability.

(10) Use of untruthful or improbable statements in advertisements.

(11) Willful or repeated violations of the provisions of Iowa Code chapter 455B, division III.

b. Disciplinary sanctions. Disciplinary sanctions may include the following:

(1) Revocation of a certificate. Revocation may be permanent without chance of recertification or for a specified period of time.

(2) Partial revocation or suspension. Revocation or suspension of the practice of a particular aspect of the inspection of private sewage disposal systems may be imposed.

(3) Probation. Probation under specified conditions relevant to the specific grounds for disciplinary action may be imposed.

(4) Additional education, training, and examination requirements. Additional education, training, and reexamination may be required as a condition of reinstatement.

(5) Penalties. Civil penalties not to exceed $1,000 may be assessed for causes identified in paragraph 69.2(6)*"a"* through the issuance of an administrative order.

c. Procedure.

(1) Initiation of disciplinary action. The department staff shall initiate a disciplinary action by conducting such lawful investigation as is necessary to establish a legal and factual basis for action. Written notice shall be given to a certified inspector against whom disciplinary action is being considered. The notice shall provide the certified inspector with 20 days to present any relevant facts and to indicate the certified inspector's position in the matter.

(2) A certified inspector's failure to communicate facts and positions relevant to the disciplinary investigation by the required date may be considered by the department when determining appropriate disciplinary action.

(3) If an agreement as to appropriate disciplinary action, if any, can be reached between the department and the certified inspector, a written stipulation and settlement shall be entered into. The stipulation and settlement shall recite the basic facts and violations alleged, any facts established by the certified inspector, and the reasons for the particular sanction imposed.

(4) If an agreement as to appropriate disciplinary action cannot be reached, the department may initiate formal disciplinary procedures through the issuance of a letter imposing such disciplinary sanction as the department has deemed appropriate. Service shall be provided by certified mail.

(5) A certified inspector may appeal any disciplinary sanction imposed by the department by filing a notice of appeal with the director within 30 days of receipt of the letter imposing disciplinary sanction. If an appeal is filed by the certified inspector, contested case proceedings shall be initiated by the department in accordance with 567—Chapter 7 and Iowa Code chapter 17A.

(6) Reinstatement of revoked certificates. Upon revocation of a certificate, application for certification may be allowed after two years from the date of revocation unless otherwise specified in accordance with paragraph 69.2(6)*"b."* Any such applicant must meet all eligibility requirements pursuant to subrule 69.2(2) and successfully complete an examination and be certified in the same manner as a new applicant.

69.2(7) *Procedures for noncompliance with child support order.* Upon receipt of a certification of noncompliance with a child support obligation as provided in Iowa Code section 252J.7, the department will initiate procedures to deny an application for certification or renewal or to suspend a certification in accordance with Iowa Code section 252J.8(4). The department shall issue to the person by restricted, certified mail a notice of its intent to deny or suspend inspector certification based on receipt of a certificate of noncompliance. The suspension or denial shall be effective 30 days after receipt of the notice unless the person provides the department with a withdrawal of the certificate of noncompliance from the child support recovery unit as provided in Iowa Code section 252J.8(4)*"c."* Pursuant to Iowa Code section 252J.8(4), the person does not have a right to a hearing before the department to contest the denial or suspension action under this subrule but may seek a hearing in district court in accordance with Iowa Code section 252J.9.

69.2(8) *Inspection procedures.* Inspections shall be conducted as follows:

a. Inspection form. The inspection shall be conducted using DNR Form 542-0191, Time of Transfer Inspection Report.

b. Record search. Prior to an inspection, the certified inspector shall contact the administrative authority to obtain any permits, as-built drawings or other information that may be available concerning the system being inspected. Information may also be obtained from service providers or the homeowner. If an as-built drawing is available, the system inspection shall verify that drawing. If no as-built drawing is available, the inspector shall develop an as-built drawing as part of the inspection.

c. Septic tank. At the time of inspection, any septic tank(s) existing as part of the sewage disposal system shall be opened and have the contents pumped out and disposed of according to 567—Chapter 68. In the alternative, the owner may provide evidence of the septic tank's being properly pumped out within three years prior to the inspection by a commercial septic tank cleaner licensed by the department which shall include documentation of the size and condition of the tank and its components at the time of such occurrence. If the septic tank(s) is opened, the condition of the tank and its components shall be documented and included in the final report.

d. Pumps and pump chambers. Pump chambers or vaults shall be opened for inspection, and the pump shall be tested to ensure proper operation.

e. Secondary treatment. Proof that a secondary treatment system is in place must be provided. This proof may include, but is not limited to:

(1) Opening a distribution box or uncovering a header pipe for a soil absorption system. Existing distribution boxes shall be opened for inspection.

(2) Verification of the existence of a sand filter by locating the vents and discharge pipe.

(3) Locating and opening the lid(s) of an advanced treatment unit.

(4) Absorption fields shall be probed to determine their condition. The condition of the fields shall be noted on the inspection report. The condition of the absorption field may also be determined with a hydraulic loading test.

f. Discharging systems. An effluent test shall be performed on any legally discharging private sewage disposal system. The effluent quality shall meet the requirements of NPDES General Permit No. 4 for $CBOD_5$ and TSS. The test results shall be included in the inspection report.

(1) The certified inspector shall report the location of the discharge point of a legally discharging private sewage disposal system and the discharge point's proximity to a perennial stream or drainage tile.

(2) Rescinded IAB 7/11/12, effective 8/15/12.

g. Packaged treatment units. An advanced treatment unit, such as an aerobic treatment unit, textile filter, peat filter or fixed activated sludge treatment system, shall be inspected according to the manufacturer's recommendations.

h. Other systems and system components. Private sewage disposal systems not mentioned above shall be inspected for code compliance, and an effluent sample shall be taken if applicable. Any components of the private sewage disposal system not mentioned above shall be inspected for proper function. Examples of other components include, but are not limited to, effluent screens, tertiary treatment systems, disinfection devices, alarms, control boxes and timers.

i. Inspection reports. Following an inspection, the inspection form and a narrative report describing the condition of the private sewage disposal system at the time of the inspection shall be provided to the county environmental health department, to the department for record, and to the person who ordered the inspection.

The certified inspector shall provide the completed inspection report to the county environmental health office within ten business days of the inspection date.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.3(455B) Site analysis.

69.3(1) *Site evaluation.* A site evaluation shall be conducted by the administrative authority prior to issuance of a construction permit. Consideration shall be given to, but not be limited to, the impact of the following: topography; drainage ways; terraces; floodplain; percent of land slope; location of property lines; location of easements; buried utilities; existing and proposed tile lines; existing, proposed

and abandoned water wells; amount of available area for the installation of the system; evidence of unstable ground; alteration (cutting, filling, compacting) of existing soil profile; and soil characteristics determined from a soil analysis, percolation tests, and soil survey maps if available.

a. Soil survey reports. During a site analysis and investigation, maximum use should be made of soil survey reports, which are available from USDA Natural Resources Conservation Service. A general identification of the percolation potential can be made from soil map units in Iowa. Verification of the soil permeability of the specific site must be performed.

b. Final inspections. All newly constructed private sewage disposal systems shall be inspected by the administrative authority before the system is backfilled or at a time prescribed by the administrative authority. A final as-built drawing shall be made as part of the final inspection.

c. Onsite wastewater tracking system. All pertinent information including, but not limited to, the site address, owner, type, date of installation, and as-built drawing of the private sewage disposal system shall be entered into the department's Web-based onsite wastewater tracking system.

69.3(2) *Minimum distances.* All private sewage disposal systems shall be located in accordance with the minimum distances shown in Table I.

Table I

Minimum Distance in Feet From	Closed Portion of Treatment System(1)	Open Portion of Treatment System(2)
Private water supply well	50	100
Shallow public water supply well(3)	200	400
Deep public water supply well(4)	100	200
Groundwater heat pump borehole	50	100
Lake or reservoir	50	100
Stream or pond	25	25
Edge of drainage ditch	10	10
Dwelling or other structure	10	10
Property lines (unless a mutual easement is signed and recorded)	10	10
Other type of subsurface treatment system	5	10
Water lines continually under pressure	10	10
Suction water lines	50	100
Foundation drains or subsurface tiles	10	10

(1) Includes septic tanks, aerobic treatment units, fully contained media filters and impervious vault toilets.
(2) Includes subsurface absorption systems, mound systems, intermittent sand filters, constructed wetlands, open bottom media filters and waste stabilization ponds.
(3) "Shallow well" means a well located and constructed in such a manner that there is not a continuous layer of low-permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.
(4) "Deep well" means a well located and constructed in such a manner that there is a continuous layer of low-permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.4(455B) Requirements when effluent is discharged into surface water. All discharges from private sewage disposal systems which are discharged into, or have the potential to reach, any designated waters of the state or subsurface drainage tile shall be treated in a manner that will conform with the requirements of NPDES General Permit No. 4 issued by the department of natural resources, as referenced in 567—Chapter 64. Prior to the use of any system discharging to designated waters of the state or a subsurface drainage tile, a Notice of Intent to be covered by NPDES General Permit No. 4 shall be submitted to the department. Systems covered by this permit must meet all applicable requirements listed in the permit, including effluent sampling and monitoring.
[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.5(455B) Requirements when effluent is discharged above the ground surface.

69.5(1) All private sewage disposal systems that discharge above the ground surface shall be annually inspected to ensure proper operation.

69.5(2) Private sewage disposal systems that require a maintenance contract shall be inspected by a manufacturer's certified technician.

69.5(3) Private sewage disposal systems that do not require a maintenance contract shall be visually inspected by a person with knowledge of the system for any malfunction and shall have the septic tank opened, inspected, and pumped if needed. A record of the inspection and any tank pumping shall be maintained and be made available to the administrative authority upon request.

69.5(4) No private sewage disposal system shall discharge to a state-owned natural or artificial lake, an outstanding Iowa water or an outstanding national water as defined in 567—subrule 61.2(2) unless authorized by an individual NPDES permit.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.6(455B) Requirements when effluent is discharged into the soil. No septage or wastewater shall be discharged into the soil except in compliance with the requirements contained in this chapter.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.7(455B) Building sewers.

69.7(1) *Location and construction.*

a. The types of construction and distances as shown in Table II shall be maintained for the protection of water supplies. The distances shall be considered minimum distances and shall be increased where possible to provide better protection.

Table II

Sewer Construction	Distance in Feet From Well Water Supply	
	Private	Public
1. Schedule 40 plastic pipe (or SDR 26 or stronger) with approved-type joints or cast-iron soil pipe (extra heavy or centrifugally cast) with joints of preformed gaskets.	10	25
2. Sewer pipe installed to remain watertight and root-proof.	50	75

b. Under no circumstances shall a well suction line pass under a building sewer line.

69.7(2) *Requirements for building sewers.*

a. *Type.* Building sewers used to conduct wastewater from a building to the primary treatment unit of a private sewage disposal system shall be constructed of Schedule 40 plastic pipe (or SDR 26 or stronger) with solvent-weld or bell-and-gasket-type joints or shall be constructed of cast iron with integral bell-and-gasket-type joints.

b. *Size.* Such building sewers shall not be less than 4 inches in diameter.

c. *Grade.* Such building sewers shall be laid to the following minimum grades:

4-inch sewer . . . . . 12 inches per 100 feet

6-inch sewer . . . . . 8 inches per 100 feet

69.7(3) *Cleanouts.*

a. *Spacing.* A cleanout shall be provided where the building sewer leaves the house and at least every 100 feet downstream to allow for rodding.

b. *Change of direction or grade.* An accessible cleanout shall be provided at each change of direction or grade if the change exceeds 45 degrees.

69.7(4) *Grease interceptors.*

a. Applicability. Grease interceptors shall be provided for kitchen flows at restaurants, nursing homes, schools, hospitals and other facilities from which grease can be expected to be discharged.

b. Installation. Grease interceptors shall be installed on a separate building sewer serving kitchen flows into which the grease will be discharged. The discharge from the grease interceptor must flow to a properly designed septic tank or to a building sewer and then to the septic tank.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.8(455B) Primary treatment—septic tanks.

69.8(1) *General requirements.*

a. Septic tank required. Every private sewage disposal system shall have as a primary treatment unit a septic tank as described in this rule. All wastewater from the facility serviced shall discharge into the septic tank (except as noted in paragraph *"d"* below).

b. Easements. No septic tank shall be located upon property under ownership different from the ownership of that property or lot upon which the wastewater originates unless easements to that effect are legally recorded and approved by the proper administrative authority.

c. Effluent discharge requirements. All septic tank effluent shall discharge into a secondary treatment system in compliance with this chapter or into another system approved by the administrative authority according to rule 567—69.21(455B).

d. Prohibited wastes. Septic tanks shall not be used for the disposal of chemical wastes or grease in quantities which might be detrimental to the bacterial action in the tank or for the disposal of drainage from roof drains, foundation drains, or area drains.

69.8(2) *Capacity.*

a. Minimum capacity. The minimum liquid-holding capacity shall be as specified in the following table (capacity may be obtained by using one or more tanks):

Up to and including 3-bedroom homes	1,250 gal.
4-bedroom homes	1,500 gal.
5-bedroom homes	1,750 gal.
6-bedroom homes	2,000 gal.

b. Other domestic waste systems. In the event that an installation serves more than a 6-bedroom home or its equivalent, or serves a facility other than a house and serves the equivalent of fewer than 16 individuals on a continuing basis, approval of septic tank capacity and design must be obtained from the administrative authority. Minimum septic tank liquid-holding capacity shall be two times the estimated daily sewage flow.

c. Determination of flow rates. Residential wastewater flows are based on 150 gallons per bedroom per day. For wastewater flow rates for nonresidential and commercial domestic waste applications serving the equivalent of fewer than 16 individuals on a continuing basis, refer to Appendix A.

d. Minimum depth. The minimum liquid-holding depth in any compartment shall be 40 inches.

e. Maximum depth. The maximum liquid-holding depth for calculating capacity of the tank shall not exceed 6½ feet.

f. Dimensions. The interior length of a septic tank should not be less than 5 feet and shall be at least 1½ times the width (larger length-to-width ratios are preferred). No tank or compartment shall have an inside width of less than 2 feet. The minimum inside diameter of a vertical cylindrical septic tank shall be 5 feet.

69.8(3) *Construction details.*

a. Fill soil. Any septic tank placed in fill soil shall be placed upon a level, stable base that will not settle.

b. Compartmentalization. Every septic tank shall be divided into two compartments (compartmentalization may be obtained by using more than one tank) as follows:

(1) The capacity of the influent compartment shall not be less than one-half or more than two-thirds of the total tank capacity.

(2) The capacity of the effluent compartment shall not be less than one-third or more than one-half of the total tank capacity.

c. Inlet/outlet. The invert of the inlet pipe shall be a minimum of 2 inches and a maximum of 4 inches higher than the invert of the outlet pipe.

d. Baffles.

(1) Four-inch-diameter Schedule 40 plastic pipe tees shall be used as inlet and outlet baffles. Inlet tees shall extend at least 6 inches above and 8 inches below the liquid level of the tank. The inlet tee shall extend below the liquid level no more than 20 percent of the liquid depth. The outlet tee shall extend above the liquid level a distance of at least 6 inches and below the liquid level a distance of at least 15 inches but no more than 30 percent of the liquid depth. A minimum 2-inch clearance between the top of the inlet and outlet tees and the bottom of the tank lid shall be provided. A horizontal separation of at least 36 inches shall be provided between the inlet baffle and the outlet baffle in each compartment. Outlet baffles shall be fitted with, or replaced by, an approved effluent screen. All effluent screens shall be certified by an ANSI-accredited third-party certifier to meet National Sanitation Foundation Standard 46, including appendices, or other equivalent testing as determined by the department. Effluent screens require periodic inspection and cleaning to ensure their continued proper operation.

(2) A horizontal slot 4 inches by 6 inches, or two suitably spaced 4-inch-diameter holes in the tank partition, may be used instead of a tee or baffle. The top of the slot or holes shall be located below the water level a distance of one-third the liquid depth. A ventilation hole or slot, located at least 8 inches above the liquid level, shall be provided in the partition.

e. Access.

(1) Access necessary for adequate inspection, operation, and maintenance must be provided to all parts of septic tanks.

(2) An access opening shall be provided at each end of the tank over the inlet and outlet. These openings shall be at least 18 inches in the smallest dimension.

(3) Watertight risers with a minimum diameter of 18 inches shall be installed to bring the access openings to the ground surface. Risers shall be secured using stainless steel fasteners of sufficient complexity, locking devices, concrete lids of sufficient weight, or another device approved by the administrative authority to deter tampering.

69.8(4) *Construction.*

a. Materials. Tanks shall be constructed of watertight poured concrete, fiberglass or plastic resistant to corrosion or decay and shall be designed so that the tanks, whether full or empty, will not collapse or rupture when subjected to anticipated earth and hydrostatic pressures. Metal tanks are prohibited.

b. Watertight tanks. Tanks shall be watertight. Prior to approving a tank, the administrative authority may ask for proof that a tank is watertight.

c. Dividers. Tank divider walls and divider wall supports shall be constructed of heavy, durable plastic, fiberglass, concrete or other similar corrosion-resistant materials approved by the administrative authority.

d. Inlet and outlet ports. Inlet and outlet ports of pipe shall be constructed of heavy, durable Schedule 40 PVC plastic sanitary tees or other similar approved corrosion-resistant material.

69.8(5) *Wall thickness.* Minimum wall thickness for tanks shall conform to applicable IAPMO[1] standards or the following specifications:

Poured concrete	6 inches thick
Poured concrete, reinforced	4 inches thick
Special concrete mix, vibrated and reinforced	2.5 inches thick
Fiberglass or plastic	.25 inches thick

[1]International Association of Plumbing and Mechanical Officials

69.8(6) *Concrete specifications.* Concrete used in precast septic tank construction shall have a maximum water-to-cement ratio of 0.45. Cement content shall be at least 650 pounds per cubic yard. Minimum compressive strength (f'_c) shall be 4,000 psi (28 Mpa) at 28 days of age. The use of ASTM C150 Type II cement or the addition of silica fume or Class F fly ash is recommended.

69.8(7) *Tank bottoms.* Septic tank bottoms shall conform to the specifications set forth in subrule 69.8(5) for septic tank walls, except that special mix concrete shall be at least 3 inches thick.

69.8(8) *Tank tops.* Concrete or masonry septic tank tops shall be a minimum of 4 inches in thickness and shall be reinforced with ⅜-inch reinforcing rods in a 6-inch grid or equivalent. Fiberglass or plastic tank tops shall be a minimum of ¼ inch in thickness and shall have reinforcing and be of ribbed construction.

69.8(9) *Reinforcing steel placement.* The concrete cover for reinforcing bars, mats, or fabric shall not be less than 1 inch.

69.8(10) *Bedding.* Fiberglass or plastic tanks shall be bedded according to the manufacturer's specifications. Provisions should be made to prevent flotation of the tanks when they are empty.

69.8(11) *Connecting pipes.*

a. *Minimum diameter.* The pipes connecting septic tanks installed in series and at least the first 5 feet of pipe on the effluent side of the last tank shall be a minimum of 4-inch-diameter Schedule 40 plastic.

b. *Tank connections.* All inlet and outlet connections at the septic tanks shall be made by self-sealing gaskets cast into the concrete or formed into the plastic or fiberglass.

c. *Joints.* All joints in connecting Schedule 40 plastic pipe shall be approved plastic pipe connections such as solvent-welded or compression-type gaskets.

d. *Pipe in unstable ground.* Schedule 40 plastic pipe shall be used extending across excavations or unstable ground to at least 2 feet beyond the point where the original ground has not been disturbed in septic tank installations. If the excavation spanned is more than 2 feet wide, it must be filled with sand or compacted fill to provide a firm bed for the pipe. The first 12 inches of backfill over the pipe shall be applied in thin layers, using material free from stones, boulders, large frozen chunks of earth or any similar material that would damage or break the pipe.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.9(455B) Secondary treatment—subsurface soil absorption systems. Subsurface soil absorption systems are the best available treatment technology and shall always be used where possible.

69.9(1) *General requirements.*

a. *Locations.* All subsurface soil absorption systems shall be located on the property to maximize the vertical separation distance from the bottom of the absorption trench to the seasonal high groundwater level, bedrock, hardpan or other confining layer, but under no circumstances shall this vertical separation be less than 3 feet.

b. *Soil evaluation.* A percolation test or professional soil analysis is required before any soil absorption system is installed.

(1) *Percolation test.* The percolation test procedure is outlined in Appendix B.

(2) *Alternative analysis.* If a professional soil analysis is performed, soil characteristics such as soil content, color, texture, and structure shall be used to determine a loading rate.

(3) *Acceptable percolation rate.* An area is deemed suitable for conventional soil absorption if the average percolation rate is 60 minutes per inch or less and greater than 1 minute per inch. However, if an alternative soil absorption system is proposed (e.g., mound system), then the percolation test should be extended to determine whether a percolation rate of 120 minutes per inch is achieved.

(4) *Confining layer determination.* An additional test hole 6 feet in depth or to rock, whichever occurs first, shall be provided in the center of the proposed absorption area to determine the location of groundwater, rock formations or other confining layers. This 6-foot test hole may be augered the same size as the percolation test holes or may be made with a soil probe.

c. *Groundwater.* If the seasonal high groundwater level is present within 3 feet of the trench bottom final grade and cannot be successfully lowered by subsurface tile drainage, the area shall

be classified as unsuitable for the installation of a standard subsurface soil absorption system. The administrative authority shall be consulted to determine an acceptable alternative method of wastewater treatment.

d. Site limitations. In situations where specific location or site characteristics would appear to prohibit installation of a soil absorption system, design modifications which could overcome such limitations may be approved by the administrative authority. Examples of such modifications could be the installation of subsurface drainage, use of shallow or at-grade trenches, drip irrigation, or mound systems or use of pretreated effluent.

e. Prohibited drainage. Roof, foundation and storm drains shall not discharge into or upon subsurface absorption systems. Nothing shall enter the subsurface absorption system which does not first pass through the septic tank.

f. Prohibited construction. There shall be no construction of any kind, including driveways, covering the septic tank, distribution box or absorption field of a private sewage disposal system. Vehicle access should be infrequent, primarily limited to vegetation maintenance.

g. Driveway crossings. Connecting lines under driveways shall be constructed of Schedule 40 plastic pipe or equivalent and shall be protected from freezing.

h. Easements. No wastewater shall be discharged upon any property under ownership different from the ownership of the property or lot upon which the wastewater originates unless easements to that effect are legally recorded and approved by the administrative authority.

69.9(2) *Sizing requirements.*

a. Percolation and soil loading charts. Table IIIa provides a correlation between percolation rates and soil loading rates. Table IIIb provides soil loading rates based upon soil texture and structure. Table IIIa and Table IIIb shall be used to determine the appropriate soil loading rate. Table IIIc specifies linear feet of lateral trenches required based upon the soil loading rate, wastewater flow rate, and trench width. Table IIId provides a method to determine the size of an absorption bed. Absorption beds (Table IIId) shall not be used except when the lot size limitations preclude the installation of a lateral trench system. Further details concerning limitations of this alternative shall be obtained from the administrative authority before authorization for installation is requested.

b. Unsuitable absorption. Conventional subsurface soil absorption trenches shall not be installed in soils that have a percolation rate less than 1 minute per inch or greater than 60 minutes per inch. Plans for an alternative method of wastewater treatment shall be submitted to the administrative authority for approval prior to construction.

Table IIIa

Maximum Soil Application Rates Based Upon Percolation Rates

	Monthly Averages	
Percolation Rate (minutes per inch)	Septic Tank Effluent[1] BOD_5 30 mg/L - 220 mg/L TSS 30 mg/L - 150 mg/L (gals/sq ft/day)[2]	Pretreated Effluent $BOD_5 \leq 30$ mg/L TSS ≤ 30 mg/L (gals/sq ft/day)
0 to 5	1.2	1.6
Fine sands	0.5	0.9
6 to 10	0.8 – 0.6	1.2
11 to 29	0.6 – 0.5	0.9
30 to 45	0.5 – 0.4	0.7
46 to 60	0.4 – 0.2	0.5
61 to 120	0.0	0.3
Greater than 120	0.0	0.0

NOTE: "BOD" means biochemical oxygen demand. "TSS" means total suspended solids.

(1) Typical waste strengths for domestic waste. Pretreatment should be considered for waste of higher strength.

(2) Percolation rates and soil loading rates do not precisely correlate; therefore, a range is provided.

Table IIIb

Maximum Soil Loading Rates Based Upon Soil Evaluations in Gallons per Square Foot per Day (gal/ft²/day) for Septic Tank Effluent. Values in ( ) are for secondary treated effluent.

Soil Texture	Single Grain	Massive	Structure Granular, Blocky, or Prismatic			Platy	
			Weak	Moderate	Strong	Weak	Moderate to Strong
Coarse sand and gravel	1.2 (1.6)	X	1.2 (1.6)	X	X	1.2 (1.6)	X
Medium sands	0.7 (1.4)	X	0.7 (1.4)	X	X	0.7 (1.4)	X
Fine sands	0.5 (0.9)	X	0.5 (0.9)	X	X	0.5 (0.9)	X
Very fine sands*	0.3 (0.5)	X	0.3 (0.5)	X	X	0.3 (0.5)	X
Sandy loam	X	0.3 (0.5)	0.45 (0.7)	0.6 (1.1)	0.65 (1.2)	0.4 (0.6)	0.3 (0.5)
Loam	X	0.4 (0.6)	0.45 (0.7)	0.5 (0.8)	0.55 (0.8)	0.4 (0.6)	0.3 (0.5)
Silty loam	X	NS	0.4 (0.6)	0.5 (0.8)	0.5 (0.8)	0.3 (0.5)	0.2 (0.3)
Clay loam	X	NS	0.2 (0.3)	0.45 (0.7)	0.45 (0.7)	0.1 (0.2)	0.1 (0.2)
Silty clay loam	X	NS	0.2 (0.3)	0.45 (0.7)	0.45 (0.7)	NS	NS

NOTE: "X" means not found in nature. "NS" means not suitable for soil absorption.

* Flow rates are difficult to determine for some very fine sands; experience may provide better information and flow rates.

Table IIIc

Minimum Length of Absorption Trenches in Feet

	2 bedroom 300 gal.		3 bedroom 450 gal.		4 bedroom 600 gal.		5 bedroom 750 gal.		6 bedroom 900 gal.	
Width of trench in feet	2′	3′	2′	3′	2′	3′	2′	3′	2′	3′
Soil loading rate gal/ft²										
0.1	Not suitable for soil absorption trenches									
0.2	750	500	1125*	750	1500*	1000*	1875*	1250*	2250*	1500*
0.3	500	333	750	500	1000*	666	1250*	833*	1500*	1000*
0.4	375	250	562	375	750	500	938*	625	1125*	750
0.5	300	200	450	300	600	400	750	500	900*	600
0.6	250	167	375	250	500	333	625	417	750	500
0.7	214	143	321	214	428	286	536	357	643	429
0.8	188	125	281	188	375	250	469	312	562	375
0.9	167	111	250	167	333	222	417	278	500	333
1.0	150	100	225	150	300	200	375	250	450	300
1.1	136	91	205	136	273	182	341	227	409	273
1.2	125	84	188	125	250	167	313	208	375	250

* Requires pressure distribution (pump)

Table IIId
Alternative Option for Use of Absorption Bed*

Percolation Rate min./inch	Absorption Area/Bedroom sq. ft.	Loading Rate/Day gal./sq. ft.
1 – 5	300	.5
6 – 15	400	.375
16 – 30	600	.25

*Absorption beds may only be used when site space restrictions require and shall not be used when the soil percolation rate exceeds 30 min./inch.

69.9(3) *Construction details for all soil absorption trenches.*

a. Depth. Soil absorption trenches shall not exceed 36 inches in depth unless authorized by the administrative authority, but a shallower trench bottom depth of 18 to 24 inches is recommended. Not less than 6 inches of porous soil shall be provided over the laterals. The minimum separation between trench bottom and groundwater, rock formation or other confining layers shall be 36 inches even if extra rock is used under the pipe.

b. Length. No soil absorption trench shall be greater than 100 feet long.

c. Separation distance. At least 6 feet of undisturbed soil shall be left between each trench edge on level sites. The steeper the slope of the ground, the greater the separation distance should be. Two feet of separation distance should be added for each 5 percent increase in slope from level.

d. Grade. The trench bottom should be constructed level from end to end. On sloping ground, the trench shall follow a uniform land contour to maintain a minimum soil cover of 6 inches and a level trench bottom.

e. Compaction. There shall be minimum use or traffic of heavy equipment on the area proposed for soil absorption. In addition, it is prohibited to use heavy equipment on the bottom of the trenches in the absorption area.

f. Fill soil. Soil absorption systems shall not be installed in fill soil. Disturbed soils which have stabilized for at least one year shall require a recent percolation test or soil analysis.

g. Bearing strength. Soil absorption systems shall be designed to carry loadings to meet AASHTO H-10 standards.

h. Soil smearing. Soils with significant clay content should not be worked when wet. If soil moisture causes sidewall smearing, the installation should be discontinued until conditions improve.

69.9(4) *Gravel systems.*

a. Gravel. A minimum of 6 inches of clean, washed river gravel, free of clay and clay coatings, shall be laid below the distribution pipe, and enough gravel shall be used to cover the pipe. This gravel shall be of such a size that 100 percent of the gravel will pass a 2½-inch screen and 100 percent will be retained on a ¾-inch screen. Limestone or crushed rock is not recommended for soil absorption systems; however, if used, it shall meet the following criteria:

(1) *Abrasion loss.* The percent wear, as determined in accordance with the AASHTO T 96, Grading C, shall not exceed 40 percent.

(2) *Freeze and thaw loss.* When gravel is subjected to the freezing and thawing test, Iowa DOT Materials Laboratory Test Method 211, Method A, the percentage loss shall not exceed 10 percent.

(3) *Absorption.* The percent absorption, determined in accordance with Iowa DOT Materials Laboratory Test Method 202, shall not exceed 3 percent.

b. Trench width. Soil absorption trenches for gravel systems shall be a minimum of 24 inches and a maximum of 36 inches in width at the bottom of the trench.

c. Grade. The distribution pipes shall be laid with a minimum grade of 2 inches per 100 feet of run and a maximum grade of 6 inches per 100 feet of run, with a preference given to the lesser slope.

d. Pipe. Distribution pipe shall be PVC rigid plastic meeting ASTM Standard 2729 or other suitable material approved by the administrative authority. The inside diameter shall be not less than 4 inches, with perforations at least ½ inch and no more than ¾ inch in diameter, spaced no more than 40

inches apart. Two rows of perforations shall be provided located 120 degrees apart along the bottom half of the tubing (each 60 degrees up from the bottom centerline). The end of the pipe in each trench shall be sealed with a watertight cap unless, on a level site, a footer is installed connecting the trenches together. Coiled perforated plastic pipe shall not be used.

e. *Gravel cover.* Unbacked, rolled, 3½-inch-thick fiberglass insulation, untreated building paper, synthetic drainage fabric, or other approved material shall be laid so as to separate the gravel from the soil backfill.

69.9(5) *Gravelless pipe systems.*

a. *Application.* Gravelless subsurface soil absorption systems may be used as an alternative to conventional 4-inch pipe placed in gravel-filled trenches. However, these systems shall not be used in areas where conventional systems would not be allowed due to poor permeability, high groundwater, or insufficient depth to bedrock.

b. *Installation.* The manufacturer's specifications and installation procedures shall be adhered to.

c. *Material.* The 10-inch I.D. corrugated polyethylene tubing used in gravelless systems shall meet the requirements of ASTM F667, Standard Specification for Large Diameter Corrugated Polyethylene Tubing.

d. *Perforations.* Two rows of perforations shall be located 120 degrees apart along the bottom half of the tubing (each 60 degrees up from the bottom centerline). Perforations shall be cleanly cut into each inner corrugation along the length of the tubing and should be staggered so that there is only one hole in each corrugation.

e. *Top marking.* The tubing should be visibly marked to indicate the top of the pipe.

f. *Filter wrap.* All gravelless drainfield pipe shall be encased, at the point of manufacture, with a geotextile filter wrap specific to this purpose.

g. *Trench width.* The trench width for the gravelless system shall be 24 inches.

h. *Length of trench.* The total length of absorption trench for a 10-inch gravelless pipe installation shall be the same as given in Table IIIc for a 2-foot-wide conventional soil absorption trench.

69.9(6) *Chamber systems.*

a. *Application.* Chamber systems may be used as an alternative to conventional 4-inch pipe placed in gravel-filled trenches. However, chamber systems shall not be used in areas where conventional systems would not be allowed due to poor permeability, high groundwater, or insufficient depth to bedrock.

b. *Installation.* The manufacturer's specifications and installation procedures shall be adhered to.

c. *Length of trench.* The total length of soil absorption trench for chambers 15 to 22 inches wide shall be the same as given in Table IIIc for a 2-foot-wide conventional soil absorption trench. Chambers 33 inches wide or greater shall be sized as given in Table IIIc for a 3-foot-wide conventional soil absorption trench.

d. *Sidewall.* The chambers shall have at least 6 inches of sidewall effluent soil exposure height below the invert of the inlet.

69.9(7) *Expanded polystyrene (EPS) aggregate system.*

a. *Application.* EPS aggregate systems may be used as an alternative to conventional 4-inch pipe placed in gravel-filled trenches. However, EPS aggregate systems shall not be used in areas where conventional systems would not be allowed due to poor permeability, high groundwater, or insufficient depth to bedrock.

b. *Installation.* The manufacturer's specifications and installation procedures shall be adhered to.

c. *Length of trench.* The total length of soil absorption trench for 12-inch EPS aggregate bundles shall be the same as given in Table IIIc for a 2-foot-wide conventional soil absorption trench. Twelve-inch EPS aggregate bundles 33 inches wide or greater shall be sized as given in Table IIIc for a 3-foot-wide conventional soil absorption trench.

d. *Gravel cover.* Unbacked, rolled, 3½-inch-thick fiberglass insulation, untreated building paper, synthetic drainage fabric, or other approved material shall be laid so as to separate the EPS aggregate from the soil backfill.

69.9(8) *Gravity distribution.* Dosing is always recommended and preferred to improve distribution, improve treatment and extend the life of the system.

a. On a hillside, septic tank effluent may be serially loaded to the soil absorption trenches by drop boxes or overflow piping (rigid sewer pipe). Otherwise, effluent shall be distributed evenly to all trenches by use of a distribution box or commercial distribution regulator approved by the administrative authority.

b. Design. When a distribution box is used, it shall be of proper design and installed with separate watertight headers leading from the distribution box to each lateral. Header pipes shall be rigid PVC plastic pipe meeting ASTM Standard 2729 or equivalent.

c. Height of outlets. The distribution box shall have outlets at the same level at least 4 inches above the bottom of the box to provide a minimum of 4 inches of water retention in the box.

d. Baffles. There shall be a pipe tee or baffle at the inlet to break the water flow.

e. Unused outlets. All unused outlet holes in the box shall be securely closed.

f. Materials. All distribution boxes shall be constructed of corrosion-resistant rigid plastic materials.

g. Level outlets. All outlets of the distribution box shall be made level. A 4-inch cap with an offset hole approximately 2½ inches in diameter shall be installed on each outlet pipe. These caps shall be rotated until all outlets discharge at the same elevation. Equivalent leveling devices may be approved by the county board of health.

h. Equal length required. The soil absorption area serviced by each outlet of the distribution box shall be equal.

69.9(9) *Dosing systems.*

a. *Pump systems.*

(1) Pump and pit requirements. In the event the effluent from the septic tank outlet cannot be discharged by gravity and the proper lateral depths still maintained, the effluent shall discharge into a watertight pump pit with an inside diameter of not less than 24 inches, equipped with a tight-fitting manhole cover at grade level. The pump shall be of a submersible type of corrosion-resistant material.

(2) Pump setting. The pump shall be installed in the pump pit in a manner that ensures ease of service and protection from frost and settled sludge. The pump shall be set to provide a dosing frequency of approximately four times a day based on the maximum design flow. No onsite electrical connections shall be located in the pump pit. These connections shall be located in an exterior weatherproof box.

(3) Pressure line size. The pressure line from the pump to the point of discharge shall not be smaller than the outlet of the pump it serves.

(4) Drainage. Pressure lines shall be installed to provide total drainage between dosing to prevent freezing or shall be buried below frost level up to the distribution box.

(5) High water alarm. Pump pits shall be equipped with a sensor set to detect if the water level rises above the design high water level when the pump fails. This sensor shall activate an auditory or visual alarm to alert the homeowner that repairs are required.

(6) Discharge point. The effluent shall discharge under pressure into a distribution box or may be distributed by small-diameter pipes throughout the entire absorption field.

b. *Dosing siphons.* Dosing siphons may also be used. The manufacturer's specifications shall be adhered to for installation. Similar dosing volumes and frequencies are recommended. Dosing siphons require periodic cleaning to ensure their continued proper operation.

c. *Filtered pump vaults.* A filtered pump vault is a device that is installed in a septic tank and houses a pump and screens effluent until it is pumped. Filtered pump vaults may be used when dosing volume is less than 50 gallons. Filtered pump vaults require periodic inspection and cleaning to ensure their continued proper operation.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.10(455B) Mound systems.

69.10(1) *General requirements.*

a. Mound systems shall be permitted only after a thorough site evaluation has been made and landscaping, dwelling placement, effect on surface drainage, and general topography have been considered.

b. Mound systems shall not be utilized on sites subject to flooding with a ten-year or greater frequency.

c. Mound systems shall not be utilized on soils where the high groundwater level, impermeable bedrock or soil strata having a percolation rate exceeding 120 minutes per inch occur within 12 inches of natural grade or where creviced bedrock occurs within 20 inches of natural grade.

d. Mound systems shall be constructed only upon undisturbed naturally occurring soils or where a soil analysis has determined the site is suitable.

e. Mound systems shall be located in accordance with the distances specified in Table I as measured from the outer edge of the sand in the mound.

f. No buildings, driveways or other surface or subsurface obstructions shall be permitted within 50 feet on the down-gradient side of the mound when the mound is constructed on a slope greater than 5 percent. No future construction shall be permitted in this effluent disposal area as long as the mound is in use.

g. Specifications given in these rules for mounds are minimal and may not be sufficient for all applications. Technical specifications are changing with experience and research. Other design information beyond the scope of these rules may be necessary to properly design a mound system.

69.10(2) *Material for mound fill.*

a. The mound shall be constructed using clean, medium-textured sand, sometimes referred to as concrete sand. The sand size shall be such that at least 25 percent by weight shall have a diameter between 2.0 and 0.25 mm; less than 35 percent by weight, a diameter between 0.25 and 0.05 mm; and less than 5 percent by weight, a diameter between 0.05 and 0.002 mm.

b. Rock fragments larger than 1/16 inch (2.0 mm) shall not exceed 15 percent by weight of the material used for mound fill.

69.10(3) *Construction details.*

a. There shall be a minimum of 3 feet of fill material and undisturbed naturally occurring soils between the bottom of the washed gravel and the highest elevation of the limiting conditions defined in paragraph 69.10(1)*"c."*

b. Gravel shall meet the requirements specified in paragraph 69.9(4)*"a."*

c. From 1 to 2 feet of medium-textured sand (depending upon the underlying soil depth, see paragraph 69.10(3)*"a"*) must be placed between the bottom of the gravel and the top of the plowed surface of the naturally occurring soil.

d. Mound systems shall utilize an absorption bed distribution piping design. The bed shall be installed with the long dimension parallel to the land contour. Systems on steep slopes with slowly permeable soils should be narrow to reduce the possibility of toe seepage.

e. Minimum spacing between distribution pipes shall be 4 feet, and a minimum of 3 feet shall be maintained between any trench and the sidewall of the mound.

f. No soil under or up to 50 feet down gradient of the mound may be removed or disturbed except as specified herein.

g. Construction equipment which would cause undesirable compaction of the soil shall be kept off the base area. Construction or plowing shall not be initiated when the soil moisture content is high. If a sample of soil from approximately 9 inches below the surface can be easily rolled into a ⅛- to ¼-inch-diameter wire 1½ inches long or more, the soil moisture content is too high for construction purposes.

h. Aboveground vegetation shall be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material.

i. The area shall be plowed to a depth of 7 to 8 inches, parallel to the land contour, with the plow throwing the soil up slope to provide a proper interface between the fill and the natural soil. Tree stumps should be cut flush with the surface of the ground, and roots should not be pulled.

j. The base absorption area of the mound is to be calculated based on the results of the percolation rate test or soil analysis as indicated in Table IIIa or IIIb and the flow rate.

k. The area of the fill material shall be sufficient to extend 3 feet beyond the edge of the gravel area before the sides are shaped to at least a 4:1 slope (preferably 5:1).

l. Distribution system.

(1) The distribution pipe shall be rigid plastic pipe, Schedule 40 or 80, with a 1-inch nominal diameter or equivalent design that ensures proper distribution.

(2) The distribution pipe shall be provided with a single row of ¼-inch perforations in a straight line 30 inches on center along the length of the pipe or an equivalent design that ensures uniform distribution. All joints and connections shall be solvent-cemented.

(3) The distribution pipe shall be placed in the clean, washed gravel (or crushed limestone as described in paragraph 69.9(4)*"a"*), with holes downward. The gravel shall be a minimum of 9 inches in depth below the pipe and 3 inches in depth above the pipe.

(4) No perforations shall be permitted within 3 inches of the outer ends of any distribution pipe.

(5) The outer ends of all pressure distribution lines shall be turned up, with a long 90-degree elbow or two 45-degree elbows to allow for cleaning. The outer ends will have a screw-on cap and cover. The cover shall be accessible from the ground surface without excavation.

(6) The central pressure manifold should consist of 1½- or 2-inch solid plastic pipe using a tee for connecting the distribution lines or an equivalent design that ensures uniform distribution.

m. Construction should be initiated immediately after preparation of the soil interface by placing all of the sand fill material needed for the mound (to the top of the trench) to a minimum depth of 21 inches above the plowed surface. This depth will permit excavation of the trenches to accommodate the 9 inches of washed gravel or crushed stone necessary for the distribution piping.

n. The absorption trench or trenches shall be hand-excavated to a depth of 9 inches. The bottoms of the trenches shall be level.

o. Nine inches of gravel shall be placed in the trench and leveled. After the distribution pipe is placed, the pipe shall be covered with 3 inches of gravel.

p. The top of the gravel shall be covered with synthetic drainage fabric. Unbacked, rolled, 3½-inch-thick fiberglass insulation, untreated building paper, or other suitable material may be used with approval of the administrative authority. Plastic or treated building paper shall not be used.

q. After installation of the distribution system, the distribution system shall be pressure-tested before it is covered with gravel. The entire mound is to be covered with topsoil native to the site or of similar characteristics to support vegetation found in the area. The entire mound shall be crowned by providing 12 inches of topsoil on the side slopes, with a minimum of 18 inches of topsoil over the center of the mound. The entire mound shall be seeded, sodded or otherwise provided with a grass cover to ensure stability of the installation.

r. The area surrounding the mound shall be graded to provide for diversion of surface runoff water.

69.10(4) *Dosing.*

a. Pump dosing shall be required for mound systems.

b. The dosing volume shall be three to ten times the distribution piping network volume, but not more than 25 percent of the design flow shall be applied to the soil in one dose.

c. The dosing pump shall be capable of maintaining a squirt height of 3 feet above the pipe at the outer ends of the distribution lines. All lines shall have an equal squirt height above the pipe to maintain equal distribution.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.11(455B) At-grade systems.

69.11(1) *General requirements.*

a. At-grade systems shall be permitted only after a thorough site evaluation has been made and landscaping, dwelling placement, effect on surface drainage, and general topography have been considered.

b. At-grade systems shall not be utilized on sites subject to flooding with a ten-year or greater frequency.

c. At-grade systems shall not be utilized on soils where the high groundwater level, impermeable bedrock or soil strata having a percolation rate exceeding 60 minutes per inch occur within 36 inches of natural grade.

d. At-grade systems shall be constructed only upon undisturbed naturally occurring soils or where a soil analysis has determined the site is suitable.

e. At-grade systems shall be located in accordance with the distances specified in Table I as measured from the outer edge of the gravel in the system.

f. No buildings, driveways or other surface or subsurface obstructions shall be permitted within 25 feet on the down-gradient side of the at-grade system when the at-grade system is constructed on a slope greater than 5 percent. No future construction shall be permitted in this effluent disposal area as long as the at-grade system is in use.

g. Specifications given in these rules for at-grade systems are minimal and may not be sufficient for all applications. Technical specifications are changing with experience and research. Other design information beyond the scope of these rules may be necessary to properly design an at-grade system.

69.11(2) *Construction details.*

a. There shall be a minimum of 3 feet of undisturbed naturally occurring soils between the bottom of the gravel in the at-grade system and the highest elevation of the limiting conditions defined in paragraph 69.11(1)*"c."*

b. An at-grade system may be installed up to 12 inches deep.

c. Gravel shall meet the requirements specified in paragraph 69.9(4)*"a."* EPS aggregate or chambers are acceptable alternatives to gravel.

d. At-grade systems shall utilize an absorption bed distribution piping design. The bed shall be installed with the long dimension parallel to the land contour. Systems on steep slopes with slowly permeable soils should be narrow to reduce the possibility of toe seepage.

e. No soils under or within 15 feet of any at-grade system may be disturbed. On sloping sites, no soils shall be disturbed within 10 feet uphill of the system and within 15 feet downhill of the system plus an additional 5 feet for every 5 percent slope downhill.

f. Construction equipment which would cause undesirable compaction of the soil shall be kept off the base area. Construction or plowing shall not be initiated when the soil moisture content is high. If a sample of soil from approximately 9 inches below the surface can be easily rolled into a ⅛-inch diameter wire 1½ inches long, the soil moisture content is too high for construction purposes.

g. Aboveground vegetation shall be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material.

h. The area shall be plowed to a minimum depth of 7 to 9 inches, parallel to the land contour, with the plow throwing the soil up slope to provide a proper interface between the fill and the natural soil. Chisel teeth on a backhoe bucket shall be at least as long as the depth of plowing. Tree stumps should be cut flush with the surface of the ground, and roots should not be pulled. All work shall be done from the uphill side of the at-grade system.

i. The gravel bed absorption area of the at-grade system is to be calculated based on the results of the percolation rate test or soil analysis as indicated in Table IIIa or IIIb and the flow rate.

j. One foot of loamy cover material shall be installed over the rock bed. Cover shall extend at least 5 feet from the ends of the rock bed and be sloped to divert surface water. Side slopes shall not be steeper than 4:1. The upper 6 inches of the loamy soil cover must be topsoil borrow. Topsoil borrow must be of a quality that provides a good vegetative cover on the at-grade system.

k. Distribution system.

(1) The distribution pipe shall be rigid plastic pipe, Schedule 40 or 80 with a 1-inch nominal diameter or equivalent design that ensures proper distribution.

(2) The distribution pipe shall be provided with a single row of ¼-inch perforations in a straight line 30 inches on center along the length of the pipe or an equivalent design that ensures uniform distribution. All joints and connections shall be solvent-cemented.

(3) The distribution pipe shall be placed in the clean, washed gravel (or crushed limestone as described in paragraph 69.9(4)*"a"*), with holes downward. The gravel shall be a minimum of 10 inches in depth below the pipe and 2 inches in depth above the pipe.

(4) Distribution pipe shall be installed in the center of the gravel bed on slopes less than 1 percent and on the upslope edge at the gravel bed absorption width on slopes 1 percent or greater.

(5) No perforations shall be permitted within 3 inches of the outer ends of any distribution pipe.

(6) The outer ends of all pressure distribution lines shall be turned up, with a long 90-degree elbow or two 45-degree elbows to allow for cleaning. The outer ends will have a screw-on cap and cover. The cover shall be accessible from the ground surface without excavation.

(7) The central pressure manifold should consist of 1½- or 2-inch solid plastic pipe using a tee for connecting the distribution lines or an equivalent design that ensures uniform distribution.

(8) The top of the gravel shall be covered with synthetic drainage fabric. Unbacked, rolled, 3½-inch-thick fiberglass insulation, untreated building paper, or other suitable material may be used with approval of the administrative authority. Plastic or treated building paper shall not be used.

(9) After installation of the distribution system, the distribution system shall be pressure-tested before it is covered with gravel. The entire at-grade system is to be covered with topsoil native to the site or of similar characteristics to support vegetation found in the area. The entire at-grade system shall be crowned by providing 12 inches of topsoil on the side slopes, with a minimum of 18 inches of topsoil over the center of the at-grade system. The entire at-grade system shall be seeded, sodded or otherwise provided with a grass cover to ensure stability of the installation.

(10) The area surrounding the at-grade system shall be graded to provide for diversion of surface runoff water.

69.11(3) *Dosing.*

a. Pump dosing shall be required for at-grade systems.

b. The dosing volume shall be three to ten times the distribution piping network volume, but not more than 25 percent of the design flow shall be applied to the soil in one dose.

c. The dosing pump shall be capable of maintaining a squirt height of 3 feet above the pipe at the outer ends of the distribution lines. All lines shall have an equal squirt height above the pipe to maintain equal distribution.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.12(455B) Drip irrigation.

69.12(1) *General design.*

a. *Pretreatment required.* Drip irrigation systems must be preceded by a secondary treatment system discharging a treated, filtered effluent with BOD and TSS values less than 30 mg/L.

b. *Separation from groundwater.* Drip irrigation systems shall have a minimum vertical separation distance to high groundwater level or bedrock of 20 inches.

c. *Maximum hillside slope.* Drip irrigation systems shall not be installed on slopes of more than 25 percent.

d. *Additional specifications.* Specifications given in these rules for drip irrigation are minimal and may not be sufficient for all applications. Technical specifications are changing with experience and research. Other design information beyond the scope of these rules may be necessary to properly design a drip irrigation system.

69.12(2) *Emitter layout.*

a. *Discharge rate.* Systems shall be designed so that emitters discharge approximately 1 gpm at 12 psi or other rates suggested by the manufacturer and approved by the administrative authority.

b. *Grid size.* Drip lines shall be run in parallel lines 2 feet apart. Emitters shall be placed in the drip lines at 2-foot intervals, with emitters offset 1 foot between adjacent lines. Each emitter shall cover 4 square feet of absorption area.

c. *Field size.* The field shall be sized according to the application rate given in Table IV.

d. *Depth of drip lines.* Drip lines shall be laid on the contour, 6 to 12 inches deep, with a maximum line length of 100 feet. Lines may be of unequal length.

e. *Interconnection.*

(1) All drip lines shall be connected to supply and return headers such that the entire system will automatically drain back to the dosing tank or pump pit upon completion of the pumping cycle. Vacuum breakers shall be positioned at the high point of the supply and return headers.

(2) The dosing tank shall have a high water audio/visual alarm.

Table IV

Length of Drip Line Required per Bedroom

Percolation Rate min./in.	Design Hyd. Loading gpd/sq. ft.	Length of Drip Line feet/bedroom
1 – 5	2.0	40
6 – 15	1.3	60
16 – 30	0.9	90
31 – 45	0.6	150
46 – 60	0.4	200
61 – 90	0.2	400
91 – 120	0.1	800

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.13(455B) Packed bed media filters.

69.13(1) *Intermittent sand filters.* The general requirements for intermittent sand filters are as follows:

a. *Use.* Intermittent sand filters may be used when the administrative authority determines the site is unacceptable for a soil absorption system.

b. *Location.* Intermittent sand filters shall be located in accordance with the distances specified in Table I.

c. *Sampling port.* The discharge point of the filter shall be accessible for effluent sampling, or a sampling port shall be installed in the discharge line.

d. *Effluent sampling.* All intermittent sand filters having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

e. *Prohibited construction.* There shall be no construction, such as buildings or concrete driveways, covering any part of an intermittent sand filter.

69.13(2) *Construction.*

a. *Number.* Rescinded IAB 7/11/12, effective 8/15/12.

b. *Pipelines.* Each bed shall contain a horizontal set of collector lines. The collector lines shall be equivalent to SDR 35 PVC pipe, 10-inch-diameter gravelless drainpipe, EPS aggregate or other suitable materials.

(1) One collector line shall be provided for each 6 feet of width or fraction thereof. A minimum of two collector lines shall be provided.

(2) The collector lines shall be laid to a grade of 1 inch in 10 feet (or 0.5 to 1.0 percent).

(3) Each collector line shall be vented or connected to a common vent. Vents shall extend at least 12 inches above the ground surface with the outlet screened or provided with a perforated cap.

(4) Gravelless drainfield pipe with fiber wrap may be used for the collector lines. If fiber wrap is used, no gravel or pea gravel is required to cover the collector lines and the pipe shall be bedded in filter sand.

(5) If 4-inch plastic pipe with perforations is used for the collector lines, the lines shall be covered as follows:

1. Gravel ¾ inch to 2½ inches in size shall be placed around and over the lower collector lines until there is a minimum of 4 inches of gravel over the pipes.

2. The gravel shall be overlaid with a minimum of 3 inches of washed pea gravel ⅛-inch to ⅜-inch size interfacing with the filter media. A layer of fabric filter may be used in place of the pea gravel. Fabric filters must be 30 by 50 mesh with a percolation rate of at least 5 gal/sq. ft.

(6) A minimum of 24 inches of coarse washed sand shall be placed over the pea gravel or above the gravelless drainfield pipe. The sand shall meet the Iowa DOT standards for concrete sand: 100 percent of the sand shall pass a 9.5 mm screen, 90 to 100 percent shall pass a 4.75 mm screen, 70 to 100 percent shall pass a 2.36 mm screen, 10 to 60 percent shall pass a 600 Tm screen, and 0 to 1.5 percent shall pass a 75 Tm screen.

(7) The discharge pipe that extends from the collection system shall be SDR 35 PVC pipe at a minimum.

69.13(3) *Subsurface sand filters.*

a. Distribution system and cover.

(1) Gravel base. Six inches of gravel ¾ inch to 2½ inches in size shall be placed upon the sand in the bed.

(2) Distribution lines. Distribution lines shall be level and shall be horizontally spaced a maximum of 3 feet apart, center to center. Distribution lines shall be rigid perforated PVC pipe.

(3) Venting. Venting shall be placed on the downstream end of the distribution lines, with each distribution line being vented or connected to a common vent. Vents shall extend at least 12 inches above the ground surface with the outlet screened or provided with a perforated cap.

(4) Gravel cover. Enough gravel shall be carefully placed to cover the distributors.

(5) Separation layer. A layer of material such as unbacked, rolled, 3½-inch-thick fiberglass insulation, untreated building paper of 40- to 60-pound weight or synthetic drainage fabric shall be placed upon the top of the upper layer of gravel.

(6) Soil cover. A minimum of 12 inches of soil backfill shall be provided over the beds.

(7) Distribution boxes. A distribution box shall be provided for each filter bed where gravity distribution is used. The distribution boxes shall be placed upon undisturbed earth outside the filter bed. Separate watertight lines shall be provided leading from the distribution boxes to each of the distributor lines in the beds.

(8) As an alternative to gravel and rigid PVC pipe, EPS aggregate may be used for the distribution system. The EPS aggregate shall cover the entire surface of the sand filter, and a 3-foot separation between distribution pipes shall be maintained.

(9) Pressure distribution. Pressure dosing is recommended to improve effluent distribution across the surface of the filter. Pressure distribution systems may use conventional rock and PVC pipe, chambers with small-diameter pipe, or EPS aggregate with small-diameter pipe.

b. Sizing of subsurface sand filters.

(1) Gravity flow. For residential systems, subsurface sand filters shall be sized at a rate of 240 square feet of surface area per bedroom.

(2) Siphon-dosed. For residential systems, subsurface sand filters dosed by a dosing siphon shall be sized at a rate of 180 square feet of surface area per bedroom.

(3) Pressure-dosed. For residential systems, subsurface sand filters dosed by a pump shall be sized at a rate of 150 square feet of surface area per bedroom.

(4) Nonhousehold. Effluent application rates for commercial systems treating domestic waste shall not exceed the following:

1. 1.0 gallon/square feet/day for intermittent sand filters.

2. The total surface area for any subsurface sand filter system shall not be less than 200 square feet.

69.13(4) *Free access sand filters.*

a. Pretreatment required. These systems must be preceded by a secondary treatment system discharging a treated effluent with BOD and TSS values less than 30 mg/L.

b. Description. Media characteristics and underdrain systems for free access filters are similar to those for subsurface filters. Dosing of the filter should provide uniform distribution across the entire surface of the bed. Dosing frequency is usually greater than four times per day. For coarser media (greater than 0.5 mm), a dosing frequency greater than six times per day is desirable. Higher acceptable loadings on these filters as compared to subsurface filters relate primarily to the accessibility of the filter surface for maintenance. Gravel is not used on top of the sand media, and the distribution pipes are exposed above the surface.

c. Distribution. Distribution to the filter may be by perforated pipe laid on the surface, by pipelines discharging to splash plates located at the center or corners of the filter, or by spray distributors. Care must be taken to ensure that lines discharging directly to the filter surface do not erode the sand surface. The use of curbs around the splash plates or large stones placed around the periphery of the plates will reduce the scour. A layer of washed pea gravel placed over the filter media may also be employed to avoid surface erosion. This practice will create maintenance difficulties, however, when it is time to rake or remove a portion of the media surface.

d. Covers. Free access filters shall be covered to protect against severe weather conditions and to avoid encroachment of weeds or animals. The cover also serves to reduce odors. Covers may be constructed of treated wooden planks, galvanized metal, or other suitable material. Screens or hardware cloth mounted on wooden frames may also serve to protect filter surfaces. Where weather conditions dictate, covers should be insulated. A space of 12 to 24 inches should be allowed between the insulated cover and sand surface. Free access filters may not be buried by soil or sod.

e. Loading. The hydraulic loading for free access sand filters shall be 5.0 gpd/sq. ft.

69.13(5) *Dosing.* Dosing for sand filters is strongly advised. Without dosing, the entire area of the sand filter is never effectively used. Dosing not only improves treatment effectiveness but also decreases the chance of premature failure.

a. Pumps. A pump shall be installed when adequate elevation is not available for the system to operate by gravity.

(1) The pump shall be of corrosion-resistant material.

(2) The pump shall be installed in a watertight pit.

(3) The dosing system shall be designed to flood the entire filter during the dosing cycle. A dosing frequency of greater than two times per day is recommended.

(4) A high water alarm shall be installed.

b. Dosing siphons. When a dosing siphon is used where elevations permit, such siphon shall be installed as follows:

(1) Dosing siphons shall be installed between the septic tank and the sand filter bed.

(2) Dosing siphons shall be installed with strict adherence to the manufacturer's instructions.

c. Dosing tanks. The dosing tank shall be of such size that the siphon will distribute effluent over the entire filter during the dosing cycle. Smaller, more frequent doses are recommended.

d. Effluent sampling. A sampling port shall be available at the discharge point of the filter or shall be installed in the discharge line. All free access sand filters having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

69.13(6) *Peat moss biofilter systems.* General requirements for individual peat moss biofilter systems are as follows:

a. Use. Peat moss biofilter systems may be used when the administrative authority determines the site is unacceptable for a soil absorption system or an intermittent sand filter.

b. Certification. All peat moss biofilter systems shall be certified by an ANSI-accredited third-party certifier to meet National Sanitation Foundation Standard 40, Class I, including appendices (March 2008), or equivalent testing as determined by the department.

c. Installation and operation. All peat moss biofilter systems shall be preceded by a septic tank and installed, operated and maintained in accordance with the manufacturer's instructions and the requirements of the administrative authority. The septic tank shall be sized as specified in paragraph 69.8(2)*"a"* or larger if recommended by the manufacturer. Sizing of the system should be based on the manufacturer's specifications.

d. Maintenance contract. Prior to installation, a maintenance contract for the proper monitoring and servicing of the entire treatment system shall be established between the owner and a certified technician. A maintenance contract is required for the life of the system. All monitoring and servicing shall be performed by a manufacturer's certified technician. Manufacturers are responsible for ensuring that an adequate number of certified technicians are available to service all peat moss biofilters at the specified intervals. The certified technician shall perform the required maintenance and reporting to the owner and to the administrative authority. The certified technician shall also report any discontinuance of maintenance of the peat moss biofilter system to the administrative authority. Peat moss biofilter systems shall be inspected at least once annually by the certified technician. A copy of the maintenance contract shall be on file in the office of the administrative authority.

e. Effluent sampling. The discharge point of the filter shall be accessible for effluent sampling, or a sampling port shall be installed in the discharge line. All peat moss biofilter systems that have an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

69.13(7) *Recirculating textile filter systems.* General requirements for recirculating textile filter systems are as follows:

a. Use. Recirculating textile filter systems may be used when the administrative authority determines the site is unacceptable for a soil absorption system or an intermittent sand filter.

b. Certification. All recirculating textile filter systems shall be certified by an ANSI-accredited third-party certifier to meet National Sanitation Foundation Standard 40, Class I, including appendices (March 2008), or equivalent testing as determined by the department.

c. Design. Recirculating textile filter systems shall be designed to prevent the passage of untreated waste during an equipment malfunction or power outage.

d. Installation and operation. Recirculating textile filter systems shall be preceded by a septic tank and installed, operated and maintained in accordance with the manufacturer's instructions and the requirements of the administrative authority. The septic tank shall be sized as specified in paragraph 69.8(2)*"a"* or larger if recommended by the manufacturer. Sizing of the system should be based on the manufacturer's specifications.

e. Maintenance contract. Prior to installation, a maintenance contract for the proper monitoring and servicing of the entire treatment system shall be established between the owner and a certified technician. A maintenance contract is required for the life of the system. All monitoring and servicing shall be performed by a manufacturer's certified technician. Manufacturers are responsible for ensuring that an adequate number of certified technicians are available to service all recirculating textile filters at the specified intervals. The certified technician shall perform the required maintenance and reporting to the owner and to the administrative authority. The certified technician shall also report any discontinuance of maintenance of the system to the administrative authority. Recirculating textile filter systems shall be inspected at least once annually by the certified technician. A copy of the maintenance contract shall be on file in the office of the administrative authority.

f. Effluent sampling. The discharge point of the filter shall be accessible for effluent sampling, or a sampling port shall be installed in the discharge line. All recirculating textile filter systems that have an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.14(455B) Aerobic treatment units. General requirements for aerobic treatment units are as follows:

69.14(1) *Use.* Aerobic treatment units may be used only when the administrative authority determines that the site is unacceptable for a soil absorption system or an intermittent sand filter. Because of the higher maintenance requirements of aerobic treatment units, preference should be given to packed bed media filters, where conditions allow.

69.14(2) *Certification.* All aerobic treatment units shall be certified by an ANSI-accredited third-party certifier to meet National Sanitation Foundation Standard 40, Class I, including appendices (March 2008), or equivalent testing as determined by the department.

69.14(3) *Installation and operation.* All aerobic treatment units shall be installed, operated and maintained in accordance with the manufacturer's instructions and the requirements of the administrative authority. The aerobic treatment units shall have a minimum treatment capacity of 150 gallons per bedroom per day or 500 gallons, whichever is greater.

69.14(4) *Pre-tank required.* All aerobic treatment units shall be preceded by a septic or trash tank with a minimum capacity of 500 gallons. The trash tank may be a single-compartment tank. A trash tank built in as part of the aerobic treatment unit's design satisfies this requirement.

69.14(5) *Effluent treatment.* The effluent from aerobic treatment units shall receive additional treatment through the use of intermittent sand filters or soil absorption systems of a magnitude prescribed in subrule 69.9(2) for pretreated effluent.

69.14(6) *Maintenance contract.* Prior to installation, a maintenance contract for the proper monitoring and servicing of the entire treatment system shall be established between the owner and a certified technician. A maintenance contract is required for the life of the system. All monitoring and servicing shall be performed by a manufacturer's certified technician. Manufacturers are responsible for ensuring that an adequate number of certified technicians are available to service all aerobic treatment units at the specified intervals. Aerobic treatment units shall be inspected for proper operation at least twice a year at six-month intervals by the certified technician.

69.14(7) *Effluent sampling.* The discharge point of the aerobic treatment unit system shall be accessible for effluent sampling, or a sampling port shall be installed in the discharge line. All aerobic treatment unit systems that have an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09; **ARC 0208C**, IAB 7/11/12, effective 8/15/12]

567—69.15(455B) Constructed wetlands.

69.15(1) *General site design.*

a. *Application.* Constructed wetlands shall only be used where soil percolation rates at the site exceed 120 minutes per inch. Because of the higher maintenance requirements of constructed wetland systems, preference should be given to packed bed media filters, where conditions allow.

b. *Effluent treatment.* The effluent from a constructed wetland shall receive additional treatment through the use of intermittent sand filters of a magnitude prescribed in subrule 69.9(2) for pretreated effluent.

c. *Effluent sampling.* All constructed wetland systems having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

d. *Additional specifications.* Specifications given in this rule for constructed wetlands are minimal and may not be sufficient for all applications. Technical specifications are changing with experience and research. Other design information beyond the scope of this rule may be necessary to properly design a constructed wetland system.

69.15(2) *Wetland design.*

a. *Depth.* The wetland shall be of a subsurface flow construction with a rock depth of 18 inches and a liquid depth of 12 inches.

b. *Materials.* Substrate shall be washed river gravel with a diameter of ¾ inch to 2½ inches. If crushed quarried stone is used, it must meet the criteria listed in paragraph 69.9(4)*"a."*

c. *Sizing and configuration.* Detention time shall be a minimum of seven days.

(1) Dimensions. Detention time may be accomplished with trenches 16 to 18 inches deep (12 inches of liquid), 3 feet wide, with 100 feet of length per bedroom. Detention time may also be done with beds 16 to 18 inches deep, with at least 300 square feet of surface area per bedroom. The bottom of each trench or bed must be level within ±½ inch.

(2) Configuration. Multiple trenches or beds in series should be used. Beds or trenches in series may be stepped down in elevation to fit a hillside application. If the system is on one elevation, it should still be divided into units by earthen berms at about 50 and 75 percent of the total length.

(3) Unit connections. Each subunit shall be connected to the next subunit with an overflow pipe (rigid sewer pipe) that maintains the water level in the first section. Protection from freezing may be necessary.

d. *Liner.* Wetlands shall be lined with a synthetic PVC or PE plastic liner 20 to 30 mils thick.

e. *Inlet pipe.* Effluent shall enter the wetland by a 4-inch pipe sealed into the liner. With beds, a header pipe shall be installed along the inlet side to distribute the waste.

f. *Protective berms.* Wetland system sites shall be bermed to prevent surface water from entering the trenches or beds.

69.15(3) *Vegetation.*

a. *Setting plants.* Vegetation shall be established on the wetlands at the time of construction. Twelve inches of rock shall be placed in each unit, the plants set, and then the final 4 to 6 inches of rock placed.

b. *Plant species.* Only indigenous plant species, preferably collected within a 100-mile radius of the site, shall be set. Multiple species in each system are recommended. Preferred species include, but are not limited to:

(1) Typha latifolia – common cattail.

(2) Typha angustifolia – narrow leaf cattail.

(3) Scirpus spp. – bullrush.

(4) Phragmites communis – reed.

c. *Plant establishment.* Transplantation is the recommended method of vegetation establishment. For transplanting, the propagule should be transplanted, at a minimum, on a 2-foot grid. The transplants should be fertilized, preferably with a controlled-release fertilizer such as Osmocote 18-5-11 for fall and winter planting, 18-6-12 for spring planting, and 19-6-12 for summer planting. Trenches or beds should be filled with fresh water immediately.

d. *Plant management.* In the late fall, the vegetation shall be mowed and the detritus left on the wetland surface as a temperature mulch. In the early spring, the mulch shall be removed and disposed of to allow for adequate bed aeration.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.16(455B) Waste stabilization ponds.

69.16(1) *General requirements.* Waste stabilization ponds shall only be used for nonresidential applications and shall be designed by an Iowa-licensed engineer. Waste stabilization ponds may be used if designed and constructed in accordance with the following criteria and provided the effluent is discharged in accordance with the requirements of the NPDES general permit listed in rule 567—69.4(455B). A septic tank sized according to rule 567—69.8(455B) shall precede a waste stabilization pond.

69.16(2) *Location.* Waste stabilization ponds must meet the following separation distances:

a. 1,000 feet from the nearest inhabitable residence, commercial building, or other inhabitable structure. If the inhabitable or commercial building is the property of the owner of the proposed treatment facility or there is written agreement with the owner of the building, this separation criterion shall not apply. Any such written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.

b. 1,000 feet from public shallow wells.

c. 400 feet from public deep wells.

d. 400 feet from private wells.

e. 400 feet from lakes and public impoundments.

f. 25 feet from property lines and rights-of-way.

69.16(3) *Size.*

a. *Dimensions.* Ponds shall have a length not exceeding three times the width.

b. *Capacity.* When domestic sewage from a septic tank is to be discharged to a waste stabilization pond, the capacity of the pond shall be equivalent to 180 times the average daily design flow.

c. *Depth.* The wastewater depth for a waste stabilization pond shall be 3 feet to 5 feet and shall be uniform.

d. *Freeboard.* A minimum freeboard of 2 feet shall be maintained at all times.

69.16(4) *Embankments.*

a. *Seal.* Embankments shall be constructed of impermeable materials and shall be compacted. The bottom of the waste stabilization pond shall be cleared and leveled to the required elevation and shall be lined with an impermeable natural or man-made material. Seepage loss through the sides and bottom shall be less than 1/16 inch per day.

b. *Slopes.* The ratio of inside embankment slopes shall be 3 horizontal to 1 vertical. The outside embankment slope ratio shall be at least 3:1.

c. *Berm top.* Berm tops shall be at least 4 feet wide.

d. *Cover.* Embankments shall be seeded from the outside toe to the inside high water line. From the high water line down the embankment diagonally, about 5 feet shall be riprapped for erosion and vegetation control.

69.16(5) *Inlet and outlet structures.*

a. *Inlet.* The inlet shall be placed no higher than 12 inches above the bottom of the pond. It shall discharge near the middle of the pond at a point opposite the overflow structure and onto a concrete splash plate at least 2 feet square.

b. *Outlet.* The outlet pipe shall withdraw water from a submerged depth of at least 1 foot. The intake for the outlet pipe shall be 3 to 5 feet from the embankment.

c. *Separation.* The inlet and outlet should be separated to the maximum extent possible, ideally by a berm or baffle constructed in the lagoon to prevent short-circuiting.

69.16(6) *Drainage.* All surface water shall be diverted away from the waste stabilization pond.

69.16(7) *Effluent sampling.* All waste stabilization ponds having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

69.16(8) *Maintenance.*

a. *Fencing.* All waste stabilization ponds are to be fenced adequately to prevent entrance of livestock and to discourage entrance by people into the area. Signs shall be posted warning of possible health and safety hazards.

b. *Vegetation.* Vegetation on the top and sides of the berm shall be mowed and the length maintained. No trees shall be allowed to become established.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.17(455B) Requirements for impervious vault toilets. All impervious vault toilets shall comply with the following requirements:

69.17(1) *Location.* Impervious vault toilets shall be located in accordance with the distances given in Table I in rule 567—69.3(455B) for the closed portion of the treatment system.

69.17(2) *Construction.* The vault shall be constructed of reinforced, impervious concrete at least 4 inches thick. The superstructure including floor slab, seat, seat cover, riser and building shall comply with good design and construction practices to provide permanent, safe, sanitary facilities. The vault shall be provided with a cleanout opening fitted with a fly-tight cover.

69.17(3) *Wastewater disposal.* Wastewater from impervious vault toilets shall be disposed of at a public sewage treatment facility.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.18(455B) Requirements for portable toilets. All portable toilets shall be designed to receive and retain the wastes deposited in them and shall be located and maintained in a manner that will prevent the creation of any nuisance condition. Wastewater from portable toilets shall be disposed of at a public sewage treatment facility.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.19(455B) Other methods of wastewater disposal. Other methods or types of private wastewater treatment and disposal systems shall be installed only after plans and specifications for each project have been approved by the administrative authority.
[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.20(455B) Disposal of septage from private sewage disposal systems.

69.20(1) The collection, storage, transportation and disposal of all septage shall be carried out in accordance with the requirements in 567—Chapter 68.

69.20(2) Commercial septic tank cleaners. Individual administrative authorities shall enforce the licensing program for commercial septic tank cleaners in accordance with the requirements of 567—Chapter 68.
[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.21(455B) Experimental private sewage disposal systems.

69.21(1) *Design requirements.* Experimental systems are to be designed and operated in accordance with approved standards and operating procedures established by individual administrative authorities.

a. Plans and specifications, meeting all applicable rule requirements, should be prepared and submitted to the administrative authorities by a licensed professional engineer. Included with the engineering submittal should be adequate supporting data relating to the effectiveness of the proposed system.

b. For systems designed to discharge treated effluent into waters of the state, a Notice of Intent to be covered under the requirements of NPDES General Permit No. 4 shall be obtained. The administrative authority is responsible for determining that the requirements of the permit, including the monitoring program, are met.

c. Administrative authorities should prepare for signature an enforceable agreement to be placed on record which would require that present and future system owners meet all applicable rule requirements. In the event of noncompliance, the administrative authority shall require that adequate steps be taken by the system owner to bring the system into compliance or that the system owner replace the system with a system prescribed in these rules.

69.21(2) Reserved.
[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

567—69.22(455B) Variances. Variances to these rules may be granted by the department of natural resources or the administrative authority provided sufficient information is submitted to substantiate the need for and propriety of such action. Applications for variances and justification shall be in writing and copies filed with the department.
[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

These rules are intended to implement Iowa Code chapter 455B, division III, part 1.

Appendix A
Estimates of Nonhousehold Domestic Sewage Flow Rates

Source of use for sewage unit	(units)	Gallons per day per unit
Dwelling Units		
Hotels or luxury motels	(Each guest)	60
	(Add per employee)	13
or	(Per square foot)	0.3
Discount motels	(Each guest)	40
	(Add per employee)	13
or	(Per square foot)	0.46
Rooming house	(Each resident)	50
	(Add per nonresident meal)	4.0
Commercial/Industrial		
Retail stores	(Per square foot of sales area)	0.15
or	(Each customer)	5
	(Plus each employee)	15
or	(Each toilet room)	630
Offices	(Each employee)	18
or	(Per square foot)	0.25
Medical offices	(Per square foot)	1.6
Industrial buildings	(Each employee)	20
	(Does not include process ware or cafeteria)	
Construction camp	(Each employee)	20
Visitor center	(Each visitor)	20
Laundromat	(Each machine)	690
or	(Each load)	50
or	(Per square foot)	2.9
Barber shops	(Per chair)	80
Beauty shops	(Per station)	300
Car washes	(Per inside square foot)	10
	(Does not include car wash water)	
Eating and Drinking Establishments		
Restaurant	(Per meal)	4.0
	(Does not include bar or lounge)	
or	(Each seat)	40
	(Plus add for each employee)	13
Dining hall	(Per meal)	4.0
Coffee shop	(Each customer)	2.5
	(Add per employee)	13
Cafeteria	(Each customer)	2.5
	(Add per employee)	13
Drive-in	(Per car stall)	145
Bar or lounge	(Each customer)	5.5
	(Add per employee)	16

Source of use for sewage unit	(units)	Gallons per day per unit
or	(Per seat)	40
Country clubs	(Per member) (No meals)	22
or	(Per member) (Meals and showers)	130
or	(Per member in residence)	100
Resorts		
Housekeeping cabin	(Per person)	50
Lodge	(Per person)	74
Parks/swimming pools	(Per guest)	13
Picnic parks with toilet only	(Per guest)	10
Movie theaters	(Per guest)	4.0
Drive-in theaters	(Per space)	5
Skating rink/dance hall	(Per customer)	10
Bowling lanes	(Per lane)	200
Transportation		
Airport, bus or rail depot	(Per passenger)	4
or	(Per square foot)	6.5
or	(Per public restroom)	630
Auto service station	(Each vehicle served)	13
	(Add per employee)	16
or	(Per inside square foot)	0.6
or	(Per public restroom)	630
Institutional		
Hospitals	(Each medical bed)	250
	(Add per employee)	16
Mental institution	(Each bed)	175
	(Add per employee)	16
Prison or jail	(Each inmate)	160
	(Add per employee)	16
Nursing home	(Each resident)	145
	(Add per employee)	16
Schools and Churches		
School	(Per student) (No gym, cafeteria or showers)	17
	(Per student) (Cafeteria only)	17
	(Per student) (Cafeteria, gym & showers)	30
Boarding school	(Per student)	115
Churches	(Per member)	2
	(Per member with kitchen)	5

Source of use for sewage unit	(units)	Gallons per day per unit
Recreational		
Campground/with hookups	(Per person)	40
or	(Per site with central bath)	100
	(Per site)	75
	(Add for dump station w/ hookup)	16
Day camp (no meals)	(Per person)	16
Weekly overnight camp	(Per member)	33

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

Appendix B
Percolation Test Procedure

1. At least three test holes distributed evenly over the proposed lateral field are required.

2. Percolation test holes shall be 4 to 12 inches in diameter and to the same depth as the proposed absorption trenches (not to exceed 36 inches in depth).

3. Sides and bottoms of the test holes shall be scratched or roughened to provide a natural surface. All loose material shall be removed from each hole.

4. The bottoms of the test holes shall be covered with approximately 2 inches of rock to protect the bottom from scouring action when the water is added.

5. The hole shall be filled with at least 12 inches of clean water, and this depth shall be maintained for at least 4 hours and preferably overnight if clay soils are present. It is important that the soil be allowed to soak for a sufficiently long period of time to allow the soil to swell if accurate results are to be obtained. Failure to perform the presoak when required will invalidate the percolation test results.

6. In sandy soils with little or no clay, soaking is not necessary. If, after the hole has been filled twice with 12 inches of water, the water seeps completely away in less than 10 minutes, the test can proceed immediately.

7. Except for sandy soils, percolation rate measurements should be made at least 4 hours but no more than 24 hours after the soaking period began. Any soil that sloughed into the hole during the soaking period is removed, and the water level is adjusted to 6 inches above the gravel (or 8 inches above the bottom of the hole). At no time during the test is the water level allowed to rise more than 6 inches above the gravel.

8. Immediately after adjustment, the water level is measured from a fixed reference point to the nearest ⅛ inch at 30-minute intervals. The test is continued until two successive water level drops do not vary by more than ⅛ inch. At least three measurements are made.

9. After each measurement, the water level is readjusted to the 6-inch level. The last water level drop is used to calculate the percolation rate.

10. In sandy soils or soils in which the first 6 inches of water added after the soaking period seep away in less than 30 minutes, water level measurements are made at 10-minute intervals for a 1-hour period. The last water level drop is used to calculate the percolation rate.

11. The percolation rate is calculated for each test hole by dividing the time interval used between measurements by the magnitude of the last water level drop. This calculation results in a percolation rate in terms of minutes per inch. To determine the percolation rate for the area, the rates obtained from each hole are averaged. (If tests in the area vary by more than 20 minutes per inch, variations in soil type are indicated. Under these circumstances, percolation rates should not be averaged.) EXAMPLE: If the last measured drop in water level after 30 minutes is ⅝ inch, the percolation rate = (30 minutes)/(⅝ inch) = 48 minutes/inch.

[**ARC 7569B**, IAB 2/11/09, effective 3/18/09]

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TITLE V
FLOOD PLAIN DEVELOPMENT

CHAPTER 70
SCOPE OF TITLE—DEFINITIONS—FORMS—RULES OF PRACTICE

[Prior to 7/1/83, see INRC, Chs 2 and 5]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—70.1(455B,481A) Scope of title. The department has jurisdiction over all flood plains and floodways in the state for the purpose of establishing and implementing a program to promote the protection of life and property from floods and to promote the orderly development and wise use of the flood plains of the state. As part of the program, the department regulates flood plain development by three alternative methods: establishment of regulations for specific stream reaches by issuance of flood plain management orders (see Chapter 75); approval of flood plain management regulations adopted by local governments (see Chapter 75); and approval of flood plain development on a case-by-case basis where areas or projects are not covered by the first two methods (see Chapter 71). Any person who desires to construct or maintain a structure, dam, obstruction, deposit or excavation, or allow the same in any flood plain or floodway has a responsibility to contact the department to determine whether approval is required from the department or a local government authorized to act for the department.

Minimum statewide criteria for most types of flood plain development are listed in Chapter 72. Special requirements for dams are listed in Chapter 73.

567—70.2(455B,481A) Definitions. Definitions used in this title are listed in alphabetical order as follows:

"Agricultural levees or dikes" means levees or dikes constructed to provide limited flood protection to land used primarily for agricultural purposes.

"Animal feeding operation" means the same as defined in 567—65.1(459,459B).

"Animal feeding operation structure" means the same as defined in 567—65.1(459,459B).

"Backwater" means the increase in water surface level immediately upstream from any structure, dam, obstruction or deposit, erected, used, or maintained in the floodway or on the flood plains caused by the resulting reduction in conveyance area.

"Building" means all residential housing including mobile homes as defined herein, cabins, factories, warehouses, storage sheds, and other walled, roofed structures constructed for occupation by people or animals or for storage of materials.

"Channel" means a natural or artificial flow path of a stream with definite bed and banks to collect and conduct the normal flow of water.

"Channel change" means either (a) the alteration of the location of a channel of a stream or (b) a substantial modification of the size, slope, or flow characteristics of a channel of a stream for a purpose related to the use of the stream's flood plain surface rather than for the purpose of actually using the water itself, or putting the water to a new use. (NOTE: Diversions of water subject to the permit requirements of Iowa Code sections 455B.268 and 455B.269 usually are not channel changes.) Increasing the cross-sectional area of a channel by less than 10 percent is not considered a substantial modification of the size, slope, or flow characteristics of a channel of a stream.

"Confinement feeding operation" means the same as defined in 567—65.1(459,459B).

"Confinement feeding operation building" or *"confinement building"* means the same as defined in 567—65.1(459,459B).

"Confinement feeding operation structure" means the same as defined in 567—65.1(459,459B).

"Dam" means a barrier which impounds or stores water.

"Development" means a structure, dam, obstruction, deposit, excavation or flood control work in a floodway or flood plain.

"Drainage district ditch" means a channel located within the boundaries of a drainage district and excavated to establish a design channel-bottom profile for efficient conveyance of water discharged from agricultural tile systems and open drains.

"Elevating" means raising buildings by fill or other means to or above a minimum level of flood protection.

"Encroachment limits" means the boundaries of the floodway established in the flood plains and designating the width of the channel and minimum width of the overbank areas needed for the conveyance of Q100.

"Equal and opposite conveyance" means the location of development offsets from stream banks so that flood plain lands on each side of a stream convey a share of the flood flows proportionate to the total conveyance available on each respective side of the stream.

"Experienced Iowa flood chart" means a plot on logarithmic graph paper of points representing floods which have been observed and measured in Iowa and subsequently published by the U.S. geological survey or other agency. Each point on the plot is located with the drainage area in square miles as the abscissa and discharge in cubic feet per second as the ordinate.

"Flood control works" means physical works such as dams, levees, floodwalls, and channel improvements or relocations undertaken to provide moderate to high degree of flood protection to existing or proposed structures or land uses.

"Flood hazard area" means the area including the flood plains and the river or stream channel.

"Flood plain" means the land adjacent to a stream which has been or may be inundated by a flood having the magnitude of the regional flood as defined in these rules.

"Flood proofing" means a combination of structural provisions, changes, or adjustments in construction to buildings, structures, or properties subject to flooding primarily for the reduction or elimination of flood damages.

"Floodway fringe" means those portions of the flood plains located landward of the encroachment limits.

"Height of dam" means the vertical distance from the top of the dam to the natural bed of the stream or water source measured at the downstream toe of the dam or to the lowest elevation of the outside limit of the dam if it is not across a water source.

"High damage potential" means the flood damage potential associated with the following:

1. Habitable residential buildings and building complexes which include seasonal residential buildings; or
2. Industrial, commercial, agricultural, recreational and other similar buildings or building complexes, which, if inundated by flooding, would result in high public damages as determined by the department or which contain high-value equipment or contents that are not easily removed; or
3. Public buildings or building complexes, which, if inundated by flooding, would result in high public damages as determined by the department.

"Low damage potential" means all buildings, building complexes or flood plain uses not defined as maximum or high damage potential where such structures are designed in a manner that inundation by flood waters results in minimal damage to the structure and its contents. Such structures include but are not limited to the following: detached residential garages, sheds, park shelters, buildings used for storage of equipment or crops that can be easily removed, and buildings used as temporary shelter for livestock.

"Low head dam" means any dam essentially contained within the channel of a river or stream and which is overtopped by normal stream flows.

"Major dam structure" means a dam meeting any of the following criteria:

1. Any high hazard dam.
2. Any moderate hazard dam with a permanent storage exceeding 100 acre-feet or a total of permanent and temporary storage exceeding 250 acre-feet at the top of the dam elevation.
3. Any dam, including low hazard dams, where the height of the emergency spillway crest measured above the elevation of the channel bottom at the centerline of the dam (in feet) multiplied by the total storage volume (in acre-feet) to the emergency spillway crest elevation exceeds 30,000. For dams without emergency spillways, these measurements shall be taken to the top of dam elevation.

"Major water source" means the same as defined in 567—65.1(459,459B).

"Manure storage structure" means the same as defined in 567—65.1(459,459B).

"Maximum damage potential" means the flood damage potential associated with hospitals and like institutions; buildings or building complexes containing documents, data, or instruments of great public value; buildings or building complexes containing materials dangerous to the public or fuel storage facilities; power installations needed in emergency or buildings or building complexes similar in nature or use to those listed above.

"Minimum level of flood protection" means the elevation corresponding to the water surface profile of the regulatory flood associated with a damage potential classification listed in these rules plus any freeboard specified in these rules.

"Mobile home" means a structure, transportable in one or more sections, which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. It does not include recreational vehicles or travel trailers.

"Nominated stream" means the stream or water source named in the petition described in 567—Chapter 72 that seeks designation of a stream as a protected stream.

"Permanent storage" means the volume of water expressed in acre-feet which is stored upstream from a dam or in an impoundment up the level of the principal outlet works of the structure.

"Probable maximum flood" means the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the region, and is derived from probable maximum precipitation, the theoretical greatest depth of precipitation for a given duration that is physically possible over a particular drainage area at a certain time of year. The probable maximum precipitation within designated zones in Iowa has been determined by the National Weather Service. The probable maximum flood for any location within Iowa is determined by the department.

"Protected stream" means a stream designated by the department as a "protected stream" in 567—Chapter 72.

"Public damages" means costs resulting from damage to roads and streets, sewers, water mains, other public utilities and public buildings; expenditures for emergency flood protection, evacuation and relief, rehabilitation and cleanup; losses due to interruption of utilities and transportation routes, and interruption of commerce and employment.

"Q100," "Q50," "Q25," "Q15," "Q10," et cetera, means a flood having a 1, 2, 4, 7, 10, et cetera, percent chance of being equaled or exceeded in any one year as determined by the department.

"Regional flood" means a flood representative of the largest floods which have been observed on streams in Iowa.

"Repair and maintenance of a drainage district ditch" means the restoration of the original grade line, cross-sectional area, or other design specifications of a drainage district ditch lawfully established as part of a drainage district formed and operating under the provisions of Iowa Code chapter 468.

"Road projects" means the construction and maintenance of any bridges, culverts, road embankments, and temporary stream crossings.

"Rural areas" means any area not defined or designated as an urban area.

"Seasonal homes" means residential buildings or building complexes which are not used for permanent or year-round human habitation.

"Stream" means a water source that either drains an area of at least two square miles or has been designated as a protected stream in 567—Chapter 72.

"Temporary storage" means the volume of water expressed in acre-feet which may be stored upstream from a dam or in an impoundment above the level of the principal outlet works.

"Urban areas" means incorporated municipalities.

"Water source" means the same as defined in 567—65.1(459,459B).

[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—70.3(17A,455B,481A) Forms. Any private or public person or agency desiring to secure a permit under this chapter shall file a properly completed application, DNR Form 36. For application and supplemental forms, any private or public person or agency should see http://www.iowadnr.gov/Environmental-Protection/Land-Quality/Flood-Plain-Management. Application forms may also be obtained from:

Flood Plain and Dam Safety Section
Iowa Department of Natural Resources
Henry A. Wallace Building
502 East Ninth Street
Des Moines, Iowa 50319
[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—70.4(17A,455B,481A) Requesting approval of flood plain development.

70.4(1) *Development needing approval.* Any development in a floodway or flood plain which exceeds the thresholds in 567—Chapter 71 and is not otherwise regulated by a department flood plain management order or a department-approved, locally adopted flood plain management ordinance requires a department flood plain development permit.

70.4(2) *Applying for a flood plain development permit.* Application for a flood plain development permit shall be made on DNR Form 36 or a reasonable facsimile thereof. The application shall be submitted by or on behalf of the person or persons who have or will have responsibility by reason of ownership, lease, or easement for the property on which the project site is located. The application must be signed by the applicant or a duly authorized agent. Completed applications along with supporting information shall be mailed or otherwise delivered to the Flood Plain and Dam Safety Section, Environmental Services Division, Iowa Department of Natural Resources, Wallace State Office Building, 502 East Ninth Street, Des Moines, Iowa 50319.

70.4(3) *Engineering plans.*

a. General requirement of certified plans. An application shall not be considered complete until sufficient engineering plans have been submitted to enable the department to determine whether the project as proposed satisfies applicable criteria. The engineering plans shall contain information, as specified by the department, which is needed for the department to conduct a technical review pursuant to paragraph 70.5(3)*"b."* The engineering plans shall include specifications, operation procedures and other information relating to environmental impacts. The engineering plans and other engineering information shall be certified by a licensed professional engineer or, if applicable, a licensed land surveyor, as required by Iowa Code chapter 542B. Duplicate copies of certified plans are required so that one copy can be returned to the applicant upon approval or disapproval of the application. An additional copy of the certified plans shall be required if the plans are incorporated as part of an approval or disapproval order which is filed with a county recorder.

b. Waiver of submission of certified plans. The department may waive the requirement in paragraph *"a"* of this subrule that the application for approval of a flood plain project be supported by certified engineering plans by making one of the following determinations:

(1) Engineering data are not required to determine that the project conforms to all applicable administrative and statutory criteria; or

(2) Adequate engineering data used to evaluate the dimensions and effects of the project were already available to the engineering staff.

70.4(4) *Application fee.* Reserved. No fee is charged at this time.

70.4(5) *Modification of application or plans.* Applicants and prospective applicants are encouraged to communicate with the department's staff before submitting plans to identify the data required for review of a project and to discuss project modifications reasonably required to make the project conform to applicable criteria. When staff review of submitted plans discloses need for plan modification to conform to one or more criteria, the applicant is encouraged to submit revised plans.
[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—70.5(17A,455B,481A) Procedures for review of applications.

70.5(1) *Initial screening of applications.* Each application upon receipt shall be promptly evaluated by the department to determine whether adequate information is available to review the project. The department shall advise the applicant of any additional information required to review the project. If the requested information is not submitted within 60 days of the date the request is made, the department may consider the application withdrawn.

70.5(2) *Order of processing.* In general, complete applications including sufficient plans and specifications shall be reviewed in the order that complete information is received. However, when there are a large number of pending applications, which preclude the department from promptly processing all applications, the department may expedite review of a particular application out of order if the completed application and supporting documents were submitted at the earliest practicable time and any of the following conditions exist:

a. Relatively little staff review time (generally less than four hours) is required and delay will cause the applicant hardship;

b. The applicant can demonstrate that a delay in the permit will result in a substantial cost increase of a large project;

c. Prompt review of the permit would result in earlier completion of a project that conveys a significant public benefit;

d. The need for a permit is the result of an unforeseen emergency or catastrophic event; or

e. A permit is needed to complete a project that will abate or prevent an imminent threat to the public health and welfare.

70.5(3) *Project investigation.* The department shall make an investigation of a project for which an application is submitted. The following are standard procedures for an investigation of an application.

a. *Inspection.* Agency personnel may make one or more field inspections of the project site when necessary to obtain information about the project. Submission of the application is deemed to constitute consent by the applicant for the agency staff and its agents to enter upon the land on which the proposed activity or project will be located for the sole purpose of collecting the data necessary to process the application, unless the applicant indicates to the contrary on the application.

b. *Technical review.* The department staff shall conduct a technical review using appropriate analytical techniques such as application of hydrologic and hydraulic models to determine the effects and impacts of a proposed project.

c. *Solicitation of expert comments on environmental effects.* For channel changes or other development which may cause significant adverse effects on the wise use and protection of water resources, water quality, fish, wildlife and recreational facilities or uses, the department shall request comments from the fish and wildlife division of the department or other knowledgeable sources.

d. *Summary report of project review.* The department staff may, if indicated, prepare a project summary report which summarizes the results of the review with respect to relevant criteria, the analytical methods used in the review and other project information. Typical indications of when project summary reports will be prepared are for those projects for which negative comments have been received from potentially affected landowners, those projects which are not approvable, and those projects which are complex in nature. Project summary reports will not normally be prepared for routine, noncontroversial projects.

e. *Notice to landowners who might be affected.* Before an application for approval of a levee or channel change is approved the department shall require the applicant to provide the names of the owners and occupants of land located immediately upstream, downstream, and across from the project site, and owners of any other land which the agency staff determines may be adversely affected by the project. The department shall then notify the landowners that the project is under consideration and provide a reasonable opportunity for submission of comments. The requirements of this paragraph also apply to other types of flood plain development when the project review discloses that lands not controlled by the applicant may be adversely affected by the project.

f. *Notice to the applicant that project does not conform to criteria.* If the project review discloses that the project violates one or more criteria and that the project should be disapproved, or approved only subject to special conditions to which the applicant has not agreed, the department shall notify the applicant and, when practical, suggest appropriate project modifications. The department shall offer the applicant an opportunity to submit comments before an initial decision is made.

70.5(4) *Initial decision by the department.* The initial decision by the department on an application for a flood plain development permit shall be either approval or disapproval. The initial decision shall

include a determination whether the project satisfied all relevant criteria and may incorporate by reference and attachment the summary report described in 70.5(3)*"d."*

a. Approval. Issuance of a flood plain development permit shall constitute approval of a project. The permit shall include applicable general conditions listed in 567—Chapter 72 and may include one or more special conditions when reasonably necessary to implement relevant criteria.

b. Disapproval. A letter to the applicant denying the application shall constitute disapproval of a project.

c. Notice of initial decision. Copies of the initial decision shall be mailed to the applicant, any person who commented pursuant to 70.5(3)*"e,"* and any other person who has requested a copy of the decision. The decision may be sent by ordinary mail, first class, and shall be accompanied by a certification of the date of mailing. An initial decision becomes the final decision of the department unless a timely notice of appeal is filed in accordance with 70.6(17A,455B,481A). The final decision may be filed with the appropriate county recorder to give constructive notice to future landowners of any conditions or requirements imposed by the final decision.

567—70.6(17A,455B,481A) Appeal of initial decision. Any person aggrieved by an initial decision issued under 70.5(17A,455B,481A) of these rules may file a notice of appeal with the director. The notice of appeal must be filed within 30 days following the certified date of mailing of the decision unless the appellant shows good cause for failure to receive actual notice and file within the allowed time. The form of the notice of appeal and appeal procedures are governed by 567—Chapter 7.

The department shall mail a copy of the notice of appeal to each person who was sent a copy of the initial decision. The department shall attach an explanation of the opportunity to seek intervention in the contested case.

These rules are intended to implement Iowa Code sections 17A.3, 455B.105, 459.102, 459.301 and 481A.15 and Iowa Code chapter 455B, division III, part 4.

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[1] Effective date of definitions (channel change, drainage district ditch, repair and maintenance of a drainage district ditch) in rule 70.2 delayed 70 days by the Administrative Rules Review Committee.

CHAPTER 71
FLOOD PLAIN OR FLOODWAY DEVELOPMENT— WHEN APPROVAL IS REQUIRED

[Prior to 7/1/83, INRC, Ch 5, Div. 1]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

PREAMBLE: This chapter contains administrative thresholds which implement the statutory requirement that approval from the department be obtained for any development including construction, maintenance and use of a structure, dam, obstruction, deposit, excavation or "flood control work" on a flood plain or floodway. These administrative thresholds are organized into categories such as "channel changes," "levees or dikes," "buildings," etc. Any doubt concerning whether a project or activity requires approval under these thresholds should be resolved by a request for advice from the department.

The department may delegate regulatory authority to a local government by approving local flood plain regulations (see 567—Chapter 75). To determine whether the department has delegated regulatory authority over a specific category of project at a specific location, an inquiry should be made to:

State Coordinator
National Flood Insurance Program
Iowa Department of Natural Resources
Wallace State Office Building
Des Moines, Iowa 50319
Telephone: (515)725-8200

[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—71.1(455B) Bridges, culverts, temporary stream crossings, and road embankments. Approval by the department for the construction, operation, and maintenance of bridges, culverts, temporary stream crossings, and road embankments shall be required in the following instances.

71.1(1) *Rural area—floodway.* In rural areas, bridges, culverts, road embankments, and temporary stream crossings in or on the floodway of any river or stream draining more than 100 square miles. (NOTE: Channel modifications associated with bridge, culvert or roadway projects may need approval; see 567—71.2(455B).)

71.1(2) *Rural area—floodway and flood plain.* Road embankments located in the floodway or flood plains, but not crossing the channel of a river or stream draining more than 10 square miles, where such works occupy more than 3 percent of the cross-sectional area of the channel at bankfull stage or where such works obstruct more than 15 percent of the total cross-sectional area of the flood plain at any stage. In determining a 15 percent occupancy of the flood plain, the concept of equal and opposite conveyance as defined in 567—Chapter 70 shall apply.

71.1(3) *Urban areas.* In urban areas, bridges, culverts, road embankments and temporary stream crossings in or on the floodway or flood plains of any river or stream draining more than 2 square miles.

567—71.2(455B) Channel changes. Approval by the department for the construction, operation, and maintenance of channel changes shall be required in the following instances.

71.2(1) *Rural areas.* In rural areas:

a. Channel changes not otherwise associated with road projects in or on the floodway of any stream draining more than 10 square miles at the location of the channel change.

b. Channel changes associated with road projects in or on the floodway of any stream draining more than 10 square miles at the location of the channel change whereby either (i) more than a 500-foot length of the existing channel is being altered or (ii) the length of existing channel being altered is reduced by more than 25 percent.

71.2(2) *Urban areas.* In urban areas channel changes on any river or stream draining more than 2 square miles at the location of the channel change.

71.2(3) *Protected streams.* Channel changes at any location on any river or stream designated as a protected stream pursuant to division III of 567—Chapter 72.

71.2(4) *Channel change by drainage district.* Rule 72.2(455B) applies to channel changes sponsored by a drainage district. However, approval is not required for repair and maintenance of a drainage district ditch as defined in 70.2(455B) if the drainage area of the ditch at the location of the proposed work is less than 100 square miles.

This rule is intended to implement Iowa Code section 455B.275.

567—71.3(455B) Dams. Approval by the department for construction, operation, or maintenance of a dam in the floodway or flood plain of any water source shall be required when the dimensions and effects of such dam exceed the thresholds established by this rule. EXCEPTION: Public road embankments with culverts which impound water only in temporary storage are exempt from the requirements of this rule and shall be reviewed under rules 567—71.1(455B) and 567—72.1(455B). Approval required by this rule shall be coordinated with approval for storage of water required by 567—Chapter 51. Approval by the department shall be required in the following instances:

71.3(1) *Rural areas.* In rural areas:

a. Any dam designed to provide a sum of permanent and temporary storage exceeding 50 acre-feet at the top of dam elevation, or 25 acre-feet if the dam does not have an emergency spillway, and which has a height of 5 feet or more.

b. Any dam designed to provide permanent storage in excess of 18 acre-feet and which has a height of 5 feet or more.

c. Any dam across a stream draining more than 10 square miles.

d. Any dam located within 1 mile of an incorporated municipality, if the dam has a height of 10 feet or more, stores 10 acre-feet or more at the top of dam elevation, and is situated such that the discharge from the dam will flow through the incorporated area.

71.3(2) *Urban areas.* Any dam which exceeds the thresholds in 71.3(1)*"a," "b"* or *"d."*

71.3(3) *Low head dams.* Any low head dam on a stream draining 2 or more square miles in an urban area, or 10 or more square miles in a rural area.

71.3(4) *Modifications to existing dams.* Modification or alteration of any dam or appurtenant structure beyond the scope of ordinary maintenance or repair, or any change in operating procedures, if the dimensions or effects of the dam exceed the applicable thresholds in this rule. Changes in the spillway height or dimensions of the dam or spillway are examples of modifications for which approval is required.

71.3(5) *Mill dams.* Rescinded IAB 2/20/91, effective 3/27/91.

71.3(6) *Maintenance of preexisting dams.* Approval shall be required to maintain a preexisting dam as described in 567—Chapter 73 only if the department determines that the dam poses a significant threat to the well-being of the public or environment and should therefore be removed or repaired and safely maintained. Preexisting dams are subject to the water, air and waste management dam safety inspection program as set forth in 567—Chapter 73.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264, 455B.267, 455B.275 and 455B.277.

567—71.4(455B) Levees or dikes. Approval by the department for construction, operation, and maintenance of levees or dikes shall be required in the following instances.

71.4(1) *Rural areas.* In rural areas, any levees or dikes located on the flood plain or floodway of any stream or river draining more than 10 square miles.

71.4(2) *Urban areas.* In urban areas, any levee or dike along any river or stream draining more than 2 square miles.

567—71.5(455B) Waste or water treatment facilities. Approval by the department for construction, operation, and maintenance of waste or water treatment facilities shall be required in the following instances.

71.5(1) *Rural areas.* In rural areas, any such facilities on the flood plains or floodway of any river or stream draining more than 10 square miles.

71.5(2) *Urban areas.* In urban areas, any such facilities on the flood plain or floodway of any river or stream draining more than 2 square miles.

567—71.6(455B) Sanitary landfills. Approval by the department for construction, operation, and maintenance of any sanitary landfill shall be required in the following instances.

71.6(1) *Rural areas.* In rural areas, any such landfill located on the flood plain or floodway of any stream draining more than 10 square miles at the landfill site.

71.6(2) *Urban areas.* In urban areas, any such facilities located on the flood plain or floodway of any stream draining more than 2 square miles at the landfill site.

567—71.7(455B) Buildings and associated fill. Approval by the department for construction, use and maintenance of "buildings" as defined in 567—Chapter 70 and for placement of fill is required as described in the following thresholds.

71.7(1) *Building and placement of associated fill in urban areas.* In urban areas as defined in these rules approval is required for construction, use and maintenance of buildings in the floodway or flood plain of any stream draining more than 2 square miles at the location of the structure as follows:

a. New construction including fill for development purposes. Approval is required for construction of any new building. New construction includes replacement or relocation of an existing building. New construction also includes placement and grading of fill materials in a manner that would create an elevated building site.

b. Additions to existing buildings. Approval is required for any addition which increases the original floor area of a building by 25 percent or more. All additions constructed after July 4, 1965, shall be added to any proposed addition in determining whether the total increase in original floor space would exceed 25 percent.

c. Lowering or elevating. Approval is required for lowering a floor of a building. Approval is not required for elevating an existing building. However, when a building is elevated the lowest floor should be elevated to the appropriate minimum protection level stated in 567—subrule 72.5(1). The department, upon request, will cooperate in determining the minimum protection level for a person who proposes to elevate a building.

d. Reconstruction. Approval is required for reconstruction of any portion of a building if the cost of reconstruction exceeds 50 percent of the market value of the existing building or if reconstruction will increase the market value by more than 50 percent.

71.7(2) *Buildings and associated fill located within 2 miles of an urban area.* The thresholds for buildings and associated fill in subrule 71.7(1) shall apply to rural areas within 2 miles of municipal corporate limits.

71.7(3) *Buildings and associated fill in all other rural areas.* In rural areas not covered by 71.7(1) the thresholds for approval of buildings and associated fill are the same as in 71.7(1) except that approval is required only when the drainage area at the location of the structure is more than 10 square miles.

71.7(4) *Buildings and associated fill adjacent to or downstream from impoundments.* Approval is required for new construction, additions, lowering, or reconstruction and associated fill as described in 71.7(1) without regard to the drainage area if the proximity of the building to a dam regulated by the department is as follows:

a. Adjacent to impoundment. Approval is required for a building and associated fill adjacent to an impoundment if the lowest floor level including any basement is lower than the top of the dam.

b. Downstream from dam. Approval is required for a building and associated fill downstream from a dam at any location where flooding can be reasonably anticipated from principal or emergency spillway discharges. If the dam does not substantially comply with high hazard criteria in these rules, approval is required for a building and associated fill at any location where flooding can be reasonably anticipated from overtopping and failure of the dam.

567—71.8(455B) Pipeline crossings. Approval by the department for the construction, operation and maintenance of buried pipeline crossings is not required if the natural contours of the channel and flood

plain are maintained. (NOTE: Approval of stream bank protection measures associated with pipeline crossings may need approval under 567—71.9(455B).) Approval by the department for the construction, operation, and maintenance of all other pipeline crossings shall be required in the following instances:

71.8(1) *Rural areas.* In rural areas, pipeline crossings on any river or stream draining more than 100 square miles.

71.8(2) *Urban areas.* In urban areas, pipeline crossings on any river or stream draining more than 2 square miles.

567—71.9(455B) Stream bank protective devices. Approval by the department for construction, operation, and maintenance of stream bank protective devices (including wing dikes, jetties, et cetera) shall be required in the following instances:

71.9(1) *Rural areas.* In rural areas:

a. All stream bank protective devices along any river or stream draining more than 100 square miles.

b. Stream bank protective devices along any river or stream draining between 10 and 100 square miles where the cross-sectional area of the river or stream channel is reduced more than 3 percent.

71.9(2) *Urban areas.* In urban areas:

a. Stream bank protective devices along any river or stream draining more than 100 square miles.

b. Stream bank protective devices along any river or stream draining between 2 and 100 square miles where the cross-sectional area of the river or stream channel is reduced more than 3 percent.

567—71.10(455B) Boat docks.

71.10(1) *In general.* Except as provided in subrule 71.10(2), department approval is required for all boat docks that are located in any stream other than a lake and do not float on the surface of the water.

71.10(2) *Exempted nonfloating boat docks.* Recreational nonfloating type boat docks located on the Mississippi and Missouri rivers, and the conservation pools of the Coralville, Rathbun, Red Rock, and Saylorville reservoirs shall not require department approval, other than a permit obtained from the parks, recreation and preserves division of the department.

567—71.11(455B) Excavations. Approval by the department for excavations shall be required in the following instances:

71.11(1) *Rural areas.* In rural areas:

a. Excavation in the channel on any river or stream draining more than 10 square miles where said excavation increases the cross-sectional area of said channel below bankfull stage by more than 10 percent. The cross-sectional area of the channel shall be determined based on current engineering plans, or original engineering plans, if being performed by a drainage district. If an original plan is not available, the current engineering plan will be used to determine the original cross-sectional area of the channel. The drainage district shall submit a copy of the engineering plan for increasing the cross-sectional area of a channel to the department prior to approval by the board of supervisors or trustees regardless of size of the increase. The department shall submit its decision to the drainage district within 60 days.

b. Excavation on any flood plain of any river or stream draining more than 10 square miles where said excavation is within 100 feet of the normal stream or riverbank.

c. Excavations in relation to highway projects are exempt except as otherwise provided for in 71.1(1), 71.1(2) and 71.1(3).

d. Excavation for the repair and maintenance of a drainage district ditch as defined in 567—70.2(455B) is not considered an excavation within the intent of this rule if the drainage area of the ditch at the location of the proposed work is less than 100 square miles.

e. Excavations for conservation practices installed to meet or exceed the standards of the USDA Natural Resources Conservation Service (NRCS) Field Office Technical Guide are exempt if all of the following criteria are met:

(1) The resulting spoil is removed from the flood plain;

(2) The practices do not reduce the capacity of the flood plain; and

(3) The practices will not result in water being temporarily or permanently stored above the natural ground line.

These standards may be accessed through the electronic Field Office Technical Guide at https://efotg.sc.egov.usda.gov/. They are also available in hard copy at the USDA NRCS office that serves the area where the practice will be implemented.

71.11(2) *Urban areas.* In urban areas excavations on the floodway of any stream draining more than 2 square miles.

This rule is intended to implement Iowa Code section 455B.275.

[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—71.12(455B) Miscellaneous structures, obstructions, or deposits not otherwise provided for in other rules. Approval by the department for construction, operation, and maintenance of miscellaneous structures, obstructions, or deposits, shall be required in the following instances.

71.12(1) *Rural areas.* In rural areas, any miscellaneous structures, obstructions, or deposits on the floodway or flood plain of any river or stream draining more than 10 square miles where such works obstruct more than 3 percent of the cross-sectional area of the stream channel at bankfull stage or where such works obstruct more than 15 percent of the total cross-sectional area of the flood plain at any stage. In determining a 15 percent obstruction of the flood plain, the concept of equal and opposite conveyance as defined in 567—Chapter 70 shall apply.

71.12(2) *Urban areas.* In urban areas, miscellaneous structures, obstructions, or deposits on the floodway or flood plains of any river or stream draining more than 2 square miles.

71.12(3) *Exemptions.* For purposes of this rule, the following project types do not require approval by the department:

a. Signs, navigational markers, and aids that have been placed by a public agency to serve the public;

b. In-kind replacement of existing utility poles, including H-frame structures that are installed as part of routine maintenance or an emergency;

c. New utility poles, including H-frame structures, that fall below the thresholds set forth in 71.12(1) and 71.12(2).

[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—71.13(455B) Animal feeding operation structures. Approval by the department for construction, operation, and maintenance of animal feeding operation structures shall be required in the following instances.

71.13(1) *Rural areas.* In rural areas, any such facilities on the flood plain or floodway of any stream draining more than ten square miles.

71.13(2) *Urban areas.* In urban areas, any such facilities on the flood plain or floodway of any stream draining more than two square miles.

71.13(3) *Adjacent to an impoundment.* Any such facilities if any part of the facility is located on land that is naturally lower than the top of the dam.

These rules are intended to implement Iowa Code chapter 455B, division III, part 4; and Iowa Code sections 459.102, 459.301 and 481A.15.

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CHAPTER 72
CRITERIA FOR APPROVAL

[Prior to 7/1/83, INRC[580] Ch 5, Div. III to V]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

The rules within this chapter establish administrative criteria which implement certain statutory criteria, policies, and principles in Iowa Code sections 455B.262, 455B.264, 455B.275 and 455B.277. The specific requirements in these rules must be met for approval of a project or activity in a flood plain or floodway. Additionally, the project or activity must satisfy all of the statutory criteria which Iowa Code sections 455B.262, 455B.264, 455B.275 and 455B.277 require the department to consider. Where a project or activity will result in effects which the department must by statute consider but which are not governed specifically by these rules, the department shall review such effects on a case-by-case basis to determine whether the project or activity meets the statutory criteria.
[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

DIVISION I
SPECIAL CRITERIA FOR VARIOUS TYPES OF FLOOD PLAIN DEVELOPMENT

567—72.1(455B) Bridges and road embankments. The following criteria shall apply to the construction, operation, and maintenance of bridges and road embankments.

72.1(1) *Bridges and road embankments affecting low damage potential areas.* For bridges and road embankments affecting floodway or flood plain areas having a low flood damage potential, the following criteria will apply:

a. *Backwater Q100.* The maximum allowable backwater for Q100 is 1.5 feet.

b. *Freeboard.* The minimum freeboard for low superstructure horizontal bridge members above Q50 is 3 feet unless a licensed engineer provides certification that the bridge is designed to withstand the applicable effects of ice and the horizontal stream loads and uplift forces associated with the Q100.

72.1(2) *Bridges and road embankments affecting high or maximum damage potential development.* For bridges and road embankments affecting floodway or flood plain areas occupied by buildings or building complexes having a high or maximum flood damage potential, the following criteria will apply:

a. *Backwater Q100.*

(1) The maximum allowable Q100 backwater for new bridges and road embankments is 1.0 foot.

(2) The maximum allowable Q100 backwater for replacement bridges and roadway embankments is the lesser of the following: Q100 backwater for the existing bridge and road embankment or 1.0 foot.

(3) For a new bridge and road embankment located within a stream reach for which the Federal Emergency Management Agency has published a detailed Flood Insurance Study which includes a floodway, the backwater for Q100 shall not exceed the surcharge associated with the delineation for the floodway at that location.

(4) In no case shall the Q100 backwater effects of a bridge or road embankment reduce the existing level of protection provided by certain flood control works, unless equivalent remedial measures are provided.

b. *Freeboard.* The minimum freeboard for low superstructure horizontal bridge members above Q50 is 3 feet unless a licensed engineer provides certification that the bridge is designed to withstand the applicable effects of ice and the horizontal stream loads and uplift forces associated with the Q100.

72.1(3) *Bridge and channel change.* For bridges and culverts involving channel changes on the floodway of any stream draining at the location of the channel change between 10 and 100 square miles whereby either (i) more than a 500-foot length of the existing channel is being altered or (ii) the length of existing channel being altered is reduced by more than 25 percent, the maximum allowable backwater shall correspond to the limits permitted in 72.1(1), 72.1(2) or 72.1(4) depending upon the associated damage potential.

72.1(4) *Culverts.* The maximum allowable backwater at culvert inlets shall correspond to the limits permitted in 72.1(1) or 72.1(2) depending upon the damage potential associated with the affected area. In

the case of replacement culverts, the backwater shall not exceed that created by the culvert or waterway crossing being replaced or that specified in 72.1(1) or 72.1(2) depending upon the associated damage potential, whichever is greater.

72.1(5) *Road embankments.* The criteria listed in 567—72.11(455B) for miscellaneous flood plain construction projects shall apply to road embankments located on the flood plain but not crossing any stream or river channel.

72.1(6) *Temporary channel obstructions.* Temporary stream crossings and other temporary obstructions usually constructed, operated, and maintained during the construction phase of another flood plain construction project shall meet the following criteria:

a. *Low flow.* Said structures will provide for the passage of the prevailing flow in the stream or river.

b. *Flood flow.* Said structure shall be designed to fail or otherwise operate in the event of flooding so as to prevent premature overbank flow, or meet the backwater criteria indicated in 72.1(1) or 72.1(2).

72.1(7) *Emergency.* Repairs or temporary construction required to maintain the operation of a bridge, roadgrade or culverts in time of emergency need not be submitted for prior department approval. Plans of such emergency or temporary construction shall be submitted to the department for review after the event causing the emergency has passed.

[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—72.2(455B) Channel changes. The following criteria shall apply to channel changes.

72.2(1) *Percent reduction in length.*

a. *Streams draining over 100 square miles.* For streams (other than protected streams) draining more than 100 square miles, no more than a 10 percent reduction in the original length of the existing channel through any contiguous parcel(s) of the applicant's(s') property will be allowed.

b. *Rural streams draining 10 to 100 square miles.* For streams (other than protected streams) draining between 10 and 100 square miles in rural areas, no more than a 25 percent reduction in the original length of the existing channel through any contiguous parcel(s) of the applicant's(s') property will be allowed.

c. *Urban streams draining 2 to 100 square miles.* For streams (other than protected streams) draining between 2 and 100 square miles in urban areas, no more than a 25 percent reduction in the original length of the existing channel through any contiguous parcel(s) of the applicant's(s') property will be allowed.

d. *Protected streams.* For protected streams no channel changes will be allowed, because of actual or potential significant adverse effects on fisheries, water quality, flood control, flood plain management, wildlife habitat, soil erosion, public recreation, the public health, welfare and safety, compatibility with the state water plan, rights of other landowners, and other factors relevant to the control, development, protection, allocation, and utilization of the stream. Protected stream status does not prohibit bank stabilization measures; tree maintenance or removal; maintenance or installation of tile outlets; machinery crossings, including concrete drive-throughs and bridges; boat or canoe ramps; or other structures permitted by the department; nor restrict riparian access to the protected stream for such uses as livestock watering or grazing. Protected stream status does not affect current cropping practices or require the establishment or maintenance of buffer strips, filter strips or fences along protected streams.

72.2(2) *Capacity.* In the project reach, excavated channels shall have a discharge capacity equal to or greater than the existing channel. Excessive channel excavation will not be permitted.

72.2(3) *Alignments.* The alignments and dimensions of the excavated channel shall be such as to provide a smooth transition between the existing and the excavated channel.

72.2(4) *Velocities.* Velocities in the excavated channel shall not cause excessive erosion of the channel or banks, with the acceptable velocities being determined by the department. Energy dissipation structures, channel and bank protection, or other engineering measures may be required to eliminate excessive erosion of the channel or banks.

72.2(5) *Spoil disposition.* Disposition of spoil material from channel excavation of the flood plain shall be reviewed under miscellaneous flood plain construction.

72.2(6) *Increase in flood peak.* No significant increase in peak flood discharge will be permitted by the department. Floodwater retardance structures may be required to minimize any increase in peak flood discharges.

72.2(7) *Fish and wildlife habitat and public rights.* The channel change shall not have a significant adverse effect on fish and wildlife habitat or public rights to use of the stream. Conservation easements and other conditions may be required to mitigate potential damages to the quality of water, fish and wildlife habitat, recreational facilities, and other public rights.

72.2(8) *Soil erosion.* The tillage of land along the reach of a straightened stream shall be prohibited or modified when necessary to hold soil erosion to reasonable limits. Zones of land in which tillage shall be prohibited along the straightened reach shall be set on a case-by-case basis with consideration given to topography, soil characteristics, current use, and other factors affecting propensity for soil erosion. The tillage prohibition shall be recorded by the department in the office of the appropriate county recorder and shall run with the land against the applicant and all successors in interest to the land subject to the prohibition.

72.2(9) *Encroachment on a confinement feeding operation structure.* A major water source, as identified in Appendix B, Tables 1 and 2 of 567—Chapter 65, or a water source other than a major water source shall not be constructed, expanded or diverted if the water source or major water source as constructed, expanded or diverted is closer than the following distances from a confinement feeding operation. Measurement shall be from the closest point of the confinement feeding operation structure to the top of the bank of a stream channel or the ordinary high water mark of a lake, pond, impoundment or reservoir. Farm ponds, privately owned lakes, and confinement feeding operations constructed with a secondary containment barrier pursuant to 567—subrule 65.15(17) are exempt from the separation distance requirements. The provisions of this subrule shall not be construed to allow construction of a confinement feeding operation structure on land that would be inundated by Q100 and is adjacent to a major water source.

a. Minimum separation between a water source other than a major water source and a confinement feeding operation structure is 500 feet.

b. Minimum separation between a major water source and a confinement feeding operation structure is 1,000 feet.

567—72.3(455B) Dams. The following criteria shall apply to dams which exceed the thresholds in 567—71.3(455B).

72.3(1) *General criteria for all regulated dams.*

a. *Required findings.* The department will approve the construction, operation or maintenance of a dam or modification of a dam or appurtenant structure only after finding that the project is designed in accordance with accepted engineering practice and methods and in a manner consistent with the applicable criteria and guidelines in department Bulletin No. 16, "Design Criteria and Guidelines for Iowa Dams," December 1990.

b. *Anticipation of changed circumstances.* In applying the approval criteria in subrule 72.3(1), paragraph *"a,"* consideration shall be given to both existing conditions and potential future conditions which can reasonably be anticipated at the time the application is reviewed.

c. *Landowner notification.* The department staff engineering review of the plans and specifications for a dam project shall determine whether there are lands upstream, downstream, or adjacent to the impoundment whose use apparently would be potentially adversely affected by maintenance of the dam and appurtenant structures, spillway discharges, temporary ponding of floodwater behind the dam, or failure of the dam. It is the applicant's responsibility to submit sufficient information with the application and on request to enable the staff to accurately identify the owners and occupants of affected lands. The staff shall notify all known affected owners and occupants that the project may affect use of land in which they have an interest and advise them of their opportunity to be heard on the application. The project shall not be approved unless it appears that notice reasonably

calculated to advise all owners and occupants has been given and that they have had an opportunity to be heard.

72.3(2) *Dams other than low head dams.* The following criteria shall apply to all dams other than low head dams:

a. *Assignment of hazard class.* Dams shall be assigned a hazard class based on the potential consequences of failure. Anticipated future land and impoundment use shall be considered in the determination of hazard class. The criteria in this subrule shall be used to determine hazard class regardless of the methodology used in engineering design of a dam. The hazard class shall determine the design requirements of the structure as outlined in department Bulletin No. 16. The hazard class shall be evaluated using the following criteria:

(1) *Low hazard.* A structure shall be classified as low hazard if located in an area where damages from a failure would be limited to loss of the dam, loss of livestock, damages to farm outbuildings, agricultural lands, and lesser used roads, and where loss of human life is considered unlikely.

(2) *Moderate hazard.* A structure shall be classified as moderate hazard if located in an area where failure may damage isolated homes or cabins, industrial or commercial buildings, moderately traveled roads or railroads, interrupt major utility services, but without substantial risk of loss of human life. In addition, structures where the dam and its impoundment are of themselves of public importance, such as dams associated with public water supply systems, industrial water supply or public recreation, or which are an integral feature of a private development complex, shall be considered moderate hazard for design and regulatory purposes unless a higher hazard class is warranted by downstream conditions.

(3) *High hazard.* A structure shall be classified as high hazard if located in an area where failure may create a serious threat of loss of human life or result in serious damage to residential, industrial or commercial areas, important public utilities, public buildings, or major transportation facilities.

(4) *Multiple dams.* Where failure of a dam could contribute to failure of a downstream dam or dams, the minimum hazard class of the dam shall not be less than that of any such downstream structure.

b. *Lands, easements, and rights-of-way.* An application for approval of a dam project shall include information showing the nature and extent of lands, easements, and rights-of-way which the applicant has acquired or proposes to acquire to satisfy the following criteria:

(1) Ownership or perpetual easements shall be obtained for the area to be occupied by the dam embankment, spillways, and appurtenant structures, and the permanent or maximum normal pool;

(2) Ownership or easements shall be obtained for temporary flooding of areas which would be inundated by the flood pool up to the top of dam elevation and for spillway discharge areas;

(3) Easements covering areas affected by temporary flooding or spillway discharges shall include provisions prohibiting the erection and usage of structures for human habitation or commercial purposes without prior approval by the agency;

(4) In locating the site of a dam and in obtaining easements and rights-of-way, the applicant shall consider the impacts which anticipated changes in land use downstream of a dam or adjacent to the impoundment could have on the hazard class of the dam, the operation of the dam, and the potential liability of the dam owner;

(5) The applicant may be required to acquire control over lands downstream from the dam as necessary to prevent downstream development which would affect the hazard class of the dam.

c. *Other approvals required.* The applicant shall comply with all applicable provisions of 567—Chapters 51, 52 and 73 concerning water storage permits, operating permits, and inspections.

d. *Additional requirements for major dam structures.* Dams which are major dam structures as defined in 567—Chapter 70 must satisfy additional criteria set forth in Chapter VI of department Bulletin No. 16.

72.3(3) *Low head dams.* The following criteria shall apply to low head dams:

a. The location and design of a low head dam shall not adversely affect the fisheries or recreational use of the stream.

b. The pool created by a low head dam shall not adversely affect drainage on lands not owned or under easements by the applicant.

c. The structure shall be hydraulically designed to submerge before bankfull stage is reached in the stream channel in order that increased or premature overbank flooding does not occur. Where this cannot be reasonably accomplished in order for the structure to fulfill its intended purpose, the applicant shall demonstrate that any increased flooding will affect only lands owned or controlled by the applicant.

d. For projects which include significant appurtenant structures or works outside the stream channel, the combined effect of the total project shall not create more than 1 foot of backwater during floods which exceed the flow capacity of the channel, unless the proper lands, easements, or rights-of-way are obtained.

e. The structure shall be capable of withstanding the effects of normal and flood flows across its crest and against the abutments, and adjacent channel or bank areas shall be protected against erosion as needed.

72.3(4) *Operating plan.* For any dam with movable structures which must operate or be operated during times of flood or to provide minimum downstream flow, or where the impoundment level is raised or lowered on a regular basis, an operating plan must be submitted for approval. The plan shall be in accordance with department Bulletin No. 16 and rules in 567—Chapter 73.

72.3(5) *Encroachment on a confinement feeding operation structure.* A dam shall not be constructed or modified so that the ordinary high water of the lake, pond or reservoir created by the dam is closer than the following distances from a confinement feeding operation structure unless a secondary containment barrier according to 567—subrule 65.15(17) is in place. Measurement shall be from the closest point of the confinement feeding operation structure to the water edge of the lake, pond or reservoir for a pool level at the elevation of the crest of the emergency spillway or at the top of dam elevation should the dam not have an emergency spillway.

a. Minimum separation between a water source other than a major water source and a confinement feeding operation structure is 500 feet.

b. Minimum separation between a major water source and a confinement feeding operation structure is 1,000 feet or such distance that the structure is not located on land that would be inundated by Q100, whichever is greater.

This rule is intended to implement Iowa Code sections 455B.262, 455B.264, 455B.270, 455B.275 and 455B.277.

567—72.4(455B) Levees or dikes. The following criteria shall apply to levees or dikes.

72.4(1) *Agricultural levees or dikes.*

a. *Level of protection.* The permanent height of agricultural levees or dikes normally shall be limited so that overtopping will occur due to discharges from Q10 to Q25 with the more comprehensive levee system being permitted the greater degree of protection.

b. *Additional protection.* Where it can clearly be shown that loss of valley storage caused by construction of the levee will not increase peak flood stages and discharges, the level of protection provided by the agricultural levee or dike may be increased beyond the Q10 to Q25 range.

c. *Alignment.* The location and alignment of agricultural levees or dikes shall be compatible with existing encroachment limits so that minimum flood protection levels will not be increased and said levee or dike alignment otherwise shall be consistent with the rules governing the location of encroachment limits set out in 567—75.4(455B).

d. *Maximum effect.* The maximum increase in the flood profile resulting from the construction, operation, and maintenance of an agricultural levee or dike shall be 1 foot. Equal and opposite conveyance as defined in 567—Chapter 70 shall be used in determining the maximum increase in flood profile resulting from such levees or dikes.

e. *Interior drainage.* All agricultural levees or dikes shall be provided with adequate interior drainage facilities.

f. *Offset.* A minimum offset equal to 100 feet or twice the width of a river or stream measured from top of bank to top of bank, whichever distance is less, shall be required for all agricultural levees unless a greater offset is dictated by 72.4(1), paragraph *"c"* or *"d."*

72.4(2) *Flood control levees or dikes.*

a. *Design level.* The minimum design flood protection level for flood control levees or dikes shall correspond to the flood profile for Q100.

b. *Freeboard.* The levee or dike height shall provide for at least 3 feet of freeboard above the design flood profile.

c. *Alignment.* The alignment of a flood control levee or dike shall be consistent with the rules governing the location of encroachment limits set out in 567—75.4(455B).

d. *Interior drainage.* Flood control levees or dikes shall provide for adequate interior drainage and ponding.

e. *Design and specifications.* The structural design and construction of flood control levees or dikes must be undertaken in accordance with accepted engineering and construction procedures and practices.

567—72.5(455B) Buildings. The following criteria apply to buildings.

72.5(1) *Minimum protection levels.* The minimum level of flood protection for a building depends on the damage potential of the building and contents. "Maximum" and "high" damage potential classifications are defined in 567—Chapter 70. Criteria for determining minimum levels of protection are as follows:

a. Buildings with maximum damage potential shall be protected to the level of a flood equivalent to Q500 plus 1 foot. Determination of the elevation of the department regional flood is recommended as an alternative to establish an appropriate level of protection for a building which has maximum damage potential (see discussion of flood frequencies and magnitudes in 567—subrule 75.2(1)).

b. Buildings with high damage potential shall be protected to the level of a flood equivalent to Q100 plus 1 foot.

c. Buildings adjacent to an impoundment shall be protected to the elevation of the top of the dam unless the dam has adequate spillway capacity to discharge the flood corresponding to the damage potential of the building at an elevation below the top of the dam.

d. Buildings downstream from a dam shall be protected to a level established by the department after due consideration of the hazards posed by the dam for buildings downstream.

72.5(2) *Flood protection methods.* The following flood protection methods are required for buildings to which a minimum flood protection level applies.

a. *Structural design and flood proofing.* Basement walls and floors below the applicable minimum flood protection level shall be structurally designed and constructed to be flood proof and able to withstand hydrostatic pressure and buoyant forces associated with a water table elevation equivalent to the minimum flood protection level. However, attached garages and storage space may be constructed below the applicable minimum protection level without flood proofing if all electrical circuit boxes, furnaces, and hot-water heaters are located above the applicable minimum protection level.

b. *Sanitary sewer drains.* Sanitary sewer drains below the applicable minimum flood protection level shall be provided with automatic closure valves to prevent backflow.

72.5(3) *Location.* The criteria for location of a building include consideration of the potential for obstructing flood flows and the potential hazards which may arise when the building is surrounded by floodwater. Criteria for location of buildings in floodways and flood plains are as follows:

a. *Obstruction.* Buildings shall not be located in the floodway of a stream so as to result, individually or collectively, in any increase in the elevation of Q100 as confined to the floodway. The floodway boundary applicable to an individual application shall be determined as necessary by the department in accordance with the criteria in rule 567—75.4(455B). Analysis of the effect that a building in the floodway would have on flood levels shall be based on the assumption that all similarly situated landowners would be allowed an equal degree of development in the floodway.

b. *Public damages.* Buildings shall be located to minimize public damages associated with isolation due to flooding of surrounding ground. In identifying the potential for public damages, the department shall determine whether there is a need for access passable by wheeled vehicles during Q100. The need for such access shall be determined on the basis of the criteria for evaluating flood warning and response time in 567—subrule 75.2(3).

c. Existing buildings—replacement and improvements. In applying the criteria in paragraphs *"a"* and *"b"* of this subrule to projects which improve or replace existing lawful buildings the department shall give consideration to the policies for protection of existing development in rule 567—75.6(455B).
[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—72.6(455B) Wastewater treatment facilities. The following criteria shall apply to wastewater treatment facilities.

72.6(1) *Location.* Wastewater treatment facilities shall not be located so as to individually or collectively conflict with 567—75.4(455B) governing the establishment of encroachment limits.

72.6(2) *Flood protection.* Flood protection for wastewater treatment facilities shall be provided to the level necessary for high damage potential buildings or building complexes unless evidence is submitted indicating the facility is of a lesser damage potential.

567—72.7(455B) Sanitary landfills. The following criteria shall apply to sanitary landfills.

72.7(1) *Location.* Sanitary landfills shall not be located so as to individually or collectively conflict with 567—75.4(455B) governing the establishment of encroachment limits.

72.7(2) *Flood protection.* Flood protection for the active working portion of the sanitary landfill shall be provided to the level necessary for high damage potential buildings or building complexes.

567—72.8(455B) Water supply treatment facilities. The following criteria shall apply to water supply treatment facilities.

72.8(1) *Location.* Water supply treatment facilities shall not be located so as to individually or collectively conflict with 567—75.4(455B) governing the establishment of encroachment limits.

72.8(2) *Flood protection.* Flood protection for water supply treatment facilities shall be provided to at least the level necessary for high damage potential buildings or building complexes.

567—72.9(455B) Stream protective devices. The following criteria shall apply to stream protective devices.

72.9(1) *Overflow.* Stream protective devices shall be constructed in a manner which will not cause premature overbank flow.

72.9(2) *Velocity.* Increased velocities resulting from the construction, operation, and maintenance of stream protective devices shall be limited so as not to cause excessive scour in the channel as determined by the department.

72.9(3) *Stability.* Stream protective devices shall be anchored securely to the bank or constructed in a stable manner so as not to become dislodged and result in the scattering of debris in adjacent and downstream reaches.

72.9(4) *Water quality and aesthetics.* Stream protective devices shall not adversely affect the water quality, fish and wildlife habitat or aesthetics of the stream.

567—72.10(455B) Pipeline river or stream crossings. The following criteria shall apply to pipeline river and stream crossings.

72.10(1) *Protection.* Pipeline river or stream crossings shall be sufficiently buried in the stream bed and banks or otherwise sufficiently protected to prevent rupture.

72.10(2) *Overflow and velocities.* Pipeline river or stream crossings shall be constructed, operated, and maintained so as not to create premature overbank flow or excessive scour to the channel or banks.

72.10(3) *Spoil.* Spoil material resulting from the construction of a pipeline crossing shall be disposed of in a manner which will not obstruct low flow or flood flows.

567—72.11(455B) Miscellaneous construction. The following criteria shall apply to miscellaneous construction.

72.11(1) *Structures, obstructions, or deposits.*

a. Location. Miscellaneous structures, obstructions, or deposits shall not be located so as to individually or collectively conflict with 567—75.4(455B) governing the establishment of encroachment limits.

b. Protection. Miscellaneous structures, obstructions, or deposits shall be provided with the minimum level of flood protection associated with the designated damage potential as indicated in 72.5(1) governing buildings and building complexes.

72.11(2) *Excavation.*

a. Spoil. Spoil material resulting from an excavation shall be disposed of in a manner consistent with 72.11(1)*"a"* pertaining to miscellaneous structures, obstructions, or deposits.

b. Levees. Levees protecting excavations shall meet the requirements of 72.11(1)*"a"* pertaining to miscellaneous structures, obstructions, or deposits.

c. Control of surface runoff into rock quarries. When the department investigates an application for approval of excavation of a quarry in carbonate rock on a flood plain or floodway, the department shall consider the potential for pollution of an underground watercourse or basin from drainage of surface water into the quarry. If available information including topographic and geological information support a finding that drainage of surface water into the quarry would constitute a violation of the permit requirement in Iowa Code section 455B.268(3) and might cause pollution of an underground watercourse or basin if not controlled, then the department shall require that the applicant either request a permit under Iowa Code sections 455B.268(3) and 51.5(455B) to authorize drainage of surface water into the quarry, or construct and maintain a means of controlling drainage of surface water which would otherwise drain into the quarry.

567—72.12 Reserved.

567—72.13(455B) Animal feeding operation structures. The following criteria shall apply to animal feeding operation structures.

72.13(1) *Confinement feeding operation structures located on the flood plain of a major water source.* As required by 567—Chapter 65, confinement feeding operation structures shall not be constructed on land that would be inundated by Q100 and is adjacent to a major water source. Placing fill material on flood plain land to elevate the land above the Q100 level will not be considered as removing the land from the one hundred year flood plain for the purpose of this subrule.

72.13(2) *Other animal feeding operation structures.* The following criteria shall apply to animal feeding operation structures located on the flood plain of any water source and confinement feeding operation structures located on the flood plain of a water source other than a major water source.

a. Location. Such structures shall not be located so as to individually or collectively conflict with rule 567—75.4(455B) governing the establishment of encroachment limits.

b. Flood protection. Flood protection for such structures shall be provided to the level necessary for high damage potential buildings or building complexes, pursuant to rule 567—72.5(455B).

These rules are intended to implement Iowa Code sections 455B.262, 455B.264, 455B.270, 455B.275, 455B.277, 459.102 and 459.301.

567—72.14 to **72.29** Reserved.

DIVISION II
GENERAL CRITERIA

567—72.30(455B) General conditions. Department orders approving an activity or project shall be subject to the following conditions.

72.30(1) *Maintenance.* The applicant and any successor in interest to the real estate on which the project or activity is located shall be responsible for proper maintenance.

72.30(2) *Responsibility.* No legal or financial responsibility arising from the construction or maintenance of the approved works shall attach to the state of Iowa or the agency due to the issuance of an order or administrative waiver.

72.30(3) *Lands.* The applicant shall be responsible for obtaining such government licenses, permits, and approvals, and lands, easements, and rights-of-way which are required for the construction, operation, and maintenance of the authorized works.

72.30(4) *Change in plans.* No material change from the plans and specifications approved by the department shall be made unless authorized by the department.

72.30(5) *Revocation of order.* A department order may be revoked if construction is not completed within the period of time specified in the department order.

72.30(6) *Performance bond.* A performance bond may be required when necessary to secure the construction, operation, and maintenance of approved projects and activities in a manner that does not create a hazard to the public's health, welfare, and safety. The amount and conditions of such bond shall be specified as special conditions in the department order.

567—72.31(455B) Variance. A request for a waiver or variance to this chapter shall be submitted in writing pursuant to 561—Chapter 10. The contents of a petition for waiver or variance shall include information pursuant to 561—10.9(17A,455A).
[**ARC 2764C**, IAB 10/12/16, effective 11/16/16]

567—72.32(455B) Protected stream information. The following describes the variance procedure and the relation of hydrologically connected streams to protected streams:

72.32(1) *Protected streams variance procedure.* The variance shall be requested as part of the permit application and review process provided for in rules 567—70.3(17A,455B,481A) to 70.5(17A,455B,481A) and decisions on the variance request may be appealed in accordance with rule 567—70.6(17A,455B,481A). If the applicant is denied a permit to channelize a protected stream, the applicant may appeal to the environmental protection commission. The appeal will normally be heard by an administrative law judge but the applicant may request that the commission hear the appeal directly. If a proposed decision of an administrative law judge would affirm the denial of the permit, the applicant may appeal the administrative law judge's decision to the commission. If, on appeal, the commission affirms the denial of the permit, the applicant may appeal to the district court.

72.32(2) *Hydrologically connected streams.* Streams or waters that are hydrologically connected to protected streams are not protected streams unless specifically listed as protected streams in 72.50(2). The environmental protection commission considers the streams and waters that are hydrologically connected to streams proposed to become protected streams as one of the factors in the decision-making process to add streams to the list of protected streams in a rule-making procedure. Subrule 72.51(7) lists the other factors that affect the decision.

72.32(3) *Protected stream activities.* Protected stream status does not prohibit bank stabilization measures; tree maintenance or removal; maintenance or installation of tile outlets; machinery crossings, including concrete drive-throughs and bridges; boat or canoe ramps; or other structures permitted by the department; nor restrict riparian access to the protected stream for such uses as livestock watering or grazing. Protected stream status does not affect current cropping practices or require the establishment or maintenance of buffer strips, filter strips, or fences along protected streams except as may be required to mitigate environmental damage associated with a channel change on a protected stream.

567—72.33 to **72.49** Reserved.

DIVISION III
PROTECTED STREAM DESIGNATION PROCEDURE

567—72.50(455B) Protected streams.

72.50(1) *Protected streams defined.* Protected streams shall include streams designated as protected streams pursuant to the procedures of 72.51(455B), which upon designation will be listed in 72.50(2). Streams hydrologically connected to protected streams are not protected streams unless specifically listed as protected streams in 72.50(2).

72.50(2) *List of protected streams.* Streams designated as protected streams are the following:

ADAIR COUNTY

Middle River, east county line to confluence with unnamed creek (NE 1/4, S36, T76N, R30W, Adair Co.);

ALLAMAKEE COUNTY

Bear Creek, mouth (S1, T99N, R6W, Allamakee Co.) to west county line;

Clear Creek, mouth (S35, T100N, R5W, Allamakee Co.) to north line of S15, T100N, R5W;

Clear Creek, mouth (S29, T99N, R3W, Allamakee Co.) to west line of S25, T99N, R4W;

Cota Creek, mouth to west line of S10, T97N, R3W;

Dousman Creek, mouth (S33, T96N, R3W, Allamakee Co.) to south county line;

French Creek, mouth to east line of S23, T99N, R5W;

Hickory Creek, mouth to south line of S28, T96N, R5W;

Irish Hollow Creek, mouth to north line of S17, T100N, R4W;

Little Paint Creek, mouth to north line of S30, T97N, R3W;

Norfolk Creek, mouth to confluence with Teeple Creek (S24, T97N, R6W);

Paint Creek (a.k.a. Pine Creek), mouth (S9, T99N, R6W, Allamakee Co.) to west county line;

Paint Creek, mouth (S15, T96N, R3W, Allamakee Co.) to road crossing S18, T97N, R4W;

Patterson Creek, mouth to east line of S3, T98N, R6W;

Silver Creek, mouth (S4, T99N, R5W, Allamakee Co.) to south line of S31, T99N, R5W;

Suttle Creek, mouth (S17, T96N, R4W, Allamakee Co.) to south county line;

Teeple Creek, mouth (S24, T97N, R6W, Allamakee Co.) to spring source in S11, T97N, R6W;

Trout Run, mouth in S16, T98N, R4W through one mile reach;

Unnamed tributary to Village Creek (a.k.a. Erickson Spring Branch), mouth to west line of S23, T98N, R4W;

Unnamed tributary to the Yellow River (a.k.a. Bear Creek), mouth to north line of S12, T96N, R5W;

Upper Iowa River, from Lane's Bridge at river mile 6 to west county line;

Village Creek, mouth to west line of S19, T98N, R4W;

Waterloo Creek, mouth (S35, T100N, R6W) to north county line;

Wexford Creek, mouth to west line of S25, T98N, R3W;

Yellow River, mouth to west county line;

APPANOOSE COUNTY

Chariton River, Highway 2 (S27, T69N, R17W, Appanoose Co.) to Rathbun Lake Dam (S35, T70N, R18W, Appanoose Co.);

BENTON COUNTY

Bear Creek, east county line to confluence with Opossum Creek (S 5/8, T84N, R9W, Benton Co.);

Bear Creek, mouth (S21, T86N, R10W, Benton Co.) to confluence with unnamed creek (NE1/4, NE 1/4, S2, T86N, R10W, Benton Co.);

Cedar River, east county line to north county line;

Iowa River, south county line to west county line;

Lime Creek, mouth (S4, T86N, R10W, Benton Co.) to north county line;

Prairie Creek, mouth (S10, T85N, R10W, Benton Co.) to confluence with unnamed creek (S36, T86N, R10W, Benton Co.);

Salt Creek, mouth (S31, T82N, R12W, Benton Co.) to west county line;

Wild Cat Creek, mouth (S8, T84N, R9W, Benton Co.) to confluence with unnamed creek (W1/2, S33, T84N, R10W, Benton Co.);

Wolf Creek, north county line to west county line;

BLACK HAWK COUNTY

Black Hawk Creek, mouth (S22, T89N, R13W, Black Hawk Co.) to west county line;

Cedar River, east county line to north county line;

Crane Creek, mouth (S26, T90N, R11W, Black Hawk Co.) to confluence with unnamed creek (S3, T90N, R12W, Black Hawk Co.);

Shell Rock River, mouth (S4, T90N, R14W, Black Hawk Co.) to north county line;

Wapsipinicon River, east county line to north county line;

West Fork Cedar River, mouth (S10, T90N, R14W, Black Hawk Co.) to west county line;
Wolf Creek, mouth (S19, T87N, R11W, Black Hawk Co.) to south county line;
BOONE COUNTY
Big Creek, south county line to confluence with unnamed creek (NW 1/4, S34, T82N, R25W, Boone Co.);
Bluff Creek, mouth (S22, T84N, R27W, Boone Co.) to Don Williams Lake Outlet (S5, T84N, R27W, Boone Co.);
Des Moines River, south county line to north county line;
BREMER COUNTY
Cedar River, south county line to north county line;
Shell Rock River, south county line to west county line;
Wapsipinicon River, south county line to north county line;
BUCHANAN COUNTY
Cedar River, south county line to west county line;
Lime Creek, south county line to confluence with unnamed creek (S1, T87N, R10W, Buchanan Co.);
South Fork Maquoketa River, east county line to confluence with major unnamed creek (S4, T90N, R7W, Buchanan Co.);
Wapsipinicon River, south county line to west county line;
BUENA VISTA COUNTY
Little Sioux River, north county line to north county line (entire length in county);
North Raccoon River, south county line to the north line of the NW 1/4, SE 1/4, S12, T90N, R36W, Buena Vista Co.;
BUTLER COUNTY
Shell Rock River, east county line to north county line;
West Fork Cedar River, east county line to west county line;
CALHOUN COUNTY
Camp Creek, mouth (S7, T86N, R34W, Calhoun Co.) to confluence with unnamed creek (NE1/4, NE 1/4, S33, T87N, R34W, Calhoun Co.);
Cedar Creek, south county line to confluence with unnamed creek (S 1/2, S34, T86N, R32W, Calhoun Co.);
Lake Creek, mouth (S23, T86N, R34W, Calhoun Co.) to confluence with D.D. 13 (S33, T88N, R32W, Calhoun Co.);
North Raccoon River, south county line to west county line;
CARROLL COUNTY
Middle Raccoon River, south county line to confluence with unnamed creek (SE 1/4, S15, T84N, R35W, Carroll Co.);
North Raccoon River, east county line to north county line;
CEDAR COUNTY
Cedar River, south county line to west county line;
Rock Creek, mouth (S2, T79N, R3W, Cedar Co.) to confluence with West Rock Creek (S11, T81N, R3W, Cedar Co.);
Sugar Creek, south county line to confluence with unnamed creek (S35, T80N, R2W, Cedar Co.);
Wapsipinicon River, east county line to north county line;
CERRO GORDO COUNTY
Beaverdam Creek, south county line to confluence with unnamed creek (S12, T95N, R22W, Cerro Gordo Co.);
Shell Rock River, east county line to north county line;
Spring Creek, mouth (S28, T97N, R20W, Cerro Gordo Co.) to confluence with Blair Creek (S9, T97N, R20W, Cerro Gordo Co.);
Willow Creek, mouth (S3, T96N, R20W, Cerro Gordo Co.) to confluence with Clear Creek (S16, T96N, R21W, Cerro Gordo Co.);
Winnebago River, east county line to west county line (entire length in county);

CHEROKEE COUNTY

Little Sioux River, south county line to north county line;

Maple River, south county line to confluence with unnamed creek (N 1/2, S29, T91N, R39W, Cherokee Co.);

Mill Creek, confluence with Willow Creek (S1, T93N, R41W, Cherokee Co.) to north county line;

CHICKASAW COUNTY

Cedar River, south county line to west county line;

Crane Creek, east county line to confluence with unnamed creek (NE 1/4, S25, T95N, R11W, Chickasaw Co.);

Little Cedar River, mouth (S20, T94N, R14W, Chickasaw Co.) to west county line;

Wapsipinicon River, south county line to north county line;

CLAY COUNTY

Little Sioux River, west county line to north county line (entire length in county);

Lost Island Outlet, mouth (S35, T96N, R36W, Clay Co.) to County Road M 54 (S24, T96N, R36W, Clay Co.);

Muddy Creek, mouth (S15, T96N, R36W, Clay Co.) to County Road B 17 (north line, S23, T97N, R36W, Clay Co.);

Ocheyedan River, mouth (S13, T96N, R37W, Clay Co.) to confluence with Stoney Creek (S7, T96N, R37W, Clay Co.);

Prairie Creek, mouth (S26, T96N, R36W, Clay Co.) to confluence with unnamed creek (SE1/4, S35, T96N, R37W, Clay Co.);

Stoney Creek, mouth (S7, T96N, R37W, Clay Co.) to Highway 18 (S31, T96N, R37W, Clay Co.);

CLAYTON COUNTY

Bear Creek, mouth (S34, T92N, R4W, Clayton Co.) to west line of S23 T91N, R5W, Clayton Co.;

Bloody Run, mouth (S15, T95N, R3W) to source at Spook Cave;

Bloody Run Creek (a.k.a. Grimes Hollow), mouth (S36, T91N, R3W) to south county line;

Brownfield Creek, mouth to spring source (S31, T91N, R3W);

Buck Creek, mouth (S29, T93N, R2W, Clayton Co.) to west line of S9, T93N, R3W;

Cox Creek, mouth (S21, T92N, R5W, Clayton Co.) to south line S12, T91N, R6W, Clayton Co.;

Dry Mill Creek, mouth to west line of S9, T93N, R4W;

Elk Creek, mouth (S36, T92N, R4W, Clayton Co.) to south county line;

Ensign Creek, mouth (S28, T92N, R6W, Clayton Co.) to spring source (S29, T92N, R6W, Clayton Co.);

Hewett Creek, mouth to south line of S29, T92N, R6W;

Kleinlein Creek (a.k.a. Spring Creek), mouth to spring source (S10, T91N, R6W);

Maquoketa River, south county line to west county line;

Miners Creek, mouth to west line of S1, T92N, R3W;

Mink Creek, mouth (S30, T93N, R6W) to west county line;

Mossey Glen Creek, mouth (S3, T91N, R5W) to south line of S10, T91N, R5W, Clayton Co.;

North Cedar Creek, mouth (S8, T94N, R3W) to source;

Pecks Creek, mouth to south line of S15, T91N, R3W;

Pine Creek, mouth (S26, T91N, R4W) to confluence with Brownfield Creek (S25, T91N, R4W);

Point Hollow Creek (a.k.a. White Pine Creek), mouth (S31, T91N, R2W) to south county line;

Roberts Creek, mouth (SE 1/4, S25, T93N, R5W, Clayton Co.) to confluence with an unnamed creek (SE 1/4, S15, T95N, R6W, Clayton Co.);

Sny Magill Creek (a.k.a. Magill Creek), mouth to source;

South Cedar Creek (a.k.a. Cedar Creek), mouth (S33, T92N, R3W, Clayton Co.) to north line of S30, T93N, R3W, Clayton Co.;

Steeles Branch, mouth (S26, T91N, R4W) to south line S32, T91N, R4W, Clayton Co. (entire length in county);

Turkey River, confluence with Volga River to west county line;

Unnamed tributary to Sny Magill Creek (a.k.a. West Fork Sny Magill Creek), mouth (S7, T94N, R3W) to west line of S7, T94N, R3W;

Volga River, mouth (S26, T92N, R4W, Clayton Co.) to west county line;

CLINTON COUNTY

Elk River, mouth (S20, T83N, R7E, Clinton Co.) to confluence with North Branch Elk River (S10, T83N, R6E, Clinton Co.);

Wapsipinicon River, mouth (S13, T80N, R5E, Clinton Co.) to west county line (entire length in county);

CRAWFORD COUNTY

Boyer River, south county line to north county line;

DALLAS COUNTY

Des Moines River, east county line to north county line (entire length in county);

Middle Raccoon River, mouth (S9, T78N, R29W, Dallas Co.) to west county line (entire length in county);

North Raccoon River, mouth (S21, T78N, R27W, Dallas Co.) to north county line (S5, T81N, R29W, Dallas Co.) (entire length in county);

Raccoon River, east county line to confluence with North Raccoon River (S21, T78N, R27W, Dallas Co.);

DAVIS COUNTY

Des Moines River, east county line to north county line (entire length in county);

DECATUR COUNTY

Thompson River, Highway 69 (S35, T68N, R26W, Decatur Co.) to west county line;

DELAWARE COUNTY

Bloody Run Creek (a.k.a. Grimes Hollow), north county line to spring source (S3, T90N, R3W);

Coffins Creek, mouth (S19, T89N, R5W, Delaware Co.) to confluence with Prairie Creek (S29, T89N, R6W, Delaware Co.);

Elk Creek, north county line to confluence with unnamed creek (center, S13, T90N, R4W, Delaware Co.);

Fenchel Creek, mouth (S5, T90N, R6W) to Richmond Springs (center of S4, T90N, R6W);

Fountain Spring Creek (a.k.a. Odell Branch), mouth (SE 1/4, S10, T90N, R4W) to confluence with South Branch Fountain Spring Creek (SE 1/4, S16, T90N, R4W);

Little Turkey River, north county line to south line of S11, T90N, R3W;

Maquoketa River, south county line to north county line;

Sand Creek, mouth (S9, T88N, R5W, Delaware Co.) to confluence with major unnamed creek (SW 1/4, S11, T88N, R6W, Delaware Co.);

Schechtman Branch, mouth to south line of S14, T90N, R4W;

South Branch Fountain Spring Creek, mouth (S16, T90N, R4W) to spring source (S16, T90N, R4W);

South Fork Maquoketa River, mouth (S16, T90N, R6W, Delaware Co.) to west county line;

Spring Branch, mouth (S10, T88N, R5W) to major spring source, north of Highway 20 (S35, T89N, R5W, Delaware Co.)

Steeles Branch, north county line to west line of S5, T90N, R4W, Delaware Co. (entire length in county between S4, T90N, R4W and west line of S5, T90N, R4W);

Twin Springs Creek, mouth (S2, T90N, R4W) to spring source (S12, T90N, R4W);

DES MOINES COUNTY

Cedar Creek, mouth (S1, T69N, R5W, Des Moines Co.) to Geode Lake Dam;

Cedar Creek, west county line to confluence with unnamed creek (S18, T70N, R4W, Des Moines Co.);

Flint Creek, mouth (S28, T70N, R2W, Des Moines Co.) to confluence with unnamed creek (NW 1/4, S21, T71N, R4W, Des Moines Co.);

Skunk River, mouth (S8, T68N, R2W, Des Moines Co.) to east county line (entire length in county);

DICKINSON COUNTY

Little Sioux River, south county line to confluence with West Fork Little Sioux River (S7, T99N, R37W, Dickinson Co.);

DUBUQUE COUNTY

Bloody Run, mouth (S34, T90N, R2E) to west line of S21, T90N, R2E;

Catfish Creek, mouth (S5, T88N, R3E, Dubuque Co.) to source;

Cloie Branch, mouth (S5, T89N, R2E) to west line of S5, T89N, R2E;

Hogans Branch, mouth (S35, T89N, R1W) to west line of S9, T88N, R1W;

Little Maquoketa River, mouth (S26, T90N, R2E, Dubuque Co.) to north line of NE 1/4, S5, T88N, R1W, Dubuque Co.;

Middle Fork Little Maquoketa River, west line of S31, T90N, R1E to north line of S33, T90N, R1W;

Point Hollow Creek (a.k.a. White Pine Creek), north county line to spring source (S8, T90N, R2W);

Tete des Morts Creek (a.k.a. Tete des Morts River), mouth (S34, T88N, R4E, Dubuque Co.) to south county line (S34, T88N, R4E, Dubuque Co.);

EMMET COUNTY

Brown Creek, mouth (S24, T99N, R34W, Emmet Co.) to Highway 9 (S13, T99N, R34W, Emmet Co.);

Des Moines River, south county line to north county line;

East Fork Des Moines River, east county line to Tuttle Lake Outlet (S13, T100N, R32W, Emmet Co.);

FAYETTE COUNTY

Bass Creek, mouth (S3, T95N, R9W) to west line of S3, T95N, R9W;

Bear Creek, mouth (S8, T92N, R7W, Fayette Co.) to west line of S6, T92N, R7W;

Bell Creek, mouth (S10, T94N, R7W) to west line of S8,T94N, R7W;

Brush Creek, mouth (S26, T93N, R7W, Fayette Co.) to east line of S17, T92N, R7W, Fayette Co.;

Crane Creek, mouth (S31, T95N, R9W, Fayette Co.) to west county line;

Grannis Creek, mouth (S30, T93N, R7W), to west line of S36, T93N, R8W, Fayette Co.;

Little Turkey River, mouth (S18, T95N, R8W, Fayette Co.) to north county line;

Maquoketa River, east county line to north line of S24, T91N, R7W;

Mink Creek, east county line to west line of S15, T93N, R7W;

North Branch Volga River, mouth (S33, T93N, R9W, Fayette Co.) to confluence with unnamed creek (S8, T93N, R9W, Fayette Co.);

Otter Creek, mouth to confluence with unnamed tributary (a.k.a. Glovers Creek) in S22, T94N, R8W;

Turkey River, east county line to north county line;

Unnamed tributary to Otter Creek (a.k.a. Glovers Creek), mouth (S22, T94N, R8W) to west line of S15, T94N, R8W;

Volga River, east county line to confluence with an unnamed creek (NW 1/4, NE 1/4, SE 1/4, S24, T93N, R10W, Fayette Co.);

FLOYD COUNTY

Cedar River, east county line to north county line;

Little Cedar River, east county line to north county line;

Rock Creek, mouth (S24, T97N, R17W, Floyd Co.) to north county line (entire length in county);

Shell Rock River, south county line to west county line;

Winnebago River, mouth (S14, T95N, R18W, Floyd Co.) to west county line;

FRANKLIN COUNTY

Beaver Creek, east county line to road crossing (S28, T90N, R19W, Franklin Co.);

Beaverdam Creek, mouth (S19, T93N, R19W, Franklin Co.) to north county line;

Iowa River, south county line to west county line (entire length in county);

Maynes Creek, confluence with unnamed creek (S12, T91N, R19W, Franklin Co.) to confluence with unnamed creek (S30, T91N, R20W, Franklin Co.);

Otter Creek, mouth (S28, T92N, R19W, Franklin Co.) to County Road C 23 (north line of S31, T93N, R20W, Franklin Co.);

West Fork Cedar River, east county line to confluence with Beaverdam & Bailey Creeks (S19, T93N, R19W, Franklin Co.);

GREENE COUNTY

Cedar Creek, mouth (S33, T85N, R32W, Greene Co.) to north county line;

North Raccoon River, south county line to west county line (entire length in county);

GRUNDY COUNTY

Black Hawk Creek, east county line to confluence with Minnehaha Creek (S7, T87N, R16W, Grundy Co.);

Wolf Creek, east county line to confluence with unnamed creek (S32, T86N, R17W, Grundy Co.);

GUTHRIE COUNTY

Middle Raccoon River, Lake Panorama (S15, T80N, R31W, Guthrie Co.) to north county line;

Middle Raccoon River, east county line to Lake Panorama Outlet (S31, T80N, R30W, Guthrie Co.);

HAMILTON COUNTY

Boone River, west county line to north county line;

Des Moines River, west county line to west county line (entire length in county);

Eagle Creek, mouth (S6, T89N, R25W, Hamilton Co.) to north county line;

White Fox Creek, mouth (S33, T89N, R25W, Hamilton Co.) to north county line;

HANCOCK COUNTY

East Fork Iowa River, south county line to confluence with Galls Creek (S12, T95N, R24W, Hancock Co.);

West Fork Iowa River, south county line to County Road B 55 (north line of S31, T95N, R24W, Hancock Co.);

Winnebago River, east county line to north county line (entire length in county);

HARDIN COUNTY

Iowa River, south county line to north county line;

School Creek, mouth (S28, T89N, R20W, Hardin Co.) to confluence with unnamed creek (S16, T89N, R20W, Hardin Co.);

South Fork Iowa River, mouth (S4, T86N, R19W, Hardin Co.) to Highway 359 (S11, T88N, R22W, Hardin Co.);

HENRY COUNTY

Cedar Creek, mouth (S9, T71N, R7W, Henry Co.) to west county line (entire length in county);

Cedar Creek, upper extent of Geode Lake (S25, T70N, R5W, Henry Co.) to east county line;

Crooked Creek, west county line to north county line;

Skunk River, south county line to west county line (NW 1/4, S30, T73N, R7W, Henry Co.)(entire length in Henry Co.);

HOWARD COUNTY

Beaver Creek, mouth (S19, T100N, R12W, Howard Co.) to south line of S29, T100N, R13W;

Bohemian Creek, east county line to west line of S2, T97N, R11W;

Chialk Creek, mouth (S1, T98N, R11W, Howard Co.) to north line S36, T99N, R11W, Howard Co.;

Nichols Creek (a.k.a. Bigalks Creek), east county line to west line of S23, T100N, R11W;

Staff Creek, mouth to west line of S27, T100N, R14W;

Turkey River, east county line to confluence with South Branch Turkey River (S2, T98N, R12W, Howard Co.);

Upper Iowa River, all of the river located in Howard County;

Wapsipinicon River, south county line to west county line;

HUMBOLDT COUNTY

Des Moines River, south county line to north line S7, T92N, R30W, Humboldt Co.;

East Fork Des Moines River, mouth (S19, T91N, R28W, Humboldt Co.) to north county line;

IDA COUNTY

Little Sioux River, west county line to north county line;

Maple River, west county line to north county line;

IOWA COUNTY

Iowa River, east county line to north county line;

JACKSON COUNTY

Brush Creek, north line of S23, T85N, R3E to north line of S1, T85N, R3E;

Cedar Creek, mouth (S30, T85N, R3E) to east line of S29, T85N, R3E;

Little Mill Creek, mouth to west line of S29, T86N, R4E;

Maquoketa River, mouth (S7, T85N, R6E, Jackson Co.) to west county line (entire length in county);

Mill Creek, mouth (S18, T86N, R5E, Jackson Co.) to confluence with unnamed creek (S1, T86N, R3E, Jackson Co.);

Mineral Creek, mouth (S32, T85N, R1E, Jackson Co.) to west county line;

Ozark Spring Run, mouth (S32, T86N, R1E) to spring source in center of S32, T86N, R1E;

Pleasant Creek (a.k.a. Springbrook), confluence with unnamed creek (E 1/2, S11, T85N, R4E, Jackson Co.) to west line S15, T85N, R4E, Jackson Co.;

South Fork Big Mill Creek, mouth (S8, T86N, R4E, Jackson Co.) to west line S17, T86N, R4E, Jackson Co.;

Storybook Hollow, mouth (S7, T86N, R4E, Jackson Co.) to south line of S12, T86N, R3E, Jackson Co.;

Tete des Morts Creek (a.k.a. Tete des Morts River), north county line (S3, T87N, R4E, Jackson Co.) to confluence with unnamed creek (NW 1/4, S4, T87N, R3E, Jackson Co.);

Unnamed Creek, mouth (S1, T86N, R3E, Jackson Co.) to west line S1, T86N, R3E, Jackson Co.;

Unnamed tributary to Lytle Creek, mouth (S7, T86N, R2E) to west line of S11, T86N, R1E;

JEFFERSON COUNTY

Crooked Creek, mouth (S1, T73N, R8W, Jefferson Co.) to east county line;

Skunk River, east county line (east line, S13, T72N, R8W, Jefferson Co.) to north county line (north line, S1, T73N, R8W, Jefferson Co.) (entire length in Jefferson Co.);

JOHNSON COUNTY

Cedar River, east county line to north county line;

Clear Creek, Interstate 380 (S34, T80N, R7W, Johnson Co.) to confluence with unnamed creek (S29, T80N, R8W, Johnson Co.);

Iowa River, south county line (south line, S32, T77N, R5W, Johnson Co.) to Coralville Dam (S22, T80N, R6W, Johnson Co.);

North Branch Old Mans Creek, mouth (S31, T79N, R7W, Johnson Co.) to north line S23, T79N, R8W, Johnson Co.;

JONES COUNTY

Buffalo Creek, mouth (S10, T84N, R4W, Jones Co.) to west county line;

Maquoketa River, east county line to north county line (entire length in county);

Mineral Creek, east county line to west line S29, T85N, R1W, Jones Co.;

Wapsipinicon River, south county line to west county line;

KEOKUK COUNTY

North Skunk River, mouth (S5, T74N, R10W, Keokuk Co.) to west county line;

Skunk River, east county line to confluence with North & South Skunk Rivers (S5, T74N, R10W, Keokuk Co.);

South English River, east county line to confluence with unnamed creek (S6, T77N, R13W, Keokuk Co.);

South Skunk River, mouth (S5, T74N, R10W, Keokuk Co.) to confluence with Olive Branch Creek (S30, T75N, R13W, Keokuk Co.);

KOSSUTH COUNTY

Buffalo Creek, mouth (S20, T97N, R28W, Kossuth Co.) to confluence with North Buffalo Creek (S4, T97N, R27W, Kossuth Co.);

East Fork Des Moines River, south county line to west county line;

LEE COUNTY

Des Moines River, mouth (S34, T65N, R5W, Lee Co.) to west county line (entire length in county);

Skunk River, mouth (S8, T68N, R2W, Lee Co.) to north county line (entire length in county);

LINN COUNTY

Bear Creek, mouth (S21, T84N, R8W, Linn Co.) to west county line;

Buffalo Creek, east county line to Highway 13 (S10, T86N, R6W, Linn Co.);

Cedar River, south county line to west county line;

East Otter Creek, confluence with Otter Creek (S7, T84N, R7W, Linn Co.) to confluence with unnamed creek (S 1/2, S28, T85N, R7W, Linn Co.);

Wapsipinicon River, east county line to north county line;

LOUISA COUNTY

Cedar River, mouth (S20, T75N, R4W, Louisa Co.) to north county line;

Iowa River, mouth to north county line (NW 1/4, S6, T76N, R5W, Louisa Co.) (entire length in county);

Long Creek, mouth (S1, T74N, R4W, Louisa Co.) to west county line;

LUCAS COUNTY

Chariton River, Rathbun Lake (S34, T71N, R20W, Lucas Co.) to Highway 14 (S31, T72N, R21W, Lucas Co.);

White Breast Creek, north county line to confluence with unnamed creek (W 1/2, NW 1/4, S6, T71N, R23W, Lucas Co.);

Wolf Creek, mouth (S15, T71N, R21W, Lucas Co.) to confluence with unnamed creek (NE 1/4, S36, T71N, R22W, Lucas Co.);

LYON COUNTY

Big Sioux River, south county line to north county line;

Little Rock River, mouth (S35, T98N, R46W, Lyon Co.) to confluence with unnamed creek (S10, T98N, R44W, Lyon Co.);

Otter Creek, mouth (S21, T98N, R44W, Lyon Co.) to south county line;

Rock River, south county line to north county line;

MADISON COUNTY

Middle River, east county line to west county line;

Thompson River, south county line to confluence with unnamed creek (NW 1/4, S7, T74N, R29W, Madison Co.);

MAHASKA COUNTY

Des Moines River, south county line to west county line (entire length in county);

North Skunk River, east county line to north county line;

MARION COUNTY

Des Moines River, east county line to west county line (entire length in county);

White Breast Creek, mouth to west county line;

MARSHALL COUNTY

Iowa River, east county line to Marshalltown Center St. Dam (S26, T84N, R18W, Marshall Co.);

Iowa River, confluence with Dowd Creek (S2, T85N, R19W, Marshall Co.) to north county line;

Minerva Creek, mouth (S2, T84N, R19W, Marshall Co.) to confluence with major unnamed creek (NW 1/4, S9, T85N, R20W, Marshall Co.);

Wolf Creek, north county line to north county line (S2, T85N, R17W, Marshall Co.) (entire length in county);

MITCHELL COUNTY

Beaver Creek, mouth to north line of S19, T99N, R15W;

Burr Oak Creek, mouth (S12, T98N, R16W, Mitchell Co.) to north line of S5, T98N, R16W, Mitchell Co.;

Cedar River, south county line to north county line;

Deer Creek, mouth (S23, T99N, R18W, Mitchell Co.) to west county line;

Little Cedar River, south county line to north county line;

Rock Creek, south county line (S14, T97N, R17W, Mitchell Co.) to north line of S26, T98N, R18W, Mitchell Co. (entire length in county between south line of S14, T97N, R17W and north line of S26, T98N, R18W);

Spring Creek, mouth to north line of S8, T97N, R16W;
Turtle Creek, mouth to east line of S7, T99N, R17W;
Wapsipinicon River, east county line to north line of S20, T100N, R15W;
MONONA COUNTY
Maple River, south line (S34, T85N, R43W, Monona Co.) to north county line;
MONROE COUNTY
Des Moines River, east county line to north county line (entire length in county);
MUSCATINE COUNTY
Cedar River, south county line to north county line;
Pine Creek, mouth (S21, T77N, R1E, Muscatine Co.) to confluence with unnamed creek (S26, T78N, R1W, Muscatine Co.);
Sugar Creek, mouth (S17, T78N, R2W, Muscatine Co.) to north county line;
O'BRIEN COUNTY
Little Sioux River, south county line to east county line;
Mill Creek, south county line to confluence with unnamed creek (NE 1/4, S9, T95N, R41W, O'Brien Co.);
PLYMOUTH COUNTY
Big Sioux River, south county line to north county line;
POLK COUNTY
Big Creek, upper extent of Big Creek Lake (S9, T81N, R25W, Polk Co.) to north county line;
Des Moines River, east county line to west county line (entire length in county);
Raccoon River, mouth (S10, T78N, R24W, Polk Co.) to west county line;
RINGGOLD COUNTY
Thompson River, east county line to north county line;
SAC COUNTY
Boyer River, south county line to confluence with unnamed creek (S6, T89N, R37W, Sac Co.);
Indian Creek, mouth (S24, T87N, R36W, Sac Co.) to north line (S20, T87N, R36W, Sac Co.);
North Raccoon River, east county line to north county line;
SCOTT COUNTY
Lost Creek, mouth (S15, T80N, R5E, Scott Co.) to confluence with unnamed creek (NW 1/4, S7, T79N, R5E, Scott Co.);
Wapsipinicon River, mouth (S13, T80N, R5E, Scott Co.) to north county line (NE 1/4, S1, T80N, R1E, Scott Co.) (entire length in county);
SIOUX COUNTY
Big Sioux River, south county line to north county line;
Rock River, mouth (S1, T95N, R48W, Sioux Co.) to north county line;
STORY COUNTY
South Skunk River, confluence with Squaw Creek (S12, T83N, R24W, Story Co.) to north county line;
TAMA COUNTY
Iowa River, east county line to west county line;
Raven Creek, mouth (S25, T83N, R16W, Tama Co.) to confluence with unnamed creek (S6, T82N, R16W, Tama Co.);
Salt Creek, east county line to confluence with South Branch Salt Creek (S29, T84N, R13W, Tama Co.);
UNION COUNTY
Thompson River, south county line to north county line;
Twelve Mile Creek, mouth (S36, T71N, R28W, Union Co.) to Twelve Mile Lake Dam (S12, T72N, R30W, Union Co.);
VAN BUREN COUNTY
Cedar Creek, east county line (SE 1/4, S12, T70N, R8W) to east county line (NE 1/4, S12, T70N, R8W);

Des Moines River, south county line to west county line (entire length in county);

WAPELLO COUNTY

Des Moines River, south county line to west county line (entire length in county);

South Avery Creek, mouth (S31, T73N, R14W, Wapello Co.) to west county line;

WARREN COUNTY

Des Moines River, east county line to north county line (entire length in county);

Middle River, confluence with Clanton Creek (S28, T76N, R25W, Warren Co.) to west county line;

White Breast Creek, east county line to south county line;

WASHINGTON COUNTY

Crooked Creek, south county line to confluence with East and West Fork Crooked Creeks (S24, T74N, R7W, Washington Co.);

English River, mouth (S11, T77N, R6W, Washington Co.) to confluence with South English River (S6, T77N, R9W, Washington Co.);

Iowa River, east county line (east line, S36, T77N, R6W, Washington Co.) to north county line (north line, S2, T77N, R6W, Washington Co.) (entire length in Washington Co.);

Long Creek, east county line to confluence with South Fork Long Creek (S26, T75N, R6W, Washington Co.);

Skunk River, south county line (SE 1/4, S36, T74N, R8W, Washington Co.) to west county line (SW 1/4, S6, T74N, R9W, Washington Co.) (entire length in county);

South English River, mouth (S6, T77N, R9W, Washington Co.) to west county line;

WEBSTER COUNTY

Boone River, mouth (S36, T87N, R27W, Webster Co.) to east county line;

Brushy Creek, west line (S16, T88N, R27W, Webster Co.) to confluence with unnamed creek (S8, T88N, R27W, Webster Co.);

Brushy Creek, mouth (S15, T87N, R27W, Webster Co.) to south line S34, T88N, R27W, Webster Co.;

Deer Creek, mouth (S24, T90N, R29W, Webster Co.) to north line S16, T90N, R29W, Webster Co.;

Des Moines River, south county line to north county line (entire length in county);

Lizard Creek, mouth (S19, T89N, R28W, Webster Co.) to confluence with D.D. #3 (S35, T90N, R30W, Webster Co.);

South Branch Lizard Creek, mouth (S23, T89N, R29W, Webster Co.) to west line S32, T89N, R29W, Webster Co.;

WINNEBAGO COUNTY

Winnebago River, south county line to north county line;

WINNESHIEK COUNTY

Bear Creek (a.k.a. South Bear Creek), east county line to source (a.k.a. Mestad Springs, S29, T100N, R7W);

Bohemian Creek, mouth to west county line;

Canoe Creek, mouth (S25, T99N, R7W, Winneshiek Co.) to west line of S8, T99N, R8W, Winneshiek Co.;

Coon Creek, mouth to road crossing in NW 1/4, S13, T98N, R7W;

Dry Run, mouth to west line of S36, T98N, R9W;

East Pine Creek, mouth (S28, T100N, R9W) to north county line (S10, T100N, R9W);

Martha Creek, mouth to west line of S13, T99N, R10W;

Middle Bear Creek, mouth to north line of S16, T100N, R7W;

Nichols Creek (a.k.a. Bigalk Creek), mouth to west county line;

North Bear Creek, mouth to north county line;

North Canoe Creek, mouth to north line of S2, T99N, R8W;

Paint Creek (a.k.a. Pine Creek), east county line to confluence with unnamed creek (SE 1/4, S11, T99N, R7W, Winneshiek Co.);

Pine Creek, mouth (S10, T99N, R9W) to north county line;

Pine Creek, mouth (S26, T99N, R7W) to north line of S21, T99N, R7W;

Silver Creek, mouth to north line of S26, T100N, R9W;

Smith Creek (a.k.a. Trout River), mouth (S21, T98N, R7W) to south line of S33, T98N, R7W;

Ten Mile Creek, mouth to confluence with Walnut Creek (S18, T98N, R9W);

Trout Creek, mouth (S9, T98N, R7W) to confluence with Smith Creek (S21, T98N, R7W);

Trout Creek, mouth (S23, T98N, R8W) to confluence with unnamed tributary (a.k.a. Trout Run) in S27, T98N, R8W;

Turkey River, south county line to west county line;

Twin Springs Creek, mouth (S17, T98N, R8W) through one half mile reach;

Unnamed Creek, mouth (SE 1/4, S11, T99N, R7W, Winneshiek Co.) to north line S12, T99N, R7W, Winneshiek Co.;

Unnamed tributary to Trout Creek (a.k.a. Trout Run), mouth (S27, T98N, R8W, Winneshiek Co.) to south line of S27, T98N, R8W;

Unnamed tributary to Upper Iowa River (a.k.a. Casey Springs Creek), mouth (S25, T99N, R9W) to west line of S26, T99N, R9W;

Unnamed tributary to Upper Iowa River (a.k.a. Coldwater Creek), mouth (S32, T100N, R9W) to north county line;

Upper Iowa River, east county line to west county line;

Yellow River, east county line to confluence with North Fork Yellow River (S13, T96N, R7W);

WOODBURY COUNTY

Little Sioux River, confluence with Parnell Creek (S25, T86N, R44W, Woodbury Co.) to east county line;

Maple River, south county line to east county line;

WORTH COUNTY

Deer Creek, east county line to confluence with unnamed creek (east line, S28, T100N, R19W, Worth Co.);

Elk Creek, mouth (S27, T99N, R20W, Worth Co.) to Highway 105 (S5, T99N, R22W, Worth Co.);

Shell Rock River, south county line to north county line;

Winans Creek, mouth (S36, T98N, R22W, Worth Co.) to N/S road crossing (S 1/2, S25, T98N, R22W, Worth Co.);

Winnebago River, south county line (S32, T98N, R21W, Worth Co.) to south county line (S34, T98N, R22W, Worth Co.) (entire length in county);

WRIGHT COUNTY

Boone River, south county line to confluence with Middle Branch Boone River (S2, T93N, R26W, Wright Co.);

Eagle Creek, south county line to confluence with Drainage Ditch No. 9 (S30, T91N, R25W, Wright Co.);

East Fork Iowa River, mouth (S19, T93N, R23W, Wright Co.) to north county line;

Iowa River, east county line (S13, T90N, R23W, Wright Co.) to confluence with East and West Fork Iowa Rivers (S19, T93N, R23W, Wright Co.) (entire length in county);

West Fork Iowa River, mouth (S19, T93N, R23W, Wright Co.) to north county line;

White Fox Creek, south county line to confluence with unnamed creek (E 1/2, SE 1/4, S36, T91N, R25W, Wright Co.).

567—72.51(455B) Protected stream designation procedure.

72.51(1) *Eligible petitioners.* Any state agency, governmental subdivision, association or interested person may petition the commission, according to the rules of this division, to designate a stream as a protected stream. However, if the stream had been the subject of a similar petition filed within the past 2 years, the commission shall not accept a petition except upon a majority vote.

72.51(2) *Content of petition.* The petition for protected stream designation shall contain the following: (a) names, addresses, and the telephone numbers of the petitioners; (b) location of the stream nominated for designation; (c) reasons why the stream is nominated, each reason being stated

in a separate numbered paragraph; and (d) adequate evidence supporting the reasons for nomination. Eleven copies of the petition shall be filed with the department.

72.51(3) *Department review of petition.* Upon receipt of a petition for designation of a stream as a protected stream, the department shall make an initial determination as to whether the petition complies with 72.51(2) and whether the stream has a sufficient number of environmental amenities listed in 72.51(7) that further investigation is warranted. If the department finds the petition not in compliance with 72.51(7) or that further investigation is not warranted, agency proceedings to designate the nominated stream as protected shall cease and the petitioner shall be notified of the reasons for refusing to accept and act upon the petition. A petitioner aggrieved by the department's decision may appeal the decision within 30 days to an executive committee of at least three commission members.

72.51(4) *Notice of initiation of protected stream designation proceedings.* Upon department acceptance of a petition nominating a stream for protected stream designation, the department shall do the following:

a. *Notice of intended action.* Publish a notice of intended action in the Iowa Administrative Bulletin, the content of which identifies the nominated stream and requests public input into the protected stream designation procedure.

b. *Commission notification.* Notify the commission at the next meeting of the filing of a petition for protected stream designation.

c. *Interested agency notification.* Notify regional planning commissions, county boards of supervisors, city councils, soil conservation districts through which the nominated stream runs, the fish and wildlife bureaus of the department, the soil conservation and water quality division of the department of agriculture and land stewardship, the department of agriculture and land stewardship and the Iowa geological survey.

d. *Countywide notification.* Publish notice of the filing of the petition in a newspaper of general circulation for two consecutive weeks in each county in which the nominated stream is located.

72.51(5) *Department investigation report.* Upon department acceptance of a petition nominating a stream for protected stream designation, the department shall do the following:

a. *Investigation.* Supervise a field staff investigation of the stream nominated for protected stream status for the purpose of assessing the effect that extending department flood plain regulation would have on the factors listed in 72.51(7);

b. *Report.* File a report with the commission at a monthly commission meeting held within one year after the notice of intended action was published; the report shall specifically state findings of fact or each reason alleged in the petition in support of a protected stream designation and convey a staff recommendation, including any minority recommendations and recommendations of other governmental bodies and interested persons on whether or not the stream should be regulated;

c. *Interagency coordination.* Invite the fish and wildlife bureaus of the department, the Iowa geological survey, and any other agency or governmental subdivision expressing an interest in the proceeding to participate in the field investigation and preparation of the report, and request their assessment of whether extension of department jurisdiction over the nominated stream would have either an adverse or beneficial impact on their agency's water resource programs.

72.51(6) *Commission determination.* After receipt of the director's report and the public has had an opportunity to submit written comments and make an oral presentation, the commission shall make a determination in writing whether or not to designate the stream identified in the petition as a protected stream, except that the commission may continue the proceeding as needed to collect or analyze additional data. The commission's determination shall be based on the factors listed in 72.51(7), as applied to the nominated stream and its flood plain, and to other relevant streams and flood plains located in the same watershed as the nominated stream, as well as any underground water system hydrologically connected to the nominated stream.

72.51(7) *Basis for protected stream designation.* Commission determination of whether or not to classify a stream as a protected stream shall be based on the balancing of the costs and benefits of possible flood plain development as it would affect the following factors: (a) maintenance of stream fishery capacity; (b) water quality preservation; (c) wildlife habitat preservation; (d) flood control; (e)

flood plain management; (f) existing flood plain developments; (g) soil erosion control; (h) the needs of agriculture and industry; (i) the maintenance and enhancement of public recreational opportunities; (j) the public's health, welfare and safety; (k) compatibility with the state water plan; (l) property and water rights of landowners; (m) other factors relevant to the control, development, protection, allocation, and utilization of the nominated stream and water hydrologically connected to it.
[**ARC 4426C**, IAB 5/8/19, effective 6/12/19]

567—72.52(455B) Protected stream declassification procedure. The procedure for removing a stream from the list of protected streams in 72.50(2) of these rules shall be the same as the rules for designation of a stream as a protected stream, except that all notices, investigations and reports shall be addressed to the issue of declassification.

These rules are intended to implement Iowa Code sections 455B.261, 455B.262, 455B.263, 455B.264, 455B.275, 455B.277, 459.102 and 459.301.

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[1] Effective date of 2/23/94 for segments incorporated by **ARC 4559A** in 72.50(2) and 72.52 delayed 70 days by the Administrative Rules Review Committee at their meeting held February 14, 1994.

CHAPTER 73
USE, MAINTENANCE, REMOVAL, INSPECTIONS, AND SAFETY OF DAMS

[Prior to 7/1/83, INRC Ch 7]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

DIVISION I
USE AND MAINTENANCE OF DAMS

567—73.1(109,455B) Operating plan for dams with movable structures.

73.1(1) *When approval of operating plan required.* An operating plan approved by the department shall be required for any dam exceeding the thresholds established in rule 567—71.3(455B) if the dam has movable structures which must operate during floods or to release a minimum downstream flow, or the impoundment water level is raised or lowered regularly or periodically.

73.1(2) *Procedures for approval of operating plan.*

a. *Form of review.* Requests for approval of an operating plan shall be submitted and reviewed in the following manner:

(1) *Where operating plan is related to proposed construction.* If an operating plan is required for a proposed new dam or because of proposed structural modification of an existing dam, the operating plan will be reviewed as part of the department review of construction plans which are required by 567—Chapters 70 to 72. Approval of the proposed operating plan will be made a part of the department permit, which approves the construction plans.

(2) *Where operating plan is not related to proposed construction.* If an operating plan is required because of a change in use of a dam and is not related to proposed structural modification of the dam, the proposed operating plan should be submitted to the department in writing together with department application Form 36, described in rule 567—70.3(455B). The applicant should indicate on Form 36 that structural modification of the dam is not proposed.

(3) *General review procedures.* Applications shall be reviewed in accordance with the procedures in 567—Chapter 70.

b. *Information required for review.* An application for approval of an operating plan shall be supported by written information identifying personnel responsible for operation of the dam, the circumstance under which gates or other movable structures must operate, the method of operation, and the method of discharge measurement. These requirements are more fully described in department Bulletin No. 16.

73.1(3) *Criteria for approval.*

a. *Required findings.* The department will approve a proposed operating plan only after the following findings are made:

(1) The proposed operating plan complies with the statutory criteria set forth in Iowa Code section 455B.275, considering the purposes of regulation set forth in Iowa Code section 455B.262 and the effects to be considered under Iowa Code section 455B.264.

(2) The proposed operating plan complies with the criteria in chapter IX of department Bulletin No. 16.

b. *Anticipation of changed circumstances.* In applying the approval criteria in paragraph *"a"* of this subrule, consideration shall be given to both existing conditions and potential future conditions which can reasonably be anticipated at the time the application is reviewed.

567—73.2(109,455B) Raising or lowering of impoundment levels.

73.2(1) *When approval required.* A separate approval is required to temporarily or permanently raise or lower the level of water impounded by a dam which exceeds the thresholds of rule 567—71.3(455B) unless the raising and lowering has been authorized as part of an approved operating plan. Such approval shall be in the form of a letter authorizing the lowering or raising and may be conditioned upon various requirements.

73.2(2) *Procedure for approval of raising or lowering impoundment water levels.* Review procedure shall be as provided for operating plans in subrule 73.1(2) except that the applicant shall submit the following additional information:

a. The date raising or lowering will be initiated, the level to which the impoundment will be raised or lowered, and, if temporary, the anticipated date when the normal water level will be restored.

b. Evidence that during raising of the water level the required minimum downstream release rate will be maintained.

c. Evidence that the discharge rate during lowering will not exceed the capacity of the stream channel below the dam.

73.2(3) *Criteria for approval of raising or lowering impoundment water levels.* The criteria for approval are the statutory criteria for approval of operating plans identified in subrule 73.1(3). In addition, as a condition of approving temporary or permanent raising or lowering of water levels, the applicant may be required to give prior notice to the director of the local county conservation board or local enforcement officer for the department and publicize the lowering locally in order to notify downstream users, persons who have boats or docks on the impoundment and other persons whose use of the impoundment might be affected.

567—73.3 to **73.9** Reserved.

DIVISION II
ABANDONMENT AND REMOVAL OF DAMS

567—73.10(109,455B) Abandonment prohibited. The abandonment of a dam, or the intent to permanently cease or cause to cease all acts of construction, operation, and maintenance of a dam, is prohibited. If any person wishes to be relieved of the responsibilities inherent in the ownership or control of a dam structure, those responsibilities shall be undertaken by another person through sale, transfer or other means or the dam shall be removed.

567—73.11(109,455B) Removal of dams.

73.11(1) *When approval required.* Agency approval is required to remove any dam which exceeds the thresholds in rule 567—71.3(455B).

73.11(2) *Procedures for approving removal of dams.*

a. *Information required.* To request approval to remove a dam the applicant shall submit a written statement including the following:

(1) Identification of the structure by name and location.

(2) Identification of the owner and, if the applicant is not the owner, evidence of authority to act for the owner.

(3) The purpose for removal of the dam.

(4) Methods to be used in drainage of the impoundment and removal of the structure and appurtenances.

(5) Proposed final disposition of the impoundment site.

(6) Names, mailing addresses and location of the immediate upstream, downstream and adjacent landowners and occupants and, in addition, names and mailing addresses of other landowners and occupants who the director or council, after reviewing the proposal, believes will have a substantial interest in or will be substantially affected by removal of the dam.

b. *Form of review.* Agency review process shall be as provided for review of operating plans in 73.1(2)*"a"*(2) and (3).

c. *Criteria for approval.* Criteria for approval of removal of a dam are the statutory criteria for approval of operating plans identified in 73.1(3).

d. *Waiver of procedures for requesting approval to remove certain small dams.* If a dam to be removed is classified as "low hazard" and is not a "major structure" as defined in 567—Chapter 70, the department may waive the requirements of paragraphs *"a"* and *"b"* of this subrule and approve removal by letter in response to oral or written notice of intent to remove the dam.

567—73.12 to **73.19** Reserved.

DIVISION III
INSPECTION OF DAMS

567—73.20(109,455B) Scope and purposes of dam safety inspection program.

73.20(1) *Scope of dam safety inspection program.* Dams subject to inspection under these rules are all dams which exceed the thresholds in rule 567—71.3(455B) and certain preexisting dams as described in 73.21(3). The scope of department staff field inspections normally is limited to visually observable features of dams and their appurtenant structures.

73.20(2) *Purposes of dam safety inspection program.* The general purposes of inspections are as follows: to evaluate the construction, operation, and maintenance of dams; to identify observable deficiencies in dams or appurtenant structures; and to identify other flood plain structures or uses which may affect the hazard class of a dam or use of an associated impoundment. Inspection reports will be used by the department in determining whether a proposed dam project complies with applicable criteria, and to determine whether the following conditions exist:

a. A permit violation;

b. A violation of law which requires that a permit be obtained;

c. A condition which constitutes a public nuisance by causing unacceptable risk of injury to the public health, safety or welfare.

567—73.21(109,455B) Types of inspections; when inspections are made.

73.21(1) *Inspections of major dam structures.*

a. *Inspection prior to construction.* A field inspection shall be made by agency staff to determine the hazard class and verify the location and plan information upon receipt of an application for approval of construction or modification of a major dam structure under 567—Chapters 70 to 72.

b. *Inspection during construction.* Construction or modification of a major dam structure shall be supervised and inspected as provided in Chapter VI of department Bulletin No. 16.

c. *Acceptance inspections.* When construction of a major dam structure or modifications thereto is essentially completed, and as-built plans and a construction report have been submitted, the agency staff shall make a field inspection to determine whether visually observable features of the dam and appurtenant structures are consistent with the approved plans and the conditions of the agency approval order. The department shall thereafter issue a letter stating that the dam is accepted or that additional work is required for acceptance of construction. Filling of the impoundment shall not begin until the department has issued the letter of acceptance.

d. *Periodic inspections after acceptance.*

(1) *Inspections by department personnel.* All major structures shall be inspected by agency staff on a regular basis. The department staff shall notify the dam owner or agent before each inspection. High hazard structures shall be inspected at least once every two years. Major structures not classified as high hazard shall be inspected at least once every five years. Structures in poor condition shall be inspected more frequently until required repairs are completed. Each inspection shall assess the condition of the dam and appurtenant structures and the adequacy of operation and maintenance practices. If warranted, the inspection may include reevaluation of the ability of the dam and appurtenant structures to adequately withstand the hydraulic loadings and pass the appropriate design floods.

(2) *Maintenance inspections by owner.* The owner of a major structure shall be responsible for annual inspections and submission of written inspection reports as provided in Chapter VI of department Bulletin No. 16.

73.21(2) *Inspections of dams other than major structures.*

a. *Preliminary site evaluation.* Department personnel may evaluate the site of a proposed dam other than a major structure from maps and aerial photographs in lieu of a field inspection.

b. *Inspection during construction.* The applicant shall be responsible for providing supervision of construction by a person experienced in the type of construction involved. The applicant shall

submit written notification of the name and business address of the person responsible for supervising construction.

c. Inspections after construction.

(1) Dams with approved operating plans shall be inspected by department personnel at least once every five years. Any problems noted shall be reported to the owner in writing.

(2) All other dams which exceed the thresholds in rule 567—71.3(455B) may be periodically inspected by department personnel to determine their condition. Any serious problems noted shall be reported to the owner in writing.

(3) Rescinded IAB 2/20/91, effective 3/27/91.

73.21(3) *Preexisting dams.* Preexisting dams are dams whose dimensions exceed the thresholds in rule 567—71.3(455B) but which were constructed and most recently modified before enactment of law requiring that approval be obtained for construction or modification.

a. Inventory and classification of certain preexisting dams. The U.S. Army Corps of Engineers, in cooperation with the department engineering staff, under the authority of the National Dam Safety Act, P.L. 92-367, have compiled an inventory of all known dams in Iowa having a permanent storage capacity in excess of 50 acre-feet. The inventory process included assignment of hazard classifications consistent with the hazard classifications in 567—subrule 72.3(2).

b. Inspection of preexisting dams.

(1) *Major structures.* Preexisting dams which are on the National Dam Safety Inventory and have dimensions which exceed the thresholds for major structures as defined in 567—Chapter 70 will be inspected by department personnel as provided in 73.21(1)*"d."*

(2) *Other preexisting dams.* Preexisting dams not classified as major structures are subject to inspection in the circumstances described in 73.23(1) to 73.23(3).

567—73.22(109,455B) Duty of dam owner to maintain, investigate, inspect and report. The owner of a dam has a responsibility to maintain the dam and appurtenant structures in a safe condition. The owner should perform regular inspections to identify potential maintenance problems. The owner of a dam which exceeds the thresholds in rule 567—71.3(455B) will be required by the department to arrange for performance of engineering investigations when needed to evaluate potential safety problems. In any case where the department determines the need for follow-up inspections, the dam owner may be required to have a qualified person make inspections and prepare written inspection reports at specified intervals.

567—73.23(109,455B) Special inspections and investigations. Special inspections and investigations shall be made by department personnel in the following instances:

73.23(1) Upon notice or evidence of unauthorized construction;

73.23(2) Upon notice or evidence that a dam has failed or is in a condition where failure appears likely, and public damages would result from such failure;

73.23(3) Upon notice or evidence that the hazard classification of a dam may no longer be valid due to changed downstream conditions;

73.23(4) At the time renewal of a storage permit is being considered if the dam has not been inspected within the previous year.

567—73.24(109,455B) Inspection by others. At the discretion of the department, an inspection report submitted by a qualified individual may be accepted in lieu of an inspection and report by the agency staff.

567—73.25(109,455B) Access for inspections a condition of construction approval. An agency order which authorizes construction or modification, operation and maintenance of a dam for which postconstruction inspections are required by these rules shall include a condition stating that agency personnel shall have access to the dam site for such inspections.

567—73.26(109,455B) Inspection reports. Agency personnel shall prepare a report of each inspection and provide a copy to the owner of the dam. An annual summary report of all dams inspected during the year shall be presented to the department.

567—73.27 to **73.29** Reserved.

DIVISION IV
DESIGNATION OF UNSAFE DAMS

567—73.30(109,455B) Procedures for designation of a dam as unsafe.

73.30(1) *Agency staff report.* If after inspection and other investigation the agency staff determines that a dam is unsafe, the staff shall prepare a report and provide copies to the owner of the dam and any other person whom the report identifies as responsible for the unsafe condition of the dam. The staff report shall identify the problems which cause the dam to be unsafe and recommend action to remedy the unsafe condition.

73.30(2) *Opportunity for comment.* The department shall provide the owner or other responsible person with a reasonable opportunity to comment on the staff report considering the degree and imminence of hazard identified in the staff report.

567—73.31(109,455B) Criteria for designating a dam as unsafe. Designation of dam as unsafe may be based on one or more of the following findings:

73.31(1) The dam has serious deficiencies in its design, construction, use, maintenance, or physical condition which would contribute to failure or otherwise increase flood damages.

73.31(2) The design, construction, operation, or maintenance of the dam is such that its anticipated performance during flooding conditions is incompatible with an applicable, approved local flood plain regulation or zoning ordinance adopted prior to the time the dam or its deficiencies were in existence.

73.31(3) The dam has inadequate spillway capacity for the size and hazard class of the dam.

567—73.32(109,455B) Agency action concerning an unsafe dam. After completion of the procedures in 73.30(109,455B), the department shall issue an initial decision which may order remedial work depending on the degree and imminence of hazard caused by the unsafe condition. Remedial work may include draining of the impoundment or removal of any structure determined to constitute a public nuisance. Procedures for appealing an initial decision are the procedures in 567—70.6(455B). If the initial decision requires emergency remedial work to abate an imminent danger of failure which would cause significant public damages as defined in 567—Chapter 70, the director may request the assistance of the attorney general to seek an appropriate judicial order compelling performance of emergency remedial work.

The rules in this chapter are intended to implement Iowa Code sections 109.15, 455B.275, 455B.277, 455B.264 and 17A.12.

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CHAPTER 74
MILLDAMS AND RACES

[Prior to 7/1/83, INRC Ch 6]
[Prior to 12/3/86, Water, Air and Waste Management[900]]
Rescinded IAB 2/20/91, effective 3/27/91.

CHAPTER 75
MANAGEMENT OF SPECIFIC FLOOD PLAIN AREAS

[Prior to 7/1/83, INRC Ch 4]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—75.1(455B) Applicability and purposes of chapter. The department has jurisdiction over all flood plains and floodways in the state for the purpose of establishing and implementing a program to promote the protection of life and property from floods and to promote the orderly development and wise use of the flood plains of the state. As part of the program, the department regulates flood plain development as defined in these rules by three alternative methods: establishment of regulations for specific stream reaches by issuance of flood plain management orders; approval of flood plain management regulations adopted by local governments; and approval of flood plain development on a case-by-case basis where areas or projects are not covered by the first two methods. Any person who desires to construct or maintain a structure, dam, obstruction, deposit or excavation, or allow the same in any flood plain or floodway has a responsibility to contact the department to determine whether approval is required from the department or a local government authorized to act for the department.

75.1(1) *Regulation of development by issuance of department flood plain management orders.* The department may issue flood plain management orders to better ensure the orderly development and wise use of the flood plains of specific stream reaches. Each flood plain management order issued shall comply with the criteria in this chapter. However, a flood plain management order issued before the effective date of an amendment of the rules in this chapter shall not be invalidated by reason of nonconformity with the amendment.

75.1(2) *Regulation of development by approval of locally adopted flood plain management ordinances.* The department may delegate regulatory authority to a local government by approving flood plain management regulations adopted by the local government to better ensure the orderly development and wise use of the flood plains of specific stream reaches. Local flood plain management regulations shall comply with the applicable criteria in this chapter. However, a local regulation approved by the department before the effective date of an amendment of the rules in this chapter shall not be invalidated by reason of nonconformity with such amendment.

75.1(3) *Regulation of development on a case-by-case basis.* Flood plain development not regulated by department flood plain management orders or department-approved, locally adopted ordinances is regulated by the department on a case-by-case basis. 567—Chapter 71 of these rules contains thresholds identifying the types of development for which such approval is required. 567—Chapter 70 contains procedures for requesting approval of development. 567—Chapter 72 contains criteria for approving development.

567—75.2(455B) Flooding characteristics. Flood plain regulations for a specific stream reach established pursuant to this chapter shall be based upon an analysis of the relevant flooding characteristics of the stream for which regulations are being established. The flooding characteristics of a stream include: flood magnitudes and frequencies; flood elevations, velocities and inundation limits; rate of rise of the flood waters and the related flood warning time; and characteristics related to changes in stream equilibrium over time. The following subrules identify standard methods for determining specific flooding characteristics.

75.2(1) *Flood frequencies and magnitudes.*

a. Discharge frequency relationship. In determining the discharge frequency relationship for the relevant flood the following frequency analysis methods shall be considered:

1. Log-Pearson Type III distribution where available records are adequate to warrant statistical analysis of the data.
2. Regional flood frequency methods such as department Bulletin No. 11 which are applicable to the stream and watershed.
3. Rainfall-runoff watershed modeling techniques.
4. Other hydrologic techniques which are consistent with accepted scientific practices.

b. *Regional flood magnitude.* In determining the magnitude of the regional flood as defined in these rules the following methods should be considered:

1. An enveloping curve of experienced Iowa flood discharges as plotted in relation to the drainage area of the stream where they occurred.
2. The Standard Project Flood as computed by the U.S. Army Corps of Engineers.
3. Flood frequency methods outlined in paragraph *"a"* of this subrule.

75.2(2) *Flood stages and inundation limits.* Standard engineering methods and experienced flood information shall be used to determine flood heights and inundation limits. Consideration shall be given to the following:

a. The Manning formula or equivalent uniform-flow formula where stream geometry and slope are reasonably uniform.

b. Steady, gradually varied flow analysis using such surface water hydraulic models as one-dimensional, fixed-bed models.

c. For areas upstream and adjacent to a dam or impounding structure, a reservoir routing shall be made to determine maximum flood pool levels.

d. Experienced flood information including high water marks, flood profiles, and aerial or other photographs.

e. Other hydraulic methods which are consistent with standard engineering practices.

75.2(3) *Flood warning and response time.* Where the effectiveness of flood protection methods depends on timely human intervention to activate flood protection works or to evacuate people or property from flood-prone areas, the available flood warning time shall be determined. In estimating flood warning time and determining the reliability of a flood warning system, consideration shall be given to the following:

a. The general flooding history of the area including information on the flood warning provided during past floods.

b. Various hydrologic methods which permit calculation of basin rainfall/runoff response, travel time of a flood wave, rate of rise of flood waters and other pertinent data.

c. Meteorologic information such as weather forecasting methods.

d. Reliability of methods proposed for providing flood warning within the available time.

e. Response time for implementing flood protection measures once the flood warning has been given.

f. Seriousness of the hazard to life and property if the warning system fails, considering flood depths, velocities, and duration.

567—75.3(455B) Area of regulation. Regulations established by department flood plain management orders or by approved local ordinances shall fix the flood plain area to be regulated. The extent of the area to be regulated shall be based on the flooding characteristics of the stream and shall be delineated on suitable topographic or planimetric maps.

567—75.4(455B) Establishment of a floodway. Regulations established by department flood plain management order or by approved local ordinances shall provide for a floodway: An area of the flood plain which must be reserved for the conveyance of flood flows so that flood heights and velocities will not be substantially increased by future encroachment on the flood plain. Delineation of the encroachment limits defining the outer limits of the floodway must conform to the following criteria insofar as possible.

75.4(1) *Increase in water surface elevation.* The increase in the water surface elevation of Q100 which would result from confining flood flows to the floodway shall not exceed one foot.

75.4(2) *Equal and opposite conveyance.* The concept of equal and opposite conveyance as defined in 567—Chapter 70 shall be used to locate encroachment limits.

75.4(3) *Protection of existing development.* To the extent feasible, encroachment limits shall be located as follows:

a. To avoid the need to seek removal of a lawful existing structure in order to safely convey Q100;

b. To minimize any increase in the level of Q100 in an area where such increase would adversely affect an existing lawful structure;

c. To avoid the need to place an existing lawful structure in a delineated floodway if the placement would result in additional restrictions on improvements or reconstruction or replacement of the structure.

75.4(4) *When acquisition of property interest required.* Where protection of an existing structure necessitates prohibition of development in an area which could otherwise be developed under the criteria in 75.4(1) and 75.4(2), the department or local governmental designee may require that the owners of land benefited by the application of criteria in this subrule acquire property interests as needed to provide an adequate alternative floodway.

567—75.5(455B) Minimum standards for flood plain and floodway uses. Regulations established must require that structures vulnerable to flood damage be protected at the time of initial construction. The level of flood protection shall be commensurate with the flood damage potential of the use, must prevent obstruction of the floodway unless mitigating measures are taken, and must regulate or prohibit uses which result in significant public damages and costs. The following minimum standards shall be met:

75.5(1) *All flood plain structures.*

a. Construction materials and methods shall be used which minimize flood damage potential.

b. Minimum levels of flood protection shall be consistent with or exceed the minimum levels of flood protection in 567—Chapter 72.

c. All structures used as dwellings shall be provided with an access which will remain passable by wheeled vehicles during Q100. But this criterion shall not apply where the department or its local designee determines that this access is not required for effective protection of life and property on the basis of the criteria for determining flood warning and response time as set forth in subrule 75.2(3).

75.5(2) *Floodway development and uses.*

a. No building or other structure, deposit of fill, or other potential obstruction shall be allowed in the floodway if the development individually or collectively would increase the level of Q100. An analysis of the effect a development would have on flood levels shall be based on the assumption that all similarly situated landowners would be allowed an equal degree of development.

b. Notwithstanding paragraph *"a"* of this subrule, a structure, associated fill, or another potential obstruction whose location in the floodway provides a substantial public benefit may be allowed if the resulting increase in flood levels is mitigated by purchase of flooding easements or execution of other appropriate agreements with the owners of property on which flooding would be increased. Examples are bridge embankments, water supply intake structures, and water wells with appurtenant fill.

c. Any fill, structure or other potential obstruction allowed in the floodway shall be the minimum amount or size to achieve the intended purpose.

567—75.6(455B) Preexisting nonconforming development and associated uses. Regulations established by a department flood plain management order or an approved local ordinance shall identify the conditions under which nonconforming development and associated uses which lawfully existed prior to the effective date of the regulations may continue. The conditions shall include criteria for additions, reconstruction, replacement and changes in use. The criteria should generally encourage improvements or replacement construction which would provide an adequate degree of flood protection commensurate with the damage potential. The criteria should prohibit the improvements or replacement only where extension of the useful life of the structure by improvement or replacement would contribute to: perpetuation of an individual or collective obstruction which causes a significant increase in the level of Q100; perpetuation of a significant hazard to health or safety during floods; or perpetuation of the potential for significant flood damages to property and associated public costs.

567—75.7(335,414,455B) Delegation of authority to local governments by approval of local regulations. The department may cooperate with and assist cities and counties in the establishment of

local flood plain management regulations. By approval of locally proposed regulations, the department may delegate portions of its flood plain regulatory authority to local governments.

75.7(1) *Written comment from the department required before locally adopted or amended regulation is effective.* Written approval from the department must be obtained before effective adoption or amendment of a local regulation which would control development in a flood plain or floodway for purposes related to flood protection. Local officials are encouraged to consult with the department in drafting local flood plain regulations to ensure that proposed local regulations conform to the minimum statewide standards in these rules. Each written approval shall be issued by the department. A local government may appeal the refusal of the department to approve a proposed regulation by notifying the department and requesting that the proposed local regulation be considered at the next meeting of the commission.

75.7(2) *Department approval not required for projects covered by local regulations.* Structures, fill, excavations and other projects which would otherwise require approval by the department in accordance with 567—Chapter 71 do not need such approval if they are approved by a local government in conformity with department-approved, locally adopted flood plain management regulations.

75.7(3) *Flood plain works not covered by local regulations.* Works on the flood plain which because of their nature or scope are not adequately covered by department-approved, locally adopted flood plain management regulations shall be subject to department approval under the provisions of 567—Chapters 70 to 72. Where it is unclear whether the works are adequately covered by such local regulations, the department shall make the determination. Examples are bridges, channel changes, dams and flood control levees.

75.7(4) *Failure of local government to enforce regulations.* The department may, from time to time, take action to ascertain the effectiveness of department-approved, locally adopted flood plain management regulations. Upon a finding that the local government has been negligent in administering the approved regulations, the department may revoke approval of same. Flood plain works found to be in violation of department-approved, locally adopted flood plain management regulations may be handled under the provisions of the department's rules for investigation of unauthorized projects.

567—75.8(335,414,455B) Review and approval of variances from local regulations. A variance from an approved local flood plain regulation shall not be effective until it has been reviewed and approved by the department in accordance with the following procedures.

75.8(1) *Duty of local government to notify department of each variance request.* After receipt of each request for variance from a local flood plain regulation approved by the department, the local government shall notify the department of the variance request on a form obtained from the department. The notice must be received by the department at least 15 days before any hearing which the local government schedules on the variance request.

75.8(2) *Written comment from the department.* After receipt of notice of a variance request, the department shall mail or deliver a written comment on the variance request. The comment shall be issued within 15 days after receipt of the notice or in time for consideration at any hearing held after expiration of the 15-day period. The comment shall be either a statement of objection or "no objection" as follows:

a. *Objection to variance request.* The department may issue an objection to the variance request. The objection may be based upon an explanation of the minimum statewide criteria which the variance request does not satisfy and the reasons why applicable criteria should not be waived. The objection may be based on a statement that the applicant for the variance has provided insufficient information for the department to determine whether the requested variance would violate applicable minimum statewide criteria. An objection based on a statement of insufficiency of information shall identify the information needed to determine whether the request would violate applicable criteria.

b. *No objection to variance requests.* The comment issued by the department may state that the department has no objection to the variance request. The comment shall briefly explain why granting of the requested variance would not violate the purposes of minimum statewide criteria. A statement of "no objection" shall constitute approval to grant the requested variance.

75.8(3) *Basis for variance.* A variance from an applicable requirement should only be granted if the applicant can show that denial of the variance would cause unnecessary hardship and that granting of the variance would not be contrary to the public interest or the underlying purposes of the requirement in question.

75.8(4) *Review or appeal of local ruling on variance request.* The appropriate forum and procedures for review or appeal of the decision of a local government on a request for variance from a regulation approved by the department depend on the relationship between the local decision and the comment submitted by the department as follows.

a. When local government grants variance after objection by department. If the local government grants a variance request after issuance of an objection by the department, the local government shall give written notice of the local action and the supporting reasons to the department. The variance shall not be effective until approved by the commission. The applicant for the variance shall have the right to a contested case proceeding before the commission or its designee if required to resolve a material issue of fact or law.

b. When local government denies variance after objection by department. If the local government denies a variance request on the basis of an objection by the department, the applicant may file a notice of appeal with the department within 20 days following the local action. The applicant for the variance shall have the right to a contested case proceeding before the commission or its designee if required to resolve a material issue of fact or law.

c. When local government grants or denies a variance request after a "no objection" comment by the department. When a local government grants or denies a variance request after receiving a "no objection" comment from the department any appeal normally should be taken in the manner provided for appeal of other local actions. An appeal should be filed with the department only if the purpose of the appeal is to challenge the basis of the "no objection" comment.

d. Duty of local government to notify department of appeal. The local government shall promptly notify the department of the filing of any petition for judicial review of local action on a variance request so the department may determine whether participation in the judicial review would be in the interest of the state.

567—75.9(335,414,455B) Notice of proposed department flood plain management order or proposed local flood plain regulation. The department shall not issue a flood plain management order establishing encroachment limits or flood plain management regulations until public notice of the proposed establishment thereof has been given and a public hearing held to provide opportunity for the presentation of all protests. Public notice and a hearing shall not be required for department approval of flood plain management regulations proposed by local governments provided that such local governments give public notice and conduct public hearings as required by their enabling legislation which authorizes local adoption of the flood plain management regulations.

These rules are intended to implement Iowa Code sections 455B.262, 455B.263, 455B.264, 455B.275 to 455B.279(2).

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CHAPTER 76
FEDERAL WATER RESOURCE PROJECTS

[Prior to 7/1/83, INRC Ch 8]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—76.1(455B) Referral of federal project. Upon referral by any federal agency of a water resource project to the department for comment in accordance with federal law, notification of such project shall be made as soon as possible to the governor, interested and affected state and federal agencies, regional planning organizations, local units of government, and other parties known to have an interest in the particular project.

567—76.2(455B) Solicitation of comments. Comments and views will be requested from all interested and affected state and federal agencies, planning organizations, multicounty planning organizations, and local units of government.

567—76.3(455B) Hearing. A public hearing will be held for the purpose of obtaining information regarding the particular project submitted to the state for comment in accordance with federal law. Unless known controversy exists a hearing will not be required in the following instances of referral:

76.3(1) *Noncomprehensive —nonflood control.* Projects related to water resources but not comprehensive in scope, not concerned with flood control, located in areas where no special problems exist or where local communities have given assurance of meeting federal requirements.

76.3(2) *Nonfeasible projects.* Projects which cannot be justified in accordance with federal criteria or which have not been provided with local assurances of meeting federal requirements or otherwise not given local support.

76.3(3) *Other states.* Projects proposed in other states where no material effect will result in Iowa.

567—76.4(455B) Formulation of comments. Department comments on federal projects will be based upon the views expressed by the interested and affected state agencies, information received at a public hearing, review by the department, and information of other sources which may come to the attention of the department. Determination of the desirability of a project will be based on but not necessarily limited to the following tests:

76.4(1) *Functions.* Whether the functions proposed to be provided throughout the project are justifiable.

76.4(2) *Need.* Whether the project is responsive to water and related resource problems of the area.

76.4(3) *Purpose.* Whether the project as planned will adequately serve the intended purpose.

76.4(4) *Relationship to comprehensive water resource plans.* Whether the proposed project is compatible with regional, state, river basin or local plans.

76.4(5) *Benefits.* Whether the benefits to be derived from the project will exceed the costs and damages of the project.

76.4(6) *Environmental effect.* That the significant environmental effects have been considered.

567—76.5(455B) Transmittal of comments. Prior to the transmittal to the sponsoring federal agency, the department comments formulated shall be coordinated with the governor and interested and affected state agencies.

567—76.6(455B) Other coordination. Prior to receipt of or after comment has been made on an official referral, the department may hold hearings, undertake coordination with the governor, interested and affected state and federal agencies, regional planning organizations, local units of government and other parties known to have an interest in a particular project; or otherwise consider a federal sponsored water resource project for the purpose of resolving conflicts and to clarify certain aspects of the project which may pose special problems.

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CHAPTERS 77 to 80
Reserved

TITLE VI
CERTIFICATION OF OPERATORS

CHAPTER 81
OPERATOR CERTIFICATION: PUBLIC WATER SUPPLY SYSTEMS AND WASTEWATER TREATMENT SYSTEMS

[Prior to 7/1/83, DEQ Ch 21]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—81.1(455B) Definitions. In addition to the definitions in Iowa Code section 455B.211, the following definitions shall apply to this chapter.

"Activated sludge" means a biological wastewater treatment process in which a mixture of wastewater and sludge floc, produced in a raw or settled wastewater by the growth of microorganisms, is agitated and aerated in the presence of a sufficient concentration of dissolved oxygen, followed by sedimentation.

"Aerated lagoon system" means a lagoon system which utilizes aeration to enhance oxygen transfer and mixing in the cell.

"Aeration" means the process of initiating contact between air and water. This definition includes but is not limited to: spraying the water in the air, bubbling air through the water, or forcing the air into the water by pressure.

"Average daily pumpage" means the total quantity of water pumped during the most recent one-year period of record divided by 365 days.

"Chlorination" means the addition of a chlorine compound or chlorine gas to water to inactivate pathogenic organisms.

"Classification" means the type of plant or distribution system: wastewater treatment plants, water treatment plants, or water distribution systems.

"Coagulation" means a process using coagulation chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs.

"Community water system (CWS)" means a public water supply system which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

"Continuing education unit (CEU)" means ten contact hours of participation in an organized education experience approved by an accredited college, university, technical institute, or issuing agency, or by the department, and must be directly related to the subject matter of the particular certificate to which the credit is being applied.

"Directly related post-high school education" means post-high school education in chemistry, microbiology, biology, math, engineering, water, wastewater, or other curriculum pertaining to plant and distribution system operation.

"Director" means the director of the department of natural resources or a designee.

"Direct responsible charge (DRC)" means, where shift operation is not required, accountability for and performance of active, daily on-site operation of the plant or distribution system, or of a major segment of the plant or distribution system. Where shift operation is required, "direct responsible charge" means accountability for and performance of active, daily on-site operation of an operating shift, or a major segment of the plant or distribution system. A city manager, superintendent of public works, city clerk, council member, business manager, or other administrative official shall not be deemed to have direct responsible charge of a plant or distribution system unless this person's duties include the active, daily on-site operation of the plant or distribution system. On-site operation may not necessarily mean full-time attendance at the plant or distribution system.

"Direct surface water filtration" means a water treatment system that applies surface water and groundwater under the influence (influenced groundwater as defined in rule 567—40.2(455B)) directly to the filters after chemical treatment consisting of coagulation and flocculation or chemical treatment consisting of coagulation. This type of system eliminates the sedimentation unit process.

"Disinfection" means a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents.

"Electrodialysis" means the demineralization of water by the removal of ions through special membranes under the influence of a direct-current electric field.

"Fixed film biological treatment" means a treatment process in which wastewater is passed over a media onto which are attached biological organisms capable of oxidizing the organic matter, normally followed by sedimentation. This definition includes but is not limited to: trickling filters, rotating biological contactors, packed towers and activated filters.

"Fluoridation" means the addition of fluoride to produce the optimum fluoride concentration in water.

"Grade" means one of seven certification levels, designated as A, I, IL, II, IIL, III, or IV.

"Ion exchange" means the process of using ion exchange materials such as resin or zeolites to remove undesirable ions from water and substituting acceptable ions, for example, ion exchange for nitrate removal or ion exchange for softening.

"Issuing agency" means a professional, technical/educational organization authorized by the department to provide continuing education for certification renewal or upgrade in accordance with the commitments and guidelines detailed in the written issuing agency agreement and procedures.

"Military service" means honorably serving on federal active duty, state active duty, or national guard duty, as defined in Iowa Code section 29A.1; in the military services of other states, as provided in 10 U.S.C. Section 101(c); or in the organized reserves of the United States, as provided in 10 U.S.C. Section 10101.

"Military service applicant" means an individual requesting credit toward certification for military education, training, or service obtained or completed in military service.

"Nontransient noncommunity water system (NTNC)" means a public water system other than a community water system which regularly serves at least 25 of the same persons four hours or more per day for four or more days per week for 26 or more weeks per year.

"Operating shift" means a specified period of time when an operator is present to conduct testing or evaluation to control operations of the plant or distribution system, to make process control changes, and to be responsible for the repair or maintenance of a plant or distribution system. An operating shift may include on-call shifts.

"Operator-in-charge" means a person or persons on site in direct responsible charge for a plant or distribution system. A city manager, superintendent of public works, city clerk, council member, business manager, or other administrative official shall not be deemed to be the operator-in-charge of a plant or distribution system unless this person's duties include the active, daily on-site operation of the plant or distribution system. On-site operation may not necessarily mean full-time attendance at the plant or distribution system.

"Plant" means those facilities which are identified as either a water treatment plant, defined as that portion of the water supply system which in some way alters the physical, chemical, or bacteriological quality of the water, or a wastewater treatment plant, defined as the facility or group of units used for the treatment of wastewater from public sewer systems and for the reduction and handling of solids removed from such wastes.

"Population equivalent" for a wastewater treatment plant means the calculated number of people who would contribute the same biochemical oxygen demand (BOD) per day as the system in question, assuming that each person contributes 0.167 pounds of five-day, 20°C, BOD per day.

"Post-high school education" means credit received for completion of courses given or cosponsored by an accredited college, university, technical institute, or issuing agency. Courses offered by regulatory agencies may also be recognized as post-high school education. One year of post-high school education is 30 semester hours or 45 quarter hours or 45 CEUs of credit.

"Primary treatment" means a treatment process designed to remove organic and inorganic settleable solids from wastewater by the physical process of sedimentation.

"Public water system certificate" means a certificate issued by the department certifying that an operator has successfully completed the certification requirements of this chapter. The certificate specifies the grades and classifications for which the certificate is valid.

"Reverse osmosis" means the process in which external pressure is applied to mineralized water against a semipermeable membrane to effectively reduce total dissolved solids (TDS) and radionuclides content as the water is forced through the membrane.

"Rural water district" means a water supply incorporated and organized as such pursuant to Iowa Code chapter 357, 357A or 358.

"Shift operator" means the operator on site who has responsibility for making process control changes and adjustments to the operation, repair, and maintenance of a plant or distribution system during any operating shift. Duties include testing or evaluation to control operations of the plant or distribution system.

"Stabilization" means the addition of chemical compounds to water to maintain an ionic equilibrium whereby the water is not in a depository or corrosive state.

"Veteran" means an individual who meets the definition of "veteran" in Iowa Code section 35.1(2).

"Waste stabilization lagoon" means an excavation designed and constructed to receive raw or pretreated wastewater in which stabilization is accomplished by several natural self-purification processes. This definition includes both anaerobic and aerobic lagoons.

"Wastewater treatment plant" means the facility or group of units used for the treatment of wastewater from public sewer systems and for the reduction and handling of solids removed from such wastes.

"Water distribution system" means that portion of the water supply system in which water is conveyed from the water treatment plant or other supply point to the premises of the consumer, including storage facilities and pumping stations. For the purposes of this chapter, a water distribution system does not include individual service lines to the premises of the consumer, which are not under the control of the system.

"Water supply system" means the system of pipes, structures, and facilities through which water for a public water supply is obtained, treated, sold or distributed for human consumption or household use.

"Water treatment plant" means that portion of the water supply system which in some way alters the physical, chemical, or microbiological quality of the water.

[**ARC 1911C**, IAB 3/18/15, effective 4/22/15; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—81.2(455B) General.

81.2(1) *Plant grade for system with multiple treatment processes.* A plant having a combination of treatment processes that are in different grades shall be assigned the highest numerical plant grade of that combination.

81.2(2) *Increase in facility grade for complex systems.* The director may increase a plant or water distribution system grade above that indicated in rules 567—81.3(455B) to 567—81.6(455B) for those systems which in the judgment of the director include unusually complex treatment processes, complex distribution systems, or which present unusual operation or maintenance conditions.

81.2(3) *Operator-in-charge certification requirement.* The operator-in-charge shall hold a certificate of the same classification of the plant or water distribution system and of equal or higher grade than the grade designated for that plant or distribution system.

81.2(4) *Shift operator certification.* Any person who is responsible for the operation of an operating shift of a plant or distribution system or major segment of the plant or distribution system and is under the supervision of the operator-in-charge identified in 81.2(3) shall be certified in a grade no less than a Grade II level for Grade III and IV plants and distribution systems and Grade I for Grade I and II plants and distribution systems.

81.2(5) *Public water system certificate requirement.* The operator who is designated by the owner to be the operator-in-charge of both the water treatment plant and the water distribution system shall hold a public water system (PWS) certificate valid for water treatment and water distribution in accordance with 81.2(3) and 81.2(6).

81.2(6) *PWS certificate.* A PWS certificate shall be issued to an operator successfully completing water treatment or water distribution certification. The PWS certificate shall specify the grade and classification for which the certificate is valid. An operator successfully completing both water treatment and water distribution certification shall be issued a PWS certificate valid for both classifications. For purposes of renewal, all renewal fees and CEU requirements shall be applied as one certification. The

number of CEUs required shall be determined by the highest certification grade on the operator's public water system certificate.

81.2(7) *PWS certificate issuance.* Rescinded IAB 1/7/04, effective 2/11/04.

81.2(8) *Notification requirements for a personnel change in the operator-in-charge.* The owner of a plant or distribution system must notify the department of a change in operator(s)-in-charge within 30 days after the change.

81.2(9) *Change of address or employment.* Certified operators must report to the department a change in address or employment within 30 days after the change.

81.2(10) *Owner reporting requirements.* All owners of plants and distribution systems must report, when requested by the department, the method of treatment provided, the average daily pumpage, and the operator(s)-in-charge.

81.2(11) *Compliance plan.* When the director allows the owner of a plant or distribution system required to have a certified operator time to obtain an operator, the owner must submit a compliance plan indicating what action will be taken to obtain a certified operator. The plan must be on Form 52, Compliance Plan 542-3120, provided by the department and must be submitted within 30 days of the facility owner's receipt of a notice of violation.

567—81.3(455B) Wastewater treatment plant grades.

81.3(1) *Classifications.* The wastewater treatment plant classifications are listed in the following table:

Wastewater Treatment Plant Classifications

Treatment Type	Grade				
	Based on Design Pounds of BOD_5/day				
	less than 334	334-835	836-2,505	2,506-8,350	more than 8,350
	Based on Design Population Equivalent				
	less than 2,000	2,000-5,000	5,001-15,000	15,001-50,000	more than 50,000
1. Primary Treatment	I	I	II	III	IV
2. Waste Stabilization Lagoon	IL	IL	IL	IL	IL
3. Aerated Lagoon System	IL	IL	IIL	IIL	IIL
4. Fixed Film Biological Treatment	II	II	III	III	IV
5. Activated Sludge	II	III	III	IV	IV

81.3(2) *Unknown design BOD_5 loading.* When the design BOD_5 loading is unknown, the plant BOD_5 loading shall be determined by using the average pounds of BOD_5 of the 24-hour composite samples taken in the last 12 months. If no 24-hour composite samples were taken, then grab samples shall be used.

81.3(3) *IL and IIL wastewater operator requirements.* A Grade I, II, III, or IV wastewater treatment certificate will satisfy the certification requirements for a Grade IL plant. A Grade II, III, or IV wastewater treatment certificate will satisfy the certification requirements for a Grade IIL plant.

567—81.4(455B) Water treatment plant grades.

81.4(1) *Classifications.* The water treatment plant classifications are listed in the following table:

Water Treatment Plant Classifications

Treatment Type	Grade*			
	Average Daily Pumpage in MGD			
	0-0.1	>0.1-0.5	>0.5-1.5	>1.5
1. Iron or manganese removal; aeration; chlorination; fluoridation; stabilization; any other chemical addition; or any combination of these processes	I	II	II	III
2. Ion exchange	II	II	III	III
3. Direct surface water filtration	II	II	III	III
4. Utilization of lime, soda ash or other chemical addition for pH adjustment in the precipitation and coagulation of iron or manganese	II	II	III	III
5. Complete surface water clarification or lime softening of surface water or groundwater	III	III	III	IV
6. Reverse osmosis and electrodialysis	II	II	III	IV
7. Activated carbon for THM or synthetic organics removal	III	III	III	IV

*For Grade A water supply classification, see subrule 81.6(1).

81.4(2) *Average daily pumpage.* When the average daily pumpage is unknown, the plant grade will be determined from the population of the most recent census and an evaluation of commercial, industrial, and other users.

567—81.5(455B) Water distribution system grades.

81.5(1) *Classifications.* The water distribution plant classifications are listed in the following table:

Water Distribution System Classifications*

System Type	Grade**			
	Average Daily Pumpage in MGD			
	0-0.1	>0.1-1.5	>1.5-5	>5
All municipal water systems	I	II	III	IV
Community water systems not classified as a Grade A water system	I	II	III	IV
Nontransient noncommunity water systems not classified as a Grade A water system	I	II	III	IV
	Miles of Pipe			
	0-100	>100-1,000	>1,000-2,500	>2,500
Rural water districts	II	II	III	IV

*Note: A public water system with a well, storage, and a distribution system shall be classified as a water distribution system if no treatment is provided.

**For Grade A water system classification, see subrule 81.6(1).

81.5(2) *Average daily pumpage.* When the average daily pumpage is unknown, the system grade will be determined from the population of the most recent census and an evaluation of commercial, industrial, and other users.

81.5(3) *IR certificate holders.* Rescinded IAB 1/7/04, effective 2/11/04.

567—81.6(455B) Grade A classification.

81.6(1) *Grade A water system classification.*

a. Community water system. A community water system, other than a municipal or rural water system, which serves a population of 250 persons or less and provides no treatment other than

hypochlorination or treatment which does not require any chemical addition, process adjustment, backwashing or media regeneration by an operator shall be classified as a Grade A water system.

b. Nontransient noncommunity water system. A nontransient noncommunity water system which serves a population of 500 persons or less and provides no treatment other than hypochlorination or treatment which does not require any chemical addition, process adjustment, backwashing or media regeneration by an operator shall be classified as a Grade A water system.

c. Transient noncommunity water system. A transient noncommunity water system which serves a population of 500 or fewer persons and provides no treatment other than hypochlorination or treatment which does not require any chemical addition, process adjustment, backwashing or media regeneration by an operator shall be classified as a Grade A water system.

81.6(2) *Certification requirements for Grade A water systems.* Any grade of water treatment certification will satisfy the certification requirements for a Grade A water system with hypochlorination. Any grade of water distribution certification will satisfy the certification requirements for a Grade A water system without hypochlorination.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—81.7(455B) Operator education and experience qualifications.

81.7(1) *Education and experience requirements.* All applicants shall meet the education and experience requirements for the grade of certificate shown in the table below prior to being allowed to take the examination. Experience shall be in the same classification for which the applicant is applying except that partial credit may be given in accordance with 81.7(2) and 81.7(3). Directly related post-high school education shall be in the same subject matter as the classification in which the applicant is applying. The director will determine which courses qualify as "directly related" in cases which are not clearly defined. A military service applicant may apply for credit for verified military education, training, or service toward any education or experience requirement for certification, pursuant to subrule 81.7(4).

Operator Education and Experience Qualifications

Grade	Education	Substitution for Education	Experience	Substitution for Experience
A	High school diploma or GED	None	Completion of an IDNR-approved training course	None
I	High school diploma or GED	None	1 year	See 81.7(3)*"b"*(1), (3) to (5)
IL	High school diploma or GED	None	1 year	See 81.7(3)*"b"*(1), (3) to (5)
II	High school diploma or GED	None	3 years	See 81.7(3)*"b"*(2) to (5)
IIL	High school diploma or GED	None	3 years	See 81.7(3)*"b"*(2) to (5)
III	High school diploma or GED and 2 years of post-high school education (1 year must be directly related)	See 81.7(3)*"a"* (1), (3)	4 years of experience in a Grade I or higher	See 81.7(3)*"b"*(2), (3)
IV	High school diploma or GED and 4 years of post-high school education (2 years must be directly related)	See 81.7(3)*"a"* (2), (3)	4 years of experience including 2 years of DRC in a Grade III or higher	See 81.7(3)*"b"*(2), (3) and 81.7(3)*"c"*

81.7(2) *Related work experience.* The following substitutions of related work experience for operating experience requirements may be accepted by the director.

a. Laboratory personnel. Laboratory personnel employed in water or wastewater treatment plants may be allowed 50 percent credit for work experience toward meeting the operating experience requirements for Grades I and II certification only. Laboratory experience must be in the same classification for which the applicant is applying.

b. Oversight personnel. Personnel with experience in on-site operation review and evaluation of plants and distribution systems may be allowed 50 percent credit for on-site work experience toward meeting the operating experience requirements for Grades I and II certification only. On-site experience must be in the same classification for which the applicant is applying.

c. Maintenance personnel. Maintenance personnel employed in water or wastewater treatment plants may be allowed 50 percent credit for work experience toward meeting the operating experience requirements for Grades I and II certification only. Maintenance experience may be applied either to the water or to the wastewater experience requirements.

d. Certified operators.

(1) Certified water treatment operators may be allowed 50 percent credit for work experience toward meeting the operating experience requirements for Grades I and II wastewater treatment certification only.

(2) Certified wastewater treatment operators may be allowed 50 percent credit for work experience toward meeting the operating experience requirements for Grades I and II water treatment certification only.

(3) Certified water treatment operators may be allowed 50 percent credit for work experience toward meeting the operating experience requirements for Grades I and II water distribution certification only.

(4) Certified water distribution operators may be allowed 50 percent credit for work experience toward meeting the operating experience requirements for Grades I and II water treatment certification only.

e. Limitation. The portion of related work experience that is substituted for operating experience cannot also be used to substitute for education.

81.7(3) *Experience and education substitutions.* The following substitutions for experience or education may be accepted by the director.

a. Substitution of experience for education.

(1) One year of operating experience in a Grade II or higher position may be substituted for one year of post-high school education for Grade III certification up to one-half of the post-high school education requirement.

(2) One year of operating experience in a Grade III or higher position may be substituted for one year of post-high school education for Grade IV certification up to one-half of the post-high school education requirement.

(3) Two years of direct responsible charge experience in a Grade III or higher position may be substituted for one year of directly related post-high school education for Grade IV certification up to three-fourths of the post-high school education requirement.

(4) That portion of experience which is applied toward substitution for education cannot also be used for experience.

b. Substitutions of education for experience.

(1) Two semester hours or three quarter hours or three CEUs of directly related post-high school education may be substituted for one-half the experience requirement for Grades I and IL.

(2) Thirty semester hours or 45 quarter hours or 45 CEUs of post-high school education may be substituted for one year of experience up to a maximum of one-half the experience requirement for Grades II, IIL, III and IV.

(3) That portion of education which is applied toward substitution for experience cannot also be used for education.

(4) Class hours involving closely supervised on-the-job type training in a pilot or full-scale facility where there are clearly defined educational objectives may be applied to the on-the-job experience requirement. The substitution value of such training shall be applicable only toward obtaining a Grade I and Grade II certification and shall not exceed one-half year of on-the-job experience. One hour of on-the-job training is equivalent to three hours of on-the-job experience. One month of on-the-job training consists of 20 eight-hour days. Credit for on-the-job training may be applied only to the examination for the type of system in which the experience was obtained.

(5) That portion of on-the-job training courses which is applied toward substitution for the on-the-job experience requirement cannot also be used for education.

c. *Substitution of education for direct responsible charge experience.* Thirty semester hours or 45 quarter hours or 45 CEUs of directly related post-high school education may be substituted for one year of direct responsible charge experience up to one-half the requirement for Grade IV certification.

81.7(4) *Military education, training, and service credit.*

a. The applicant shall identify the experience or education certification requirements for which the credit is requested.

b. As part of the examination application pursuant to subrule 81.9(1), the applicant shall provide documents, military transcripts, a certified affidavit, or forms that verify completion of the relevant military education, training, or service, which may include, when applicable, the applicant's Certificate of Release or Discharge from Active Duty (DD Form 214) or Verification of Military Experience and Training (VMET) (DD Form 2586).

[**ARC 1911C**, IAB 3/18/15, effective 4/22/15; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—81.8(455B) Certification and examination fees.

81.8(1) *Examination fee.* The examination fee for each examination shall be $30.

81.8(2) *Oral examination fee.* Rescinded IAB 4/11/18, effective 5/16/18.

81.8(3) *Reciprocity application fee.* The reciprocity application fee for each type of classification shall be $30.

81.8(4) *Certification fee.* The certification fee shall be $20 for each one-half year of a two-year period from the date of issuance to June 30 of odd-numbered years.

81.8(5) *Renewal fee.* The certification renewal fee shall be $60.

81.8(6) *Penalty fee.* The certification and renewal penalty fee shall be $18.

81.8(7) *Duplicate certificate fee.* The duplicate certificate fee shall be $20.

81.8(8) *Temporary certificate fee.* The temporary certificate fee shall be $60.

81.8(9) *Fee adjustments.* The department may adjust the fees annually by up to plus or minus 20 percent to cover costs of administering and enforcing these rules and reimbursement for other expenses relating to operator certification. The environmental protection commission must approve any fee increases above those listed in 81.8(1) through 81.8(8). All fees collected shall be retained by the department for administration of the operator certification program.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—81.9(455B) Examinations.

81.9(1) *Examination application.* All persons wishing to take the examination required to become a certified operator of a wastewater or water treatment plant or a water distribution system shall complete the Operator Certification Examination Application, Form CFN-542-3118/CPG-63997. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate educational background, training and past experience in water or wastewater operation. The completed application and examination fee shall be sent to Iowa Department of Natural Resources, Water Supply Section, 502 East Ninth Street, Des Moines, Iowa 50319-0034. The completed application and examination fee must be received by the department at least 30 days prior to the date of examination.

81.9(2) *Application evaluation.* The director shall designate department personnel to evaluate all applications for examination, certification, and renewal of certification and upgrading of certification. After evaluation of the application, the department will issue the applicant either a letter of examination

eligibility or a letter of examination noneligibility that includes a description of the education or experience requirements that have not been met. The director will review applications when it is indicated that the applicant has falsified information or when questions arise concerning an applicant's qualifications of eligibility for examination or certification.

81.9(3) *Application expiration.* A properly completed application for examination shall be valid for one year from the date the application is approved by the department. An applicant may request only one class and grade of examination with each application. A new application shall be required with each different class or grade of examination desired by the applicant.

81.9(4) *Refund of examination fee.* An applicant who does not qualify for examination at the time of application will have the examination fee refunded if the applicant cannot qualify for examination within one year. If the applicant will qualify for a scheduled examination within one year, the applicant will be notified when the examination may be taken and the fee will not be refunded.

81.9(5) *Reexamination.* Upon failure of the first examination, the applicant may apply for reexamination. Upon failure of the second examination, the applicant shall be required to wait a period of at least 30 days between each subsequent examination.

81.9(6) *Reexamination fee.* Upon each reexamination when a valid application is on file, the applicant shall submit the examination fee to the department at least ten days prior to the date of examination.

81.9(7) *Application invalidation.* Failure to successfully complete the examination within one year from the date of approval of the application shall invalidate the application.

81.9(8) *Retention of completed examinations.* Rescinded IAB 1/7/04, effective 2/11/04.

81.9(9) *Oral examination.* Rescinded IAB 4/11/18, effective 5/16/18.

81.9(10) *Reasonable accommodation.* Upon request for certification by an applicant, the director will consider on an individual basis reasonable accommodation to allow administration of the examination without discrimination on the basis of disability. The applicant shall request the accommodation 30 days prior to the date of the examination. The applicant must provide documentation of eligibility for the accommodation. Documentation shall be submitted with the completed examination application.

[**ARC 1911C**, IAB 3/18/15, effective 4/22/15; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—81.10(455B) Certification by examination.

81.10(1) *Examination requirement.* All applicants not addressed for certification in 81.11(1) shall successfully complete and pass an examination prior to receiving certification.

81.10(2) *Certification application time line.* Application for certification must be received by the department within 30 days of the date the applicant receives notification of successful completion of the examination. All applications for certification shall be made on a form provided by the department and shall be accompanied by the certification fee.

81.10(3) *Late certification application.* Applications for certification by examination which are received more than 30 days but less than 60 days after notification of successful completion of the examination shall be accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days' notice of successful completion of the examination will not be certified on the basis of that examination.

567—81.11(455B) Certification by reciprocity.

81.11(1) *Other states' mandatory certification programs.* For applicants who have been certified under other states' mandatory certification programs, the equivalency of which has been previously reviewed and accepted by the department, certification in an appropriate classification and grade, without examination, will be recommended. The applicant must have successfully completed an examination generally equivalent to the Iowa examination and must meet the education and experience qualifications established by the director.

81.11(2) *Other states' voluntary certification programs.* For applicants who have been certified under voluntary certification programs in other states, certification in an appropriate class will be

considered. The applicant must have successfully completed an examination generally equivalent to the Iowa examination and must meet the education and experience qualifications established by the director. The director may require the applicant to successfully complete the Iowa examination.

81.11(3) *Reciprocity application.*

a. All applicants. Applicants who seek Iowa certification pursuant to subrule 81.11(1) or 81.11(2) shall submit an Operator Certification Reciprocity Application accompanied by a letter requesting certification pursuant to these subrules. Application for certification pursuant to 81.11(1) and 81.11(2) shall be received by the director in accordance with these subrules. The applicant shall be certified at the appropriate grade pursuant to subrule 81.7(1).

b. Veteran applicants. An applicant who is a veteran shall submit an Operator Certification Reciprocity Application pursuant to paragraph 81.11(3)*"a"* and shall also provide such documentation as is needed to verify the applicant's status as a veteran under Iowa Code section 35.1(2). The veteran's application shall be given priority and shall be expedited.

81.11(4) *Certification obtained through reciprocity.* An applicant who obtains certification in Iowa through reciprocity and subsequently allows the certification to lapse will be required to reapply for certification in accordance with 567—81.10(455B).

[**ARC 1911C**, IAB 3/18/15, effective 4/22/15]

567—81.12(455B) Restricted certification. Upon written request by an operator, the director may determine that further education requirements be waived when a plant or distribution system grade has been increased and the operator has been in direct responsible charge of the existing plant or distribution system. An operator successfully completing the examination will be restricted to that plant or distribution system until the education requirements are met.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—81.13(455B) Certification renewal.

81.13(1) *Renewal period.* All certificates shall expire on June 30 of odd-numbered years and must be renewed every two years in order to maintain certification.

81.13(2) *Application for renewal.* An application for renewal will be mailed to currently certified operators prior to the expiration date of their certificates. Application for renewal must be made in accordance with this rule and the instructions on the form in order to renew the certificate for the next two years. Application for renewal of a certificate without penalty must be received by the director or postmarked prior to the expiration of the certificate, and shall be accompanied by the certification renewal fee.

81.13(3) *Late application.* A late application for renewal of a certificate may be made provided that the application is received by the director or postmarked within 60 days of the expiration of the certificate on forms provided by the department. Such late application shall be accompanied by the penalty fee and the certification renewal fee.

81.13(4) *Failure to renew.* If a certificate holder fails to renew within 60 days following expiration of the certificate, the right to renew the certificate is automatically terminated. Certification may be allowed at any time following such termination, provided that the applicant meets all education and experience eligibility requirements pursuant to 567—81.7(455B), and successfully completes an examination. The applicant must then apply for certification in accordance with 567—81.10(455B).

81.13(5) *Expired certificate.* An operator may not continue as the operator-in-charge of a plant, distribution system, operating shift, or major segment of the plant or distribution system after expiration of a certificate unless the certificate is renewed.

567—81.14(455B,272C) Continuing education.

81.14(1) *CEU requirements.* Continuing education must be earned during two-year periods between April 1 and March 31 of odd-numbered years. A Grade III or IV certified operator must earn two units or 20 contact hours per certificate during each two-year period. All other certified operators must earn one unit or 10 contact hours per certificate during each two-year period. Newly certified operators (previously uncertified) who become certified after April 1 of a two-year period will not be required to earn CEUs

until the next two-year period. If an operator upgrades a certificate after April 1 of a two-year period and that upgrade increases the CEU requirement, the operator will not be required to meet the higher CEU requirement until the next two-year period but must fulfill the lower CEU requirement for that period. For those certified operators holding both a water treatment and a water distribution certification, no less than 25 percent of the required CEUs may be earned in any one area.

81.14(2) *Certificate renewal.* Only those operators fulfilling the continuing education requirements before the end of each two-year period (March 31) will be allowed to renew their certificate(s). The certificate(s) of operators not fulfilling the continuing education requirements shall expire on June 30 of each odd-numbered year.

81.14(3) *CEU approval.* All activities for which continuing education credit will be granted must be approved by an accredited college, university, technical institute, or issuing agency, or by the department, and must be directly related to the subject matter of the particular certificate to which the credit is being applied. Any entity holding courses in Iowa for which continuing education credit is offered for water treatment, water distribution, or wastewater operator certification must provide at no cost to the department the opportunity for one staff member to audit the training and receive all training materials.

81.14(4) *CEU extensions.* The director may, in individual cases involving hardship or extenuating circumstances, grant an extension of up to three months within which the certified operator may fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator which prevent attendance at the required activities. All requests for extensions must be made prior to March 31 of each biennium.

81.14(5) *CEU reporting.* It is the certified operator's personal responsibility to maintain a written record and to notify the department of the continuing education credit earned during the period. The continuing education credits earned during the period shall be listed on the application for renewal.

567—81.15(455B) Upgrading of certificates. A person holding an unexpired certificate may upgrade the certificate by examination to a higher grade in the same classification in accordance with 567—81.7(455B), 567—81.9(455B) and 567—81.10(455B). The expiration date of the upgraded certificate shall be the same as the unexpired certificate. A person who upgrades a certificate during the biennium must also renew the upgraded certificate in accordance with 567—81.13(455B) and 567—81.14(455B,272C) to maintain the person's certification.

567—81.16(455B) Operator by affidavit.

81.16(1) *Affidavit allowance.* The owner of a plant or distribution system that is required to have a Grade A, I, IL, II, IIL certified operator may sign an affidavit with a certified operator of the required classification and grade.

81.16(2) *Affidavit requirements.* This affidavit will verify that the certified operator is the operator-in-charge and has direct responsibility for a plant or distribution system that does not have first rights on the services of that operator. The affidavit form shall be provided by the director and shall require the name and signature of the certified operator, the operator's certification number, class and grade, and the date of last renewal of the operator's certificate. The affidavit form shall be proof that the certified operator has agreed to be directly responsible for the operation and maintenance of the plant or distribution system. The director may specify additional operational and maintenance requirements based on the complexity and size of the plant or distribution system. Four duly notarized copies of the affidavit must be returned to and approved by the director, based upon the ability of the certified operator to properly operate and maintain additional facilities. In event of disapproval, the owner of the plant or distribution system must terminate the agreement with the certified operator and seek the services of another certified operator. Both the owner of the plant or distribution system and the certified operator shall notify the director at least 30 days before the termination of the agreement.

567—81.17(455B,272C) Disciplinary actions.

81.17(1) *Reasons for disciplinary action.* Disciplinary action may be taken against a certified operator on any of the grounds specified in Iowa Code section 455B.219 and chapter 272C and the following more specific grounds.

a. Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified operator.

(1) Wastewater operator duties. Examples of a wastewater operator's duties are specified in the Water Environment Federation Manual of Practice #11, 1996; California State University—Sacramento (CSUS) Operation of Wastewater Treatment Plants, Volume I, 4th edition, 1998; CSUS Operation of Wastewater Treatment Plants, Volume II, 4th edition, 1998; CSUS Advanced Waste Treatment, 3rd edition, 1998; and 567—Chapters 60 through 64, 67, and 83, Iowa Administrative Code.

(2) Water treatment or distribution operator duties. Examples of a water treatment or distribution operator's duties are specified in the American Water Works Association (AWWA) Manuals of Water Supply Practice (Volumes 1, 3-7, 9, 11-12, 14, 17, 19-38, 41-42, 44-48); AWWA Water Supply Operations Series, 2nd edition: Vol. 1, 1995; Vol. 2, 1995; Vol. 3, 1996; Vol. 4, 1995; and Vol. 5, 1995; AWWA Water Distribution Operator Handbook, 2nd edition, 1976; and California State University—Sacramento (CSUS) Water Treatment Plant Operation, Volume I, 4th edition, 1999; CSUS Water Treatment Plant Operation, Volume II, 3rd edition, 1998; CSUS Small Water System Operation and Maintenance, 4th edition, 1999; CSUS Water Distribution System Operation and Maintenance, 4th edition, 2000; and 567—Chapters 40 through 43 and 83, Iowa Administrative Code.

b. Failure to submit required records of operation or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

c. Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

d. Fraud in procuring a license.

e. Professional incompetence.

f. Knowingly making misleading, deceptive, untrue or fraudulent representations in the practice of the licensee's profession or engaging in unethical conduct or practice harmful or detrimental to the public. Proof of actual injury need not be established.

g. Habitual intoxication or addiction to the use of drugs.

h. Conviction of a felony related to the profession or occupation of the licensee. A copy of the record of conviction or plea of guilty shall be conclusive evidence.

i. Fraud in representations as to skill or ability.

j. Use of untruthful or improbable statements in advertisements.

k. Willful or repeated violations of the provisions of Iowa Code chapter 272C or 455B, division III.

81.17(2) *Disciplinary sanctions.* Disciplinary sanctions may include those specified in Iowa Code section 272C.3(2) and the following:

a. *Revocation of a certificate.* Revocation may be permanent without chance of recertification or for a specified period of time.

b. *Partial revocation or suspension.* Revocation or suspension of the practice of a particular aspect of the operation of a plant or distribution system, including the restriction of operation to a particular plant or distribution system, or a particular type of plant or distribution system.

c. *Probation.* Probation under specified conditions relevant to the specific grounds for disciplinary action.

d. *Additional education, training, and examination requirements.* Additional education, training, and reexamination may be required as a condition of reinstatement.

e. *Penalties.* Civil penalties not to exceed $1,000 may be assessed for causes identified in 81.17(1).

81.17(3) *Procedure.*

a. *Initiation of disciplinary action.* The department staff shall initiate a disciplinary action by conducting such lawful investigation as is necessary to establish a legal and factual basis for action.

The administrator of the environmental protection commission or designee shall make a decision as to any disciplinary action based on the department staff recommendations. Except as specified by this subrule, the disciplinary action shall be initiated by a notice of intended action in accordance with rule 561—7.16(17A,455A). At any time, the licensee and the department may enter into a settlement agreement, subject to approval by the director, which provides for a disciplinary sanction.

b. Request for hearing. Notwithstanding references in 561—subrule 7.16(4), a licensee shall be deemed to have waived any right to a contested case hearing unless the licensee appeals the action and requests a hearing within 30 days of receipt of the notice of intended action. If a timely appeal is filed, further contested case procedures shall apply in accordance with 561—Chapter 7.

c. Appeal and review of proposed decision. After a contested case hearing conducted in accordance with rule 561—7.14(17A,455A), the director shall review the presiding officer's proposed decision issued in accordance with 561—subrule 7.15(3). The proposed decision shall constitute a final decision of the director and the department unless the licensee or the director and department appeal the proposed decision to the environmental protection commission within 30 days of receipt as provided in 561—subrule 7.15(5).

d. Effective date of suspension or revocation. Notwithstanding any contrary interpretation in 561—subrule 7.16(7), suspension, revocation or other disciplinary action shall be effective 30 days after receipt of the notice of intended action if the licensee fails to file a timely appeal and request for hearing. If a contested case hearing is timely requested, the disciplinary action is effective as specified in the presiding officer's proposed decision unless the licensee obtains a stay of the action in accordance with 561—subrule 7.15(7) pending a timely appeal to the environmental protection commission.

e. Emergency disciplinary action. The director may initiate an emergency suspension or other disciplinary action upon such grounds and following those procedures as provided in 561—subrule 7.16(6). The terms of the emergency order shall be effective upon service as provided in 561—subrule 7.16(7). The department shall promptly give notice of an opportunity to appeal and request a contested case hearing following the procedures as specified above.

f. Reinstatement of revoked certificates. Upon revocation of a certificate in accordance with the authority provided in Iowa Code section 455B.219 and chapter 272C, application for certification may be allowed after two years from the date of revocation unless otherwise specified in accordance with 81.17(2). Any such applicant must meet all education and experience eligibility requirements pursuant to 567—81.7(455B), and successfully complete an examination and be certified in the same manner as a new applicant.

81.17(4) *Noncompliance with child support order procedures.* Upon receipt of a certification of noncompliance with a child support obligation as provided in Iowa Code section 252J.7, the department will initiate procedures to deny an application for certification or renewal, or to suspend a certification in accordance with Iowa Code section 252J.8(4). The department shall issue to the person by restricted certified mail a notice of its intent to deny or suspend operator certification based on receipt of a certificate of noncompliance. The suspension or denial shall be effective 30 days after receipt of the notice unless the person provides the department with a withdrawal of the certificate of noncompliance from the child support recovery unit as provided in Iowa Code section 252J.8(4)*"c."* Pursuant to Iowa Code section 252J.8(4), the person does not have a right to a hearing before the department to contest the denial or suspension action under this subrule but may seek a hearing in district court in accordance with Iowa Code section 252J.9.

These rules are intended to implement Iowa Code sections 455B.211 to 455B.224 and chapter 272C.

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CHAPTER 82
WELL CONTRACTOR CERTIFICATION
[Prior to 5/12/93, see also 567—Ch 37]

567—82.1(455B) Definitions. In addition to the definitions in Iowa Code sections 455B.171, 455B.190 and 455B.190A, which are hereby adopted by reference, the following definitions shall apply to this chapter:

"Certified well contractor" means a well contractor who has successfully passed an examination prescribed by the department to determine the applicant's qualifications to perform well drilling or pump services or both.

"Class 1 well" means a well 100 feet or less in depth and 18 inches or more in diameter.

"Class 2 well" means a well more than 100 feet in depth or less than 18 inches in diameter or a bedrock well. Bedrock wells include:

1. Wells completed in a single confined aquifer;
2. Wells completed in a single unconfined aquifer; and
3. Wells completed in multiple aquifers.

"Class 3 well" means a sandpoint well 50 feet or less in depth and having a casing inside diameter of 2 inches or less constructed by joining a screened drive point with lengths of pipe and driving the assembly into a shallow sand and gravel aquifer.

"Classification" means one of three levels of well contractor certification, designated as certified well contractor, provisionally certified well contractor or well plugging contractor. All three are referred to as "certified well contractor" in the following rules unless specifically identified otherwise.

"Continuing education unit (CEU)" means ten contact hours of participation in an organized education experience under responsible sponsorship, capable direction, and qualified instruction.

"Direct charge" means the certified well contractor at the well site responsible for ensuring that the well services are performed as required in 567—Chapters 38, 39, 43, 49 and 110.

"Director" means the director of the department of natural resources or a designee.

"Issuing agency" means a professional, technical/educational organization authorized by the department to provide continuing education for certification renewal in accordance with the commitments and guidelines detailed in the written issuing agency agreement and procedures.

"Pump installer" means a person certified by the department to perform pump services.

"Pump services" means the installation, repair, and maintenance of water systems; modification of the upper terminus of a well; well plugging; well rehabilitation; or the construction of Class 3 wells.

"Upper terminus" means the upper ten feet of the well casing as measured from the finished surface grade.

"Water systems" means any part of the mechanical portion of a water well that delivers water from the well to a valve that separates the well from the plumbing system. "Water systems" includes the pump, drop pipe to the well, electrical wire from the pump to the first electrical panel or connection outside the casing, piping from the well to the pressure tank or first valve outside the casing, pitless unit or adapter, and all related miscellaneous fittings necessary to operate the pump. "Water systems" does not include any outside piping to other buildings and does not include the piping that carries the water in the remainder of the distribution system.

"Water well" means any excavation that is drilled, cored, bored, augered, washed, driven, dug, jetted, or otherwise constructed for the purpose of exploring for groundwater, monitoring groundwater, utilizing the geothermal properties of the ground, or extracting water from or injecting water into the aquifer. "Water well" does not include an open ditch or drain tiles or an excavation made for obtaining or prospecting for oil, natural gas, minerals, or products mined or quarried.

"Well construction" means constructing a water well and installing necessary casing, screen, liners, grout, seals, and other appurtenances.

"Well driller" means a person certified by the department to perform well drilling services.

"Well drilling services" means new well construction, well reconstruction, well rehabilitation, well repair, installation of pitless equipment, or well plugging.

"Well plugging" means the closure of an abandoned well with plugging materials by procedures which will permanently seal the well from contamination by surface drainage and permanently seal off the well from contamination into an aquifer. "Well plugging" involves the proper application of filling and sealing materials.

"Well plugging contractor" means a contractor certified to plug only Class 1 or Class 3 wells but not certified to abandon Class 2 wells or perform any other well services.

"Well reconstruction" means modifying the original construction of a well. "Well reconstruction" includes, but is not limited to, deepening the well, installing a liner, installing or replacing a screen with one of a different diameter or length, installing a pitless adapter, extending the casing, or hydrofracturing a well. Replacing a screen with one of identical diameter and length or replacing a pitless adapter is considered repair, not reconstruction.

"Well rehabilitation" means the physical or chemical cleaning of a well.

"Well services" means both well drilling services and pump services.

567—82.2(455B) General.

82.2(1) *Certified well contractor requirement.* All well services shall be performed by a certified well contractor pursuant to this chapter, except that a person may perform well services on the person's own property without being certified. A certified well contractor shall notify the department or the county prior to performing well drilling services for a well that does not have the required construction permits. A certified well contractor shall notify the department prior to drilling a well if the use of the water requires a water use allocation and the owner has not applied for or been issued a water use allocation.

82.2(2) *Certified well contractor present.* A certified well contractor shall be present at the well site and in direct charge of the well services being performed or provided.

82.2(3) *Applicability exception.* These rules shall not apply to a water operator certified pursuant to Iowa Code section 455B.213, when the water operator is performing pump services on any well owned by a public water supply system as defined in Iowa Code section 455B.171. These rules shall not apply to a wastewater operator certified pursuant to Iowa Code section 455B.213, when the wastewater operator is performing pump services on a groundwater monitoring well, groundwater dewatering well, or other well not used to provide drinking water, owned by a sewer system as defined in Iowa Code section 455B.171. Pump installer certification requirements shall not apply to monitoring wells.

82.2(4) *Change of address.* Any certified well contractor who possesses a certificate must report to the department a change in address within 30 days after the change.

567—82.3(455B) Classification of well contractors.

82.3(1) *Classifications.* There shall be three classifications of certified well contractors:

a. Certified well contractor.

(1) Well driller.

(2) Pump installer.

b. Provisionally certified well contractor.

(1) Well driller.

(2) Pump installer.

c. Well plugging contractor.

82.3(2) *Certified well contractor.* In order to be certified as a certified well contractor, an applicant shall have met the experience requirements, successfully completed the well contractor examination for well drilling services or pump services or both, been issued a certificate by the department, and renewed the certification in accordance with rules 82.10(455B) and 82.11(455B).

82.3(3) *Provisionally certified well contractor.* A provisionally certified well contractor does not meet all the experience requirements for a certified well contractor. In order to be a provisionally certified well contractor, an applicant shall:

a. Sign a statement on the application form that there is a shortage of certified well contractors;

b. Complete and submit an application documenting at least one half of the work experience required for full certification in well services performed under the direct supervision of a certified well contractor;

c. Include on the application a signature of a certified well contractor who employs the applicant for provisional certification. By signing the application, the certified well contractor certifies to be jointly liable for any violation of the rules regarding well services provided by the provisionally certified well contractor and that the violation is grounds for suspension or revocation of the certification of the certified well contractor and the provisionally certified well contractor; and

d. Successfully complete, with a passing score, the well contractor certification examination for well drilling services or pump services or both.

82.3(4) *Change from provisionally certified well contractor to certified well contractor.* The provisionally certified well contractor shall become a certified well contractor after the submission of an application showing all requirements for certification have been met and submission of appropriate fees to the department. The certificate for a provisionally certified well contractor will be issued for one year. The department will issue a certified well contractor certificate after the one-year period and the receipt of appropriate fees.

82.3(5) *Well plugging contractor.* In order to be certified as a well plugging contractor, an applicant shall take a four-hour training course designated by the department, successfully complete a well plugging test, be issued a certificate by the department, and renew the certification in accordance with rules 82.10(455B) and 82.11(455B).

567—82.4 and **82.5** Reserved.

567—82.6(455B) Experience requirements.

82.6(1) All applicants shall meet the experience requirements as shown below. Educational programming approved by the department may be substituted for up to one half of any experience requirement at the rate of one CEU for each 100 hours of required experience.

CLASSIFICATION	EXPERIENCE
Certified Well Contractor (well driller)	Two years' employment and 2000 hours work experience in Class 1 and Class 2 well construction
Certified Well Contractor (pump installer)	Two years' employment and 1000 hours work experience in the installation, repair, and maintenance of water systems
Provisionally Certified Well Contractor	One half of the employment and experience required for full certification
Well Plugging Contractor	None

82.6(2) Applicable experience review committee. The department may appoint a peer review committee to help evaluate relevant well services work experience submitted by applicants for certification. The committee should consist of three members recommended by the Iowa Water Well Association, two members recommended by the Iowa Environmental Health Association, one member recommended by the Iowa Groundwater Association and one member recommended by the Iowa Environmental Council. Committee recommendations shall be considered by the department, which shall make the final determination of eligibility.

567—82.7(455B) Certification and examination fees. The following fees are nonrefundable except as noted in 82.8(4).

82.7(1) *Examination fee.* The examination fee for each examination shall be $50.

82.7(2) *Oral examination fee.* The oral examination fee for each oral examination shall be $100.

82.7(3) *Certification fees.* The certification fee for well drilling contractors shall be $75 for each one-half year of a two-year period from the date of issuance to June 30 of the next even-numbered year.

The certification fee for pump installation contractors and well plugging contractors shall be $75 for each one-half year of the first year of certification and $50 for each additional one-half year period to June 30 of the next even-numbered year.

82.7(4) *Provisionally certified well contractor fee.* The provisionally certified well contractor fee shall be $150.

82.7(5) *Penalty fee.* The penalty fee shall be $100 for each 30 days in delinquency. The penalty fee is for late payment of the initial certification fee or renewal fee.

82.7(6) *Certification renewal fees.* The certification renewal fee for certified well drilling contractors shall be $300 for the two-year period. The certification renewal fee for pump installers and well plugging contractors shall be $200 for the two-year period.

82.7(7) *Duplicate certificate fee.* A currently certified well contractor may obtain a duplicate certificate upon payment of a $20 fee.

82.7(8) *Recertification fee.* Contractors who have not earned sufficient CEUs for certification renewal and who wish to recertify within two years after expiration of their certification must retake and pass the written examination and pay a certification fee of $1000.

567—82.8(455B) Examinations.

82.8(1) *Type of examination.* There will be four examinations available:

a. A general fundamentals examination for well drilling and pump installation contractors.

b. An examination for well drillers.

c. An examination for pump installers.

d. An examination for well plugging contractors.

82.8(2) *Required examinations.* Well drilling contractors and pump installers must take and pass the general fundamentals examination and at least one of the specialty examinations. Examinations may be taken at the same time and place or at different times. Work shall be limited to the specialty in which proficiency has been demonstrated by written examination. Well plugging contractors must take and pass the well plugging examination only.

82.8(3) *Examination application.* A person wishing to take the examination required to become a certified well contractor shall complete the Well Contractor Certification Examination Application, Form 43970. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate educational background, training and past experience in providing well services. The completed application and the application fee shall be sent to the director and addressed to the Iowa Department of Natural Resources, Well Contractor Certification, 401 SW 7th Street, Suite M, Des Moines, Iowa 50309. Application for examination must be received by the department at least 60 days prior to the date of the examination.

The department may allow local county environmental health officials to take the written examination, even though they do not meet the work experience or training requirements, provided they pay the examination fee. If the officials receive a passing score on the examination, they will receive a letter of acknowledgement; however, they will not be certified and will not be allowed to perform any well services.

82.8(4) *Application evaluation.* The director may designate department personnel and the experience review committee to evaluate all applications for examination.

82.8(5) *Application expiration.* A properly completed application for the examinations will be valid for one year from the date the application is approved by the department. All required examinations must be completed within one year of application.

82.8(6) *Refund of examination application fee.* The department may refund a portion of the examination application or reexamination application fee for an applicant who does not qualify for examination within one year of making the application. If the applicant will qualify for a scheduled examination within one year, the applicant will be notified when the examination may be taken and the fee will not be refunded.

82.8(7) *Reexamination.* Upon failure of the first examination, the applicant may be reexamined at the next scheduled examination. Upon failure of the second examination, the applicant shall be required to wait a period of 180 days between each subsequent reexamination.

82.8(8) *Reexamination fee.* Upon each reexamination while a valid application is on file, the applicant shall submit to the department the examination fee at least ten days prior to the date of examination.

82.8(9) *Application invalidation.* Failure to successfully complete the necessary examinations within one year from the date of approval of the application shall invalidate the application.

82.8(10) *Retention of completed examinations.* Completed examinations shall be retained by the director for a period of one year, after which they may be destroyed.

82.8(11) *Oral examination.* Upon written request by an applicant for well contractor certification, the director will consider the administration of an oral examination on an individual basis when: the applicant has failed the written examination at least twice; the applicant has shown difficulty in reading or understanding written questions but may be able to respond to oral questioning; the applicant is capable of communicating in writing with regard to departmental requirements and inquiries; and the director has received a written recommendation for an oral examination from a department staff member attesting to the operational and performance capabilities of the applicant. The director shall designate department personnel to administer the appropriate examinations as defined in 82.8(1).

82.8(12) *Reasonable accommodation.* Upon request for certification by an applicant, the director will consider on an individual basis reasonable accommodation to allow administration of the examinations without discrimination on the basis of disability. The applicant shall request the accommodation 30 days prior to the date of the examination. The applicant must provide documentation of eligibility for the accommodation. Documentation shall be submitted with the completed examination application. Accommodations based on documentation may include site accessibility, oral examination, extended time, separate testing area, or other concerns. If a reasonable accommodation is considered to be an oral examination, the oral examination fee shall apply.

567—82.9(455B) Certification by examination.

82.9(1) *Examination requirement.* All applicants for certification shall successfully complete and pass the relevant examinations prior to receiving certification.

82.9(2) *Certification by registration without testing.* A well contractor who is engaged in performing pump services on or prior to June 30, 2004, and who registers as a pump installer with the department by June 30, 2004, shall be deemed to have met the certification requirements of this chapter without examination. The experience requirement will apply. Beginning July 1, 2004, a pump installer seeking an initial well contractor certification shall meet the testing requirements for certification established in this chapter.

82.9(3) *Certification application time line.* Application for certification must be received by the department within 30 days after the date the applicant receives notification of having passed the examinations. All applications for certification shall be made on a form provided by the department and shall be accompanied by the certification fee.

82.9(4) *Late certification application.* Applications for certification by examination which are received more than 30 days but less than 60 days after the applicant has received notification of having passed the examination shall be accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days' notice of having passed the examination will not be certified on the basis of that examination.

82.9(5) *Denial appeal.* Applicants may appeal a denial of certification within 30 days of receiving written notification, pursuant to 567—Chapter 7.

567—82.10(455B) Certification renewal.

82.10(1) *Renewal period.* All certificates shall expire on June 30 of even-numbered years and must be renewed every two years in order to maintain certification.

82.10(2) *Application for renewal.* Application for renewal will be mailed to all certified well contractors 60 days prior to the expiration date of their certificates. Application for renewal must be made in accordance with this rule and the instructions on the form in order for the applicant to renew the certificate for the next two-year period. Application for renewal of a certificate without penalty must be received by the director or postmarked prior to the expiration of the certificate, and shall be accompanied by the certification renewal fee.

82.10(3) *Late application.* Late application for renewal of a certificate may be made provided that such late application shall be received by the director or postmarked within 60 days of the expiration of the certificate on forms provided by the department. Such late application shall be accompanied by the penalty fee and the certification renewal fee.

82.10(4) *Failure to renew.* If a certificate holder fails to renew within 60 days following expiration of the certificate, the right to renew the certificate automatically terminates. Certification may be allowed at any time following such termination provided that the applicant passes the appropriate examinations. The applicant must then apply for certification in accordance with subrule 82.7(8) and rule 82.9(455B).

82.10(5) *Expired certificate.* A certified well contractor may not continue to provide well services after expiration of a certificate without renewal thereof.

567—82.11(455B) Continuing education.

82.11(1) *CEU requirements.* Continuing education must be earned during two-year periods between April 1 and March 31 of even-numbered years. A certified well contractor holding well driller certification or both well driller and pump installer certifications must earn 1.6 units or 16 contact hours during each two-year period. A certified well contractor holding only pump installer certification must earn 1.0 units or 10 contact hours during each two-year period. A well plugging contractor may be required to earn 0.2 units or 2 contact hours during each two-year period as determined by the department, provided the well plugging contractor is notified of the requirement at the beginning of the renewal period. Newly certified (previously uncertified) well contractors who are certified after April 1 of even-numbered years will not be required to earn CEUs until the next two-year period.

82.11(2) *Certificate renewal.* Only those certified well contractors fulfilling the continuing education requirements before the end of each two-year period (March 31) will be allowed to renew their certificates. The certificates of certified well contractors not fulfilling the continuing education requirements shall expire on June 30 of every even-numbered year.

82.11(3) *CEU approval.* All activities for which continuing education credit will be granted must be approved by an accredited college or university, an issuing agency, or by the department, and shall be related to well services, relevant aspects of Iowa groundwater law, well construction, well maintenance, well abandonment practices, well contractor safety (no more than 0.2 CEU per renewal), water system maintenance, and Iowa hydrogeologic conditions which protect groundwater and water supplies.

82.11(4) *CEU extensions.* The director may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to six months within which to fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified well contractor which prevent attendance at the required activities. All requests for extensions must be made prior to March 31 of each even-numbered year.

82.11(5) *CEU reporting.* It is the certified well contractor's personal responsibility to maintain a written record and to notify the department of the continuing education credit earned during the period. The continuing education credits earned during the period shall be shown on the application for renewal.

82.11(6) *Alternative CEU requirements.* A certified well contractor shall be deemed to have complied with the continuing education requirements of this rule during periods that the certified well contractor serves honorably on active duty in the military services, or for periods that the person is a government employee working as a well contractor and assigned to duty outside of the United States, or for other periods of active practice and absence from the state approved by the director.

567—82.12(455B) Certified well contractor obligations.

82.12(1) *Submission of records and samples.* Each certified well contractor shall submit drilling records and drill cutting samples, when required, to the department and to the Iowa geological survey as follows:

a. Within 30 days of completion of any water well used as part of a public water supply, a well used for withdrawal of water for which a permit is required by rule 567—50.1(455B), or wells used to monitor groundwater quantity or quality required by the department if so directed by the department. The certified well contractor must submit to the department the drilling records required by subrules 82.12(2) and 82.12(3) and must submit to the Iowa geological survey the samples required by subrule 82.12(4).

b. Within 30 days of the completion of any water well used as part of a nonpublic water supply or other water wells used to access groundwater. The certified well contractor must submit to the department the drilling records required by subrules 82.12(2) and 82.12(3).

c. Prior to constructing a water well to be used as part of a nonpublic water supply or other water well used to access groundwater, the certified well contractor must contact the local health department in the county in which the water well is to be located to determine if submittal of drill cutting samples is required.

82.12(2) *Drilling records.* Drilling records must be submitted on the Iowa water well driller's log form available on the department's website.

82.12(3) *Water well log.* The water well driller's log shall include the following:

a. Location and legal description (quarter section, section number, township, range and county).

b. Reference point for all depth measurements.

c. Depth at which each significant change of formation occurs.

d. Depth at which pump is set, the nonpumping and pumping water levels in the well measured from the land surface, and the rate and duration the well was pumped.

e. Identification of the material of which each significant stratum is composed.

f. Depth at which hole diameters (bit sizes) change.

g. Normal hole diameter of the well bore.

h. Total depth of the completed hole.

i. Depth or location of any lost drilling fluids, drilling materials, or tools.

j. Casing depth, grouting schedule, including materials used and method of placement, and description of the well casing and liner pipe.

k. Description of well screens including diameter, length, material slot sizes, amount of open area, and location in well.

l. Description of physical and chemical well development activities.

82.12(4) *Cutting samples.* Drill cutting samples shall be collected at intervals of 5 feet and at each pronounced change in geological formation. The Iowa geological survey will provide drill cutting bags.

82.12(5) *Test pumping.* Certified well contractors shall provide the requested test pumping data for water wells used as part of a public water supply pursuant to 567—subrule 41.12(2) and for water wells utilized as part of a regulated water use pursuant to 567—subrule 50.6(1).

[**ARC 4426C**, IAB 5/8/19, effective 6/12/19]

567—82.13(455B) Disciplinary actions.

82.13(1) Reasons for disciplinary action. Disciplinary action may be taken against a certified well contractor or well plugging contractor on any of the grounds specified in Iowa Code section 455B.190A and the following more specific grounds: (Iowa Code section 455B.109 authorizes the assessment of administrative penalties for violations of Iowa Code chapter 455B or rules, permits, and orders promulgated or issued pursuant to Iowa Code chapter 455B. The department will follow the provisions of 567—Chapter 10 for assessing such penalties.)

a. Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

b. Failure to renew certification.

c. Failure to obtain required continuing education units.

d. Failure to submit, within the time required, drill cutting samples, records or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

e. Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified well contractor or well plugging contractor.

f. Violation of well construction, plugging or pump installation standards or other requirements contained in 567—Chapters 38, 39, 43, 49 and 110.

g. Failure to advise a person for whom well services are being provided that a hazardous or potentially hazardous condition, as defined in Iowa Code section 455B.381(2), has been encountered.

h. Knowingly causing or allowing a hazardous or potentially hazardous condition due to well construction to exist.

i. Drilling or reconstructing a well without a construction permit.

82.13(2) Disciplinary sanctions allowable are:

a. *Revocation of a certificate.* Revocation of a certificate may be permanent without chance of recertification or it may be for a specified period of time.

b. *Partial revocation or suspension.* Revocation or suspension of the practice of a particular aspect of the contractor's responsibility.

c. *Probation.* Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional education or training or reexamination may be required as a condition of probation. Reexamination may include written and oral examinations.

d. *Fees.* The department shall determine which fees in rule 82.7(455B) apply.

82.13(3) Procedure.

a. The director shall initiate disciplinary action. The director may investigate any alleged factual situation that may be grounds for disciplinary action under subrule 82.13(1) and report the results of the investigation to the commission.

b. The director may issue an administrative order that may assess a penalty or refer a case to the attorney general for prosecution for any disciplinary action.

c. Written notice by certified mail shall be provided to a certified well or well plugging contractor against whom disciplinary action is being considered. The certified well or well plugging contractor will be given 20 days' advance notice that an informal hearing has been scheduled before the commission. The notice will provide the specific date, time, and place, at which time the commission will hold the informal hearing to determine whether a formal hearing is warranted or whether informal resolution can be reached. The certified well or well plugging contractor may present any relevant facts and indicate the certified well or well plugging contractor's position in the matter.

d. A certified well or well plugging contractor who receives notice of an informal hearing shall communicate orally or in writing with the director, and efforts shall be made to clarify the respective positions of the certified well or well plugging contractor and the director. The staff may present a recommendation concerning disciplinary sanctions to the commission at the informal hearing.

e. Failure to attend the informal hearing or otherwise to communicate facts and position relevant to the matter by the scheduled date will be considered by the commission when determining whether a formal hearing is warranted.

f. If agreement as to appropriate disciplinary sanction, if any, can be reached with the certified well or well plugging contractor and the commission concurs, a written stipulation and settlement between the department and the certified well or well plugging contractor shall be entered. The stipulation and settlement shall recite the basic facts and violations alleged, any facts presented by the certified well or well plugging contractor and the reasons for the particular sanctions imposed.

g. If the commission determines that no disciplinary action is warranted on the facts asserted, the certified well or well plugging contractor shall be notified of the decision in writing.

h. If the commission determines that an opportunity for formal hearing is required to impose any disciplinary sanction specified in subrule 82.13(2), the director shall proceed in accordance with 567—Chapter 7.

567—82.14(455B,272C) Revocation of certificates. Upon revocation of a certificate in accordance with the authority provided in Iowa Code section 455B.190A, application for certification may be allowed after two years from the date of revocation. Any such applicant must pass an examination and be certified in the same manner as other applicants. The department may require the applicant to take and pass a written and oral examination in order to become recertified. The department will decide which fees in rule 82.7(455B) will apply.

These rules are intended to implement Iowa Code sections 455B.187 and 455B.190A.

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CHAPTER 83
LABORATORY CERTIFICATION
[Prior to 4/10/96, see 567—Chapter 42]

PART A
GENERAL

567—83.1(455B) Authority, purpose, and applicability.

83.1(1) *Authority.* Pursuant to Iowa Code section 455B.113, a laboratory certification program is required for laboratories performing analyses of samples which are required to be submitted to the department as a result of Iowa Code provisions, rules, operation permits, or administrative orders. Pursuant to Iowa Code section 455B.114, the department may suspend or revoke the certification of a laboratory upon determination of the department that the laboratory no longer fulfills one or more of the requirements for certification.

83.1(2) *Purpose.* The purpose of these rules is to provide the procedures for laboratories to use to apply for certification, to establish laboratory certification fees, to maintain certification, and to provide the appropriate methods and references for evaluating laboratory competence including the requirements for laboratories to become certified.

83.1(3) *Applicability to environmental program areas.*

a. Water supply (drinking water). The requirements of this chapter apply to all laboratories conducting drinking water analyses pursuant to 567—Chapters 40, 41, 42, and 43. Routine, on-site monitoring for alkalinity, calcium, conductivity, residual disinfectant, orthophosphate, pH, silica, temperature, turbidity and on-site operation and maintenance-related analytical monitoring are excluded from this requirement, and may be performed by a Grade I, II, III, or IV certified operator meeting the requirements of 567—Chapter 81, any person under the supervision of a Grade I, II, III, or IV certified operator meeting the requirements of 567—Chapter 81, or a laboratory certified by the department to perform water supply analyses under this chapter.

b. Underground storage tanks. The requirements of this chapter also apply to all laboratories conducting underground storage tank analyses for petroleum constituents pursuant to 567—Chapter 135. Routine on-site monitoring conducted by or for underground storage tank owners for leak detection or a nonregulatory purpose is excluded from this requirement.

c. Wastewater. The requirements of this chapter also apply to all laboratories conducting analyses of wastewater, groundwater or sewage sludge pursuant to 567—Chapters 63, 67, and 69. Routine on-site monitoring for pH, temperature, dissolved oxygen, total residual chlorine and other pollutants that must be analyzed immediately upon sample collection, settleable solids, physical measurements such as flow and cell depth, and operational monitoring tests specified in 567—subrule 63.3(4) are excluded from this requirement.

d. Solid waste and contaminated sites. The requirements of this chapter also apply to all laboratories conducting analyses of solid waste parameters pursuant to 567—Chapters 100 through 130, contaminated site parameters pursuant to 567—Chapters 133 and 137, and regulated substances other than petroleum parameters regulated under 567—Chapter 135. Any parameter that must be analyzed immediately upon sample collection is excluded from the requirements of this chapter. Any samples collected or testing conducted that is not part of the specific monitoring required by the department for regulatory purposes are also excluded from the requirements of this chapter.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12]

567—83.2(455B) Definitions.

"Certified" means a laboratory demonstrates to the satisfaction of the department its ability to consistently produce valid data within the acceptance limits as specified within the department's requirements for certification and meets the minimum requirements of this chapter and all applicable regulatory requirements. A laboratory may be certified for an analyte, an analytical series, or an environmental program area, except in the UST program area, where certification for individual analytes is not allowed.

"Environmental program area" means the water supply (drinking water) program, underground storage tank program, wastewater program, or solid waste and contaminated site program pursuant to 83.1(3).

"Manual for the Certification of Laboratories Analyzing Environmental Samples for the Iowa Department of Natural Resources" (2017) (Iowa Manual) is incorporated by reference in this chapter.

Chapter 1 of the Iowa Manual pertains to certification of laboratories analyzing samples of drinking water and incorporates by reference the Manual for the Certification of Laboratories Analyzing Drinking Water, 5th edition, January 2005, EPA document 815-R-05-004, January 2005; Supplement 1, June 2008, EPA 815-F-08-006; and Supplement 2, November 2012, EPA 815-F-12-006.

Chapter 2 of the Iowa Manual, (2017), pertains to laboratories analyzing samples for the underground storage tank program.

Chapter 3 of the Iowa Manual, (2017), pertains to laboratories analyzing samples for wastewater and sewage sludge disposal programs.

Chapter 4 of the Iowa Manual, (2017), pertains to laboratories analyzing samples for the solid waste and contaminated site programs.

"Performance evaluation (PE) sample" means a reference sample provided to a laboratory for the purpose of demonstrating that a laboratory can successfully analyze the sample within limits of performance specified by the department. The true value of the concentration of the reference material is unknown to the laboratory at the time of analysis. A PE sample may also be referred to as a proficiency testing sample or PT sample.

"Provisional certification" means a laboratory has deficiencies, which must be corrected within the specified time frames listed in 83.7(2)*"d,"* but demonstrates to the satisfaction of the department its ability to consistently produce valid data within the acceptance limits as specified within the department's certification requirements.

"Revoked certification" means a laboratory no longer fulfills the requirements of this chapter, and certification is revoked by the director upon determination of the director that the laboratory no longer fulfills the requirements for certification (455B.114).

"Suspended certification" means a temporary suspension of certification for a laboratory, conditional upon meeting the time frames in 83.7(4)*"d"* for the correction of the deficiency.

"Temporary certification" means short-term transitional certification granted in certain circumstances when the department implements certification in a new environmental program area.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

PART B
CERTIFICATION PROCESS

567—83.3(455B) Application for laboratory certification.

83.3(1) *Application forms.* Application for laboratory certification, other than for temporary certification, shall be made on forms provided by the department and shall be accompanied by the nonrefundable fee specified in 83.3(2). The application for renewal of certification shall be made at least 60 days prior to the certification expiration date. The department may require submission of additional information necessary to evaluate the application. All required documentation must be supplied to the department prior to the on-site visit. Failure to submit a complete application may result in denial of the renewal.

83.3(2) *Fees and expenses.*

a. A nonrefundable fee for the administration, completion of on-site laboratory surveys and assessments, and enforcement of laboratory certification requirements shall be paid with the certification application.

(1) The on-site visit will not be conducted and certification will not be issued until the fees and expenses are paid and all other certification requirements are met. The fee for certification will not be refunded if an on-site visit is not performed.

(2) Out-of-state laboratories will be responsible for paying the expenses of an on-site visit, in addition to the standard certification fee if required, and the department or its agent will bill the out-of-state laboratory directly for the expenses.

(3) When a laboratory's certification is changed to "provisional" or "suspended" and the period for correcting deficiencies extends beyond the certification period, the laboratory must continue to pay the required fees in order to maintain its certification status.

(4) Additional fees. Additional fees will be assessed for the following, and the department or its agent will bill the laboratory directly.

1. The laboratory is responsible for paying for any additional on-site visits, at a fee of $300 per visit. An example of this is when an additional on-site visit is required when a laboratory seeks certification for an entirely new set of parameters for which it had previously not been certified.

2. When an on-site visit is required to inspect for deficiencies that the laboratory has been required to correct, the fee is $500 per visit.

b. Certification in multiple environmental program areas. Where a laboratory is certified for the same analyte in more than one environmental program area, the laboratory must meet all the applicable certification requirements in addition to the payment of the fees.

c. The applicable fees shall be based on the type of analytical service provided as follows:

ANALYTICAL GROUP	REGULATORY PROGRAM & PARAMETERS[1]	FEE
Asbestos	SDWA	$400
Basic Drinking Water	SDWA (includes total coliform bacteria, *E. coli*, heterotrophic plate count, nitrate, nitrite, and fluoride)	$800
Basic Wastewater	CWA (includes BOD5, cBOD5, total suspended solids, and ammonia)	$400
Bacteria	CWA (includes total coliform, fecal coliform, and *E. coli*)	$800
	SDWA (includes total coliform, *E. coli*, and heterotrophic plate count)	$800
	SDWA & CWA combined	$1,300
Dioxin	SDWA	$800
Effluent Toxicity Testing	CWA	$800
Inorganics, including metals	CWA metals, inorganic compounds, and physical characteristics ($400 per analyte up to a maximum of $1,600)	$400 to 1,600
	SDWA (includes metals, nitrate, nitrite, ammonia, cyanide, fluoride, bromate, bromide, chlorite, and total organic carbon)	$1,600
	SW/CS	$1,600
	CWA & SDWA combined	$2,400
	CWA & SW/CS combined	$2,400
	CWA, SDWA, and SW/CS combined	$2,800
Radionuclides	CWA	$400
	SDWA (includes gross alpha, gross beta, photon emitters, radium, strontium, tritium, and uranium)	$400
	SDWA & CWA combined	$650

ANALYTICAL GROUP	REGULATORY PROGRAM & PARAMETERS[1]	FEE
Synthetic Organic Chemicals (SOC)	CWA	$1,600
	SDWA	$1,600
	SW/CS	$1,600
	CWA & SDWA combined	$2,400
	CWA & SW/CS combined	$2,400
	CWA, SDWA, and SW/CS combined	$2,800
Volatile Organic Chemicals (VOC)	CWA	$1,600
	SDWA	$1,600
	SW/CS	$1,600
	CWA & SDWA combined	$2,400
	CWA & SW/CS combined	$2,400
	CWA, SDWA, and SW/CS combined	$2,800
Underground Storage Tank Program Methods (UST)	OA1 and OA2 for UST, CWA, & SW/CS programs	$1,600
	OA1, OA2, PAH, and Air Gas for UST, CWA, & SW/CS programs	$2,000
Other analyte[2]	SDWA, CWA, UST, or SW/CS	$400 per analyte

[1]CWA: Analysis of wastewater samples for the federal Clean Water Act.

SDWA: Analysis of drinking water samples for the federal Safe Drinking Water Act.

SW/CS: Analysis of water, soil, or solid samples for the solid waste or contaminated sites programs.

UST: Analysis of water and soil samples for the underground storage tank program.

[2]The fee for an additional analyte may be charged at the discretion of the appraisal authority.

d. Payment of fees. Fees shall be paid by bank draft, check, money order, credit card, electronic payment, or other means acceptable to the department, made payable to the Iowa Department of Natural Resources. Credit card or electronic payment may incur an additional fee. Purchase orders are not an acceptable form of payment.

83.3(3) *Reciprocity.* Reciprocal certification of out-of-state laboratories by Iowa, and of Iowa laboratories by other states or accreditation providers, is allowed. A laboratory must meet all Iowa certification criteria and pay all applicable fees as listed in this chapter. Any laboratory which is granted reciprocal certification in Iowa using primary certification from another state or provider is required to report any change in certification status from the accrediting state or provider to the department within 15 days of notification. A laboratory that loses primary certification, either in its resident state program or third-party accreditation program, will also immediately lose certification for the same program area and parameters in Iowa, pursuant to 83.7(5)*"a"*(9).

a. *Out-of-state laboratories.* Where an out-of-state laboratory has received an on-site visit within its own state, the fee for certification shall not be reduced if an on-site visit is not performed by Iowa.

b. *Third-party accreditation.* The department may accept third-party accreditation from national accreditation providers on an individual basis.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—83.4(455B) Procedure for initial certification for laboratories analyzing solid waste and contaminated site program parameters. Rescinded **ARC 3735C**, IAB 4/11/18, effective 5/16/18.

567—83.5(455B) Procedures for certification of new laboratories or changes in certification. Laboratories that wish to become certified to conduct testing for an analyte or a method after the deadline for initial certification has passed, and any laboratory seeking initial certification, shall follow the procedures specified in 567—83.6(455B) for laboratory recertification. For changes in certification, the relevant fee must accompany the application where appropriate.

567—83.6(455B) Laboratory recertification. Laboratories shall be recertified every two years after initial certification. Applications for recertification must be on forms provided by the department and must be postmarked at least 60 days prior to the renewal date. Applications shall be accompanied by the fee specified in 83.3(2). To be recertified, laboratories must meet the following requirements.

83.6(1) *Approved methodology required.* Laboratories must use the approved methodology for all analyses the results of which are to be submitted to the department. A laboratory may not analyze and report data from samples collected for an environmental program area until certified in that area.

83.6(2) *Performance evaluation (proficiency testing) samples required.* Certified laboratories must satisfactorily analyze PEs at least once every 12 months for each analyte by each method for which the laboratory wishes to retain certification unless a PE sample is not available for the particular analyte or method. Results must be submitted to Iowa department of natural resources and the state of Iowa hygienic laboratory, or as otherwise directed, along with a statement of the method used within 30 days of receipt from the provider. The laboratory must maintain records of all PE samples for a minimum of 5 years.

83.6(3) *Notification of major changes.* Laboratories must notify the department, in writing, within 15 days of major changes in essential personnel, equipment, laboratory location, or other major change which might alter or impair analytical capability. An example of a major change in essential personnel includes the loss or replacement of the laboratory supervisor, or a trained and experienced analyst is no longer available to analyze a particular parameter for which certification has been granted.

83.6(4) Site visits.

a. Certification of the State of Iowa Hygienic Laboratory. The department has designated the State of Iowa Hygienic Laboratory (SHL) as its appraisal authority for laboratory certification. The SHL is responsible for attaining and maintaining laboratory certification for the SDWA program that is acceptable to the U.S. Environmental Protection Agency (EPA). The SHL quality assurance officer is responsible for the certification of SHL for those programs with no available EPA certification program, including wastewater, underground storage tank, solid waste, and contaminated site programs. The SHL quality assurance officer reports directly to the office of the SHL director and operates independently of all areas of the laboratory generating data to ensure complete objectivity in the evaluation of laboratory operations. The quality assurance officer will schedule a biennial on-site inspection of the SHL and review results for acceptable performance. Inadequacies or unacceptable performance shall be reported by the quality assurance officer to the SHL and the department for correction. The department shall be notified if corrective action is not taken.

b. On-site visits. Laboratories must consent to a periodic site visit by the department or its designee, at least every two years. However, an on-site visit may be conducted more frequently if the laboratory undergoes a major change which may alter or impair analytical capability, fails a PE sample analysis, or if the department questions an aspect of data submitted which is not satisfactorily resolved.

83.6(5) Period of validity. Certification shall be valid for a period not to exceed two years from the date of issuance, except in the case of reciprocal certification of an out-of-state laboratory. Reciprocal certification shall be valid for a period equal to that of the resident state in which the laboratory is certified, but shall not exceed two years. Certification shall remain in effect provided a laboratory has submitted a timely and complete application, until certification is either renewed or revoked.

83.6(6) Reporting requirements. Laboratories may not analyze or report sample results for any analyte, analytical series, or environmental program area until the initial certification status of "certified" or "temporary" has been granted by the department. Any data generated before certification status is granted will be considered invalid for compliance purposes. A laboratory with "provisional" status may analyze and report analyses for compliance purposes.

A certified laboratory may contract analyses to another certified laboratory. The responsibility lies with the primary certified laboratory contracting for services to verify that the secondary contracting laboratory is certified by the department and to ensure that reporting requirements and deadlines are met.

a. Water supply program.

(1) Certified laboratories must report to the department, or its designee, all analytical test results for all public water supplies in a manner acceptable to the department, using forms, including electronic forms, provided or approved by the department or by electronic means acceptable to the department. If a public water supply is required by the department to collect and analyze a sample for an analyte not normally required by 567—Chapters 41 and 43, the laboratory testing for that analyte must also be certified and report the results of that analyte to the department. It is the responsibility of the laboratory to correctly assign and track the sample identification number as well as facility ID and source/entry point data for all reported samples.

1. The following are examples of sample types for which data results must be reported:

- Routine: a regular sample which includes samples collected for compliance purposes from such locations as the source/entry point and in the distribution system, at various sampling frequencies;
- Repeat: a sample which must be collected after a positive result from a routine or previous repeat total coliform sample, per 567—paragraph 41.2(1)*"j."* Repeat samples must be analyzed at the same laboratory from which the associated original routine sample was analyzed;
- Confirmation: a sample which verifies a routine sample, normally used in determination of compliance with a health-based standard, such as nitrate;
- Special: a nonroutine sample, such as raw, plant, and troubleshooting samples, which cannot be used to comply with monitoring requirements assigned by the department;
- Maximum residence time: a sample which is collected at the maximum residence time location in the distribution system, usually for disinfection byproduct measurement; and
- Replacement: a sample which replaces a missed sample from a prior monitoring period resulting in a monitoring violation.

2. The following additional types of data must be reported to the department:

- Monthly Operation Report (MOR) data which has been specifically required by the department to demonstrate compliance with public health standards;
- Chemical results not required to be analyzed but which are detected during analysis, such as detection of a synthetic organic chemical during a routine analysis of that related analytical series for compliance reporting; and
- Raw water sampling results specifically covered by 567—Chapters 40 to 43 for new surface water or groundwater sources, or reconstruction of groundwater sources.

3. The following are examples of data results that are not required to be reported by the laboratory to the department:

- Routine MOR data;
- Distribution samples for the Total Coliform Rule (567—subrule 41.2(1)) for water main repair or installation; or
- Results for contaminants that are not required by the department to be analyzed, which are below detection level.

4. The sample type cannot be changed after submittal to the laboratory, without written approval by the department. The prescreening, splitting, or selective reporting of compliance samples is not allowed.

(2) Certified laboratories must report all analytical results to the public water supply for which the analyses were performed.

(3) Analytical results must be reported to and received by the department by the seventh day of the month following the month in which the samples were analyzed.

(4) In addition to the monthly reporting of the analytical results, the following results must be reported within 24 hours of the completion of the analysis to the department by email or other method acceptable to the department, and to the public water supply for which the analyses were conducted:

1. Results of positive routine coliform bacteria samples, and all repeat and follow-up samples, reported within 24 hours of the completion of each sample's analysis.

2. Results of any contaminant which exceeds public drinking water standards (maximum contaminant level, treatment technique, action level, or health advisory), and any subsequent confirmation samples.

For results available outside of routine business hours, the results must also be reported to the department's Environmental Emergency Reporting Hotline number at (515)725-8694.

(5) If requested by the department, certified laboratories shall report their method detection levels, levels of quantitation, and any other pertinent information when reporting results for public water supplies.

b. Underground storage tank program. Certified laboratories must report to the client requesting the analysis and include the information required in 567—subrule 135.10(2) in their laboratory report.

c. Wastewater program. Certified laboratories must report to the client requesting the analysis and include the information required in 567—paragraphs 63.2(2)*"b"* to *"e"* in their laboratory report.

d. Solid waste and contaminated site programs. Certified laboratories must report to the client requesting the analysis and include the information required in paragraph 83.6(7)*"d"* and 567—subrule 103.2(8).

83.6(7) Performance evaluation (PE) and acceptance limits. All PE samples must be obtained from EPA; a provider accredited by EPA, the National Environmental Laboratory Accreditation Program (NELAP) or National Institute of Standards and Technology (NIST); or other provider acceptable to the department. All PE samples must have statistical acceptance limits. Certain environmental program areas may have specific PE requirements, as follows:

a. Water supply program. Laboratories must be able to achieve at least the method detection limit for each specific analyte as listed in 567—Chapter 41, in addition to any method detection limit requirement listed in this paragraph.

(1) Volatile organic chemical (VOC). Analysis for VOCs shall only be conducted by laboratories certified by EPA or the department or its authorized designee according to the following conditions. To receive approval to conduct analyses for the VOC contaminants in 567—subparagraph 41.5(1)*"b"*(1), except for vinyl chloride, the laboratory must:

1. Analyze PE samples provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year by each method for which the laboratory desires certification.

2. Achieve the quantitative acceptance limits for at least 80 percent of the regulated organic chemicals included in the PE sample, except for vinyl chloride.

3. Achieve quantitative results on the PE samples within plus or minus 20 percent of the actual amount of the substances when the actual amount is greater than or equal to 0.010 mg/L.

4. Achieve quantitative results on the PE samples within plus or minus 40 percent of the actual amount of the substances when the actual amount is less than 0.010 mg/L.

5. Achieve a VOC method detection limit of 0.0005 mg/L.

(2) Vinyl chloride. To receive approval for vinyl chloride, the laboratory must:

1. Analyze PE samples which include vinyl chloride provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year by each method for which the laboratory desires certification.

2. Achieve quantitative results on the PE samples within plus or minus 40 percent of the actual amount of vinyl chloride.

3. Achieve a method detection limit of 0.0005 mg/L.

(3) Synthetic organic chemical (SOC). Analysis for SOCs shall be conducted only by laboratories certified by EPA or the department or its authorized designee. To receive approval to conduct analyses for the SOC contaminants in 567—subparagraph 41.5(1)*"b"*(2), the laboratory must:

1. Analyze PE samples which include those substances provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year by each method for which the laboratory desires certification.

2. For each contaminant that has been included in the PE sample, achieve quantitative results on the analyses that are within the following acceptance limits:

ACCEPTANCE LIMITS

Contaminant	Acceptance Limit, in percent
Alachlor	(+ or -) 45
Aldicarb	2 standard deviations
Aldicarb sulfoxide	2 standard deviations
Aldicarb sulfone	2 standard deviations
Atrazine	(+ or -) 45
Benzo(a)pyrene	2 standard deviations
Carbofuran	(+ or -) 45
Chlordane	(+ or -) 45
2,4-D	(+ or -) 50
Dalapon	2 standard deviations
Dibromochloropropane (DBCP)	(+ or -) 40
Di(2-ethylhexyl)adipate	2 standard deviations
Di(2-ethylhexyl)phthalate	2 standard deviations
Dinoseb	2 standard deviations
Diquat	2 standard deviations
Endothall	2 standard deviations
Endrin	(+ or -) 30
Ethylene dibromide (EDB)	(+ or -) 40
Glyphosate	2 standard deviations
Heptachlor	(+ or -) 45
Heptachlor epoxide	(+ or -) 45
Hexachlorobenzene	2 standard deviations
Hexachlorocyclopentadiene	2 standard deviations
Lindane	(+ or -) 45
Methoxychlor	(+ or -) 45
Oxamyl	2 standard deviations
Pentachlorophenol	(+ or -) 50
Picloram	2 standard deviations
Polychlorinated biphenyls (PCBs as decachlorobiphenyl)	0 - 200
Simazine	2 standard deviations
2,3,7,8-TCDD (Dioxin)	2 standard deviations
2,4,5-TP (Silvex)	2 standard deviations
Toxaphene	(+ or -) 45

(4) Inorganic chemical (IOC). Analysis for IOCs shall be conducted only by laboratories certified by EPA or the department or its authorized designee. To receive approval to conduct analyses for ammonia, antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nitrate, nitrite, selenium and thallium, the laboratory must:

1. Analyze PE samples provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year.

2. For each contaminant that has been included in the PE sample and for each method for which the laboratory desires certification, achieve quantitative results on the analyses that are within the following acceptance limits:

ACCEPTANCE LIMITS

Contaminant	Acceptance Limit
Ammonia	(+ or -) 20% at greater than or equal to 0.3 mg/L
Antimony	(+ or -) 30% at greater than or equal to 0.006 mg/L
Arsenic	(+ or -) 30% at greater than or equal to 0.003 mg/L
Asbestos	2 standard deviations based on study statistics
Barium	(+ or -) 15% at greater than or equal to 0.15 mg/L
Beryllium	(+ or -) 15% at greater than or equal to 0.001 mg/L
Cadmium	(+ or -) 20% at greater than or equal to 0.002 mg/L
Chromium	(+ or -) 15% at greater than or equal to 0.01 mg/L
Cyanide	(+ or -) 25% at greater than or equal to 0.1 mg/L
Fluoride	(+ or -) 10% at greater than or equal to 1 to 10 mg/L
Mercury	(+ or -) 30% at greater than or equal to 0.0005 mg/L
Nitrate	(+ or -) 10% at greater than or equal to 0.4 mg/L
Nitrite	(+ or -) 15% at greater than or equal to 0.4 mg/L
Selenium	(+ or -) 20% at greater than or equal to 0.01 mg/L
Thallium	(+ or -) 30% at greater than or equal to 0.002 mg/L

(5) Lead and copper. To obtain certification to conduct analyses for lead and copper, laboratories must:

1. Analyze PE samples that include lead and copper provided by EPA, the department, or a third-party provider acceptable to the department, at least once a year by each method for which the laboratory desires certification; and

2. Achieve quantitative results on the analyses that are within the following acceptance limits:

- Lead: plus or minus 30 percent of the actual amount in the PE sample when the actual amount is greater than or equal to 0.005 mg/L. The practical quantitation level or PQL for lead is 0.005 mg/L; and
- Copper: plus or minus 10 percent of the actual amount in the PE sample when the actual amount is greater than or equal to 0.050 mg/L. The practical quantitation level or PQL for copper is 0.050 mg/L; and

3. Be currently certified by EPA or the department to perform analyses to the specifications described in 567—paragraph 41.4(1)*"g."*

(6) Disinfection byproducts. To obtain certification to conduct analyses for disinfection byproducts listed in 567—paragraph 41.6(1)*"b,"* laboratories must:

1. Analyze PE samples approved by EPA, the department, or a third-party provider acceptable to the department at least once during each period of 12 consecutive months by each method for which the laboratory desires certification;

2. Achieve quantitative results on the PE sample analyses that are within the following acceptance limits:

Disinfection Byproduct	Acceptance limits (plus or minus this percent of true value)	Comments
TTHM		Laboratory must meet all four individual THM acceptance limits in order to successfully pass a PE sample for TTHM.
Bromoform	20	
Bromodichloromethane	20	
Chloroform	20	
Dibromomethane	20	
HAA5	40	Laboratory must meet the acceptance limits for 4 of the 5 HAA5 compounds in order to successfully pass a PE sample for HAA5.
Monobromoacetic Acid	40	
Dibromoacetic Acid	40	
Monochloroacetic Acid	40	
Dichloroacetic Acid	40	
Trichloroacetic Acid	40	
Chlorite	30	
Bromate	30	

3. Report quantitative data for concentrations at least as low as the levels listed in the following table for all disinfection byproduct samples analyzed for compliance with 567—41.6(455B).

Disinfection Byproduct	Minimum reporting level, mg/L[1]	Comments
TTHM[2]		
Bromoform	0.0010	
Bromodichloromethane	0.0010	
Chloroform	0.0010	
Dibromomethane	0.0010	
HAA5[2]		
Monobromoacetic Acid	0.0010	
Dibromoacetic Acid	0.0010	
Monochloroacetic Acid	0.0020	
Dichloroacetic Acid	0.0010	
Trichloroacetic Acid	0.0010	
Chlorite	0.020	Applicable to chlorite monitoring conducted by a certified laboratory required under 567—paragraphs 41.6(1)*"c"*(3)"2" and 41.6(1)*"c"*(3)"3"
Bromate	0.0050 or 0.0010	Laboratories that use EPA Method 317.0 Revision 2, 321.8, or 326.0 must meet a 0.0010 mg/L MRL for bromate.

[1]The calibration curve must encompass the regulatory minimum reporting level (MRL) concentration. Data may be reported for concentrations lower than the regulatory MRL as long as the precision and accuracy criteria are met by analyzing an MRL check standard at the lowest reporting limit chosen by the laboratory. The laboratory must verify the accuracy of the calibration curve at the MRL concentration by analyzing an MRL check standard with a concentration less than or equal to 100 percent of the MRL with each batch of samples. The measured concentration for the MRL check standard must be plus or minus 50 percent of the expected value, if any field sample in the batch has a concentration less than five times the regulatory MRL. Method requirements to analyze higher concentration check standards and meet tighter acceptance criteria for them must be met in addition to the MRL check standard requirement.

[2]When adding the individual trihalomethanes or haloacetic acid concentrations to calculate the TTHM or HAA5 concentrations, respectively, a zero is used for any analytical result that is less than the MRL concentration for that disinfection byproduct, unless otherwise specified by the department.

b. *Underground storage tank program.* A laboratory must achieve acceptable results on PE samples every 12 months within plus or minus 20 percent of the true value for individual compounds (i.e., benzene, ethylbenzene, toluene, xylene by OA-1) and plus or minus 40 percent of the true value for multicomponent materials (i.e., gasoline, diesel fuel, motor oil by either OA-1 or OA-2). The PE samples must be provided by EPA, the department, or a third-party provider acceptable to the department.

c. *Wastewater program.* Achieve acceptable quantitative results every 12 months on PE samples equivalent to those used in the Water Pollution (WP) proficiency program, or the Discharge Monitoring Report Quality Assurance (DMRQA) program, both of which are administered by EPA or its designee.

d. *Solid waste and contaminated site programs.* Achieve acceptable quantitative results every 12 months on PE samples provided by EPA, the department, or a third-party provider acceptable to the department.

83.6(8) *Record keeping.* The laboratory certification program appraisal authority must retain the records for on-site laboratory assessments and certification program reviews. The records must be maintained in an easily accessible manner for a period of at least six years to include the last two on-site audits. The records include correspondence used to determine compliance with the laboratory certification program requirements and may include checklists, corrective action reports, final reports, certificates, performance evaluation/proficiency testing study results, and any other related documents.

[**ARC 9915B**, IAB 12/14/11, effective 1/18/12; **ARC 3735C**, IAB 4/11/18, effective 5/16/18]

567—83.7(455B) Criteria and procedure for provisional, suspended, and revoked laboratory certification.

83.7(1) *Provisional certification criteria.*

a. The department may downgrade certification to "provisional" status based on cause. The reasons for which a laboratory may be downgraded to "provisionally certified" status include, but are not limited to, the following list.

(1) Failure to analyze a performance evaluation (PE) sample annually within Iowa acceptance limits;

(2) Failure to notify the department within 15 days of changes in essential personnel, equipment, laboratory facilities or other major change which might impair analytical capability;

(3) Failure to satisfy the department that the laboratory is maintaining the required standard of quality based on an on-site visit;

(4) Failure to report compliance data in a timely manner to the department or the client, thereby preventing timely compliance with environmental program regulations.

b. The department may assess an administrative penalty for a laboratory's failure to comply with the laboratory certification or reporting requirements.

c. A laboratory will not be granted provisional certification by the department for water supply contaminants which pose an acute risk to human health, including nitrate, nitrite, and *Escherichia coli* bacteria.

83.7(2) *Provisional certification procedure.*

a. *Notification to the laboratory.* If a laboratory is subject to downgrading to "provisional" status on the basis of 83.7(1), the department will notify the laboratory or owner in writing of the downgraded status. Certification may be downgraded to provisional for an analyte, a related analytical series, an environmental program area, or the entire laboratory.

b. *Reporting.* A provisionally certified laboratory may continue to analyze samples for compliance purposes, but must notify the laboratory's IDNR-regulated clientele and other state certifying agencies of the change in laboratory certification status. If there is cause to question the quality of the data generated by the laboratory, the department may suspend the laboratory's ability to submit data to the department

for any or all analytes, pursuant to 83.7(3), which includes suspension of the ability of the laboratory's client to report the data of questionable quality to the department.

c. *Right to appeal.* There is no appeal for this process, as it does not affect a laboratory's ability to analyze and report to the department.

d. *Correction of deficiencies.*

(1) If a laboratory failed to analyze a PE sample within acceptance limits, the laboratory has 60 days from receipt of the notification of the failure to identify and correct the problem to the department's satisfaction, and analyze a second PE sample. If the laboratory fails to analyze this second sample within acceptance limits and has had acceptable PE sample results within the last year, the department will downgrade the laboratory to "provisionally certified" status and notify the laboratory in writing.

(2) Once the department notifies a laboratory in writing that it has been downgraded to "provisionally certified" status, the laboratory must correct the problem within the following time frames, unless a written extension is obtained from the department. If the problem is not corrected, the laboratory is subject to suspension or revocation for that analyte, related analytical series, environmental program area, or the entire laboratory.

1. Unacceptable PE sample result within two months of notification.
2. Procedural deficiency within three months of notification.
3. Administrative deficiency within three months of notification.
4. Minor equipment deficiency within three months of notification. Examples of a minor equipment deficiency are inadequate analytical balances or incubators.

(3) The laboratory shall review the problems cited and, within the time period designated by the department, specify in writing to the department the corrective actions being taken, including an appropriate implementation schedule. The department shall consider the adequacy of the response and notify the laboratory of its certification status in a timely basis by mail, and may follow up to ensure corrective actions have been taken.

e. *Reinstatement.* Certification will be reinstated when the laboratory can demonstrate that all conditions for laboratory certification have been met to the satisfaction of the department and that the deficiencies which resulted in provisional certification status have been corrected. This may include an on-site visit, successful analysis of PE samples, or any other measure that the department deems appropriate.

83.7(3) *Suspended certification criteria.*

a. The department may downgrade certification to "suspended" status based on cause. The reasons for which a laboratory may be downgraded to "suspended" status include, but are not limited to, the following list.

(1) Failure to analyze a PE sample annually for water supply contaminants which pose an acute risk to human health, including nitrate, nitrite, and *Escherichia coli* bacteria, or which pose an imminent risk to the environment;

(2) Failure to analyze a PE sample annually within Iowa acceptance limits for water supply contaminants which pose an acute risk to human health, including nitrate, nitrite, and *Escherichia coli* bacteria, or which pose an imminent risk to the environment;

(3) Failure to correct previously identified deficiencies, which resulted in "provisional" certification status, within the prescribed time frames of 83.7(2)*"d"*;

(4) Failure to analyze a PE sample within Iowa acceptance limits when there is not a reliable history of successful PE sample analysis within the past 12 months;

(5) Failure to satisfy the department that the laboratory is producing accurate data.

b. Administrative penalty. The department may assess an administrative penalty for a laboratory's failure to comply with the laboratory certification or reporting requirements.

c. Emergency certification suspension. The department may suspend certification without providing notice and opportunity to the laboratory to be heard if the department finds that the public health, safety, or welfare imperatively requires emergency action, and incorporates a finding to that effect in its administrative order, pursuant to 561—subrule 7.16(6).

83.7(4) *Suspended certification procedure.*

a. Notification to the laboratory. If a laboratory is subject to downgrading to "suspended" status on the basis of 83.7(3), the department will notify the laboratory or owner in writing of its intent to suspend certification in accordance with 561—7.16(17A,455A). Certification may be suspended for an analyte, a related analytical series, an environmental program area, or the entire laboratory.

b. Reporting. Once the suspension is effective, a laboratory must immediately discontinue analysis and reporting of compliance samples, may not analyze or report samples for compliance with departmental standards, and must notify the laboratory's Iowa regulated clientele and other state certifying agencies of the change of the laboratory certification status. Any results generated during the period of suspension may not be used for compliance purposes by the department.

c. Right to appeal.

(1) The laboratory may appeal this decision by filing a written notice of appeal and request an administrative hearing with the department director within 30 days of receipt of the notice of suspension of certification. Contested case procedures under 561—Chapter 7 shall govern administration of the appeal.

The appeal must identify the specific portion(s) of the department action being appealed and be supported with a statement of the reason(s) for the challenge and must be signed by a responsible official from the laboratory such as the president or owner for a commercial laboratory, or the laboratory supervisor in the case of a municipal laboratory, or the laboratory director for a state laboratory.

(2) If no timely notice of appeal is filed, suspension is effective 30 days after receipt of the notice of suspension unless an emergency suspension order is in effect.

d. Correction of deficiencies.

(1) If a laboratory failed to analyze a PE sample within acceptance limits, the laboratory has 30 days from receipt of the notification of the failure to identify and correct the problem to the department's satisfaction. If the laboratory fails to analyze this second sample within acceptance limits, the department will downgrade the laboratory to "suspended" status and notify the laboratory in writing.

(2) Once the department notifies a laboratory in writing that it has been downgraded to suspended status, the laboratory must correct the problem within the following timetable, unless a written extension is obtained from the department. If the problem is not corrected, the laboratory is subject to revocation for that analyte, related analytical series, environmental program area, or the entire laboratory.

1. Unacceptable PE sample result within two months of notification.
2. Procedural deficiency within three months of notification.
3. Administrative deficiency within three months of notification.
4. Minor equipment deficiency within three months of notification. Examples of a minor equipment deficiency are inadequate analytical balances or incubators.
5. Major equipment deficiency within six months of notification. An example of a major equipment deficiency would be the inability of existing complex analytical equipment to produce acceptable results, such as a chromatograph or spectrophotometer.

(3) The laboratory shall review the problems cited and, within the time period designated by the department, specify in writing to the department the corrective actions being taken including an appropriate implementation schedule. The department shall consider the adequacy of the response and notify the laboratory of its certification status in a timely basis by mail, and may follow up to ensure that corrective actions have been taken.

e. Reinstatement.

(1) Fee.

1. The laboratory will not be required to pay an additional fee if recertification affects an analyte or related analytical series, provided that:

- The laboratory is currently certified for other analytes, or
- A fee was paid within the two-year certification period for that related analytical series and the laboratory is certified for other parameters within that related analytical series.

2. A fee will be required if suspension affects a related analytical series effectively deleting that fee group from certification (such as all microbiological parameters in SDWA-MICRO), an environmental program area, or the entire laboratory. A fee will also be required if an additional on-site visit is required.

(2) Certification will be reinstated when the laboratory can demonstrate that all conditions for laboratory certification have been met to the department's satisfaction and, in particular, that the deficiencies which produced the suspension have been corrected. This may include an on-site visit, successful analysis of unknown samples, or any other measure that the department deems appropriate.

83.7(5) *Revoked certification criteria.*

a. The department may revoke certification for cause. The reasons for which a laboratory's certification may be revoked include, but are not limited to, the following:

(1) For laboratories of any status, failure to analyze a PE sample within Iowa acceptance limits;

(2) Failure to satisfy the department that the laboratory has corrected deficiencies identified during the on-site visit within three months for a procedural or administrative deficiency or within six months for an equipment deficiency;

(3) Submission of a PE sample to another laboratory for analysis and reporting the data as its own;

(4) Falsification of data or other deceptive practices;

(5) Failure to use required analytical methodology for analyses submitted to the department;

(6) Failure to satisfy the department that the laboratory is maintaining the required standard of quality based on the on-site visit;

(7) Persistent failure to report compliance data to the regulated client or the department in a timely manner, thereby preventing compliance with state regulations and endangering public health;

(8) Subverting compliance with state regulations by actions such as changing the sample type for a noncompliance sample to a compliance sample after its submission to the laboratory, allowing compliance samples to be changed to other noncompliance sample types, or selective reporting of split sample results; or

(9) For laboratories certified through a reciprocal agreement with another state or third-party accreditation program, loss of certification in either the resident state or third-party accreditation program is cause for immediate revocation of certification in Iowa for the same parameters or program areas for which certification was lost.

b. The department may either downgrade or revoke certification based on cause.

c. Emergency revocation. The department may revoke certification without providing notice and opportunity to the laboratory to be heard if the department finds that the public health, safety, or welfare imperatively requires emergency action, and incorporates a finding to that effect in its administrative order, pursuant to 561—subrule 7.16(6).

d. Laboratory-requested revocation. The department may revoke certification upon receipt of a written request by the certified laboratory for removal from the certification program.

83.7(6) *Revoked certification procedure.*

a. *Notification to the laboratory.* Except for the instance when the laboratory voluntarily requests revocation in 83.7(5)*"d,"* if a laboratory is subject to revocation on the basis of 83.7(5), the department will notify the party in writing of its intent to revoke certification in accordance with 561—7.16(17A,455A). Certification may be revoked for an analyte, a related analytical series, an environmental program area, or the entire laboratory.

b. *Reporting.* Once revocation is effective, a laboratory must immediately discontinue analysis and reporting of compliance samples, shall not analyze or report samples for compliance with departmental standards, and must notify the laboratory's Iowa-regulated clientele and other state certifying agencies of the change of the laboratory certification status within three business days of receipt of the final notice. Any results generated after revocation may not be used for compliance purposes by the department.

c. *Right to appeal.* There is no appeal process for revocation of an analyte or a related analytical series unless the analyte(s) represents an entire environmental program area, such as underground storage tank parameters, or the entire laboratory. When the laboratory requests revocation pursuant to 83.7(5)*"d,"* the revocation will be issued promptly and will be effective immediately with no appeal process.

(1) For an environmental program area or for the entire laboratory, the laboratory may appeal this decision by filing a written notice of appeal and request for an administrative hearing with the department

director within 30 days of receipt of the notice of revocation of certification. Contested case procedures under 561—Chapter 7 shall govern further administration of the appeal.

The appeal must identify the specific portion(s) of the department action being appealed and be supported with a statement of the reason(s) for the challenge and must be signed by a responsible official from the laboratory such as the president or owner for a commercial laboratory, or the laboratory supervisor in the case of a municipal laboratory, or the laboratory director for a state laboratory.

(2) If no timely notice of appeal is filed within the 30-day time period, revocation is effective 30 days after receipt of the notice of intent.

d. *Reinstatement.* A laboratory which has had its certification revoked may apply for certification in accordance with 567—83.3(455B) once the deficiencies have been corrected.

[**ARC 3735C**, IAB 4/11/18, effective 5/16/18]

These rules are intended to implement Iowa Code sections 455B.113 through 455B.115.

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[1] Effective date of 42.2(1)*"b"*(9) and (10) delayed 70 days by the Administrative Rules Review Committee at its meeting held November 10, 1992.

[2] Effective date of Ch 83 delayed 70 days by the Administrative Rules Review Committee at its meeting held May 14, 1996.

CHAPTERS 84 to 89
Reserved

TITLE VII
WATER POLLUTION CONTROL STATE REVOLVING FUND

CHAPTER 90
SCOPE OF TITLE — DEFINITIONS — FORMS

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—90.1(455B) Scope of title. The department has jurisdiction over the surface water and groundwater of the state to prevent, abate and control pollution. As a part of that general responsibility, the department and the Iowa finance authority are jointly designated to administer the clean water state revolving fund (CWSRF) pursuant to Iowa Code sections 455B.291 to 455B.299 and the federal Clean Water Act. This chapter provides the definitions and forms in the department's administration of the CWSRF. 567—Chapter 91 contains the criteria for rating and ranking water pollution control projects. 567—Chapter 92 contains the general project and program administration rules. 567—Chapter 93 contains rules for the nonpoint source pollution control programs.
[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—90.2(455B) Definitions. The following words and terms shall have the following meanings unless the context clearly indicates otherwise. The following definitions are applicable for this chapter and 567—Chapters 90, 91, 92 and 93.

"Authority" means the Iowa finance authority (IFA) as established by Iowa Code chapter 16.

"Clean Water Act" means the federal Water Pollution Control Act of 1972, P.L. 92-500, as amended by the Water Quality Act of 1987, P.L. 100-4, as published in 33 U.S.C. 1251-1376.

"Cluster systems" means onsite wastewater treatment systems providing treatment for two or more dwellings with a combined flow not to exceed 1,500 gallons per day.

"Commission" means the Iowa department of natural resources environmental protection commission.

"Comprehensive Nutrient Management Plan" or *"CNMP"* means a conservation system that is unique to an animal feeding operation (AFO). A CNMP is a grouping of conservation practices and management activities which, when implemented as part of a conservation system, will help to ensure that both production and natural resource protection goals are achieved. A CNMP incorporates practices to use animal manure and organic by-products as beneficial resources. A CNMP addresses natural resource concerns dealing with soil erosion, manure, and organic by-products and their potential impacts on all natural resources including water and air quality, which may derive from an AFO. A CNMP is developed to assist an AFO owner/operator in meeting all applicable local, tribal, state, and federal water quality goals or regulations. For nutrient-impaired stream segments or water bodies, additional management activities or conservation practices may be required by local, tribal, state, or federal water quality goals or regulations. [From proposed Natural Resources Conservation Service Environmental Quality Incentives Program (NRCS EQIP) rules.]

"CWSRF" means the clean water state revolving fund, also known as the water pollution control works revolving loan fund as defined in Iowa Code section 455B.291.

"Department" or *"DNR"* means the Iowa department of natural resources.

"Director" means the director of the Iowa department of natural resources.

"Eligible cost" means the cost of all labor, material, machinery, equipment, loan initiation and service fees, facility planning, design and construction engineering services, legal fees and expenses related to the project; capitalized interest during construction of the project; and construction and rehabilitation of all or part of a project included in the funding request placed on the draft IUP as a fundable project, subject to approval by the commission.

"Eligible entity" means a person eligible under the provisions of the Clean Water Act, the Safe Drinking Water Act, and the commission rules to receive loans for projects from either of the revolving loan funds.

"Eligible project" means, in the context of the water pollution control facilities, the acquisition, construction, reconstruction, extension, equipping, improvement, or rehabilitation of any works and facilities useful for the collection, treatment and disposal of sewage and industrial waste in a

sanitary manner including treatment works as defined in Section 212 of the Clean Water Act, or the implementation and development of management programs established under Sections 319 and 320 of the Clean Water Act, including construction and undertaking of nonpoint source water pollution control projects and related development activities authorized under those Sections. Only projects classified under one of the following needs categories are eligible for loan assistance: I, II, III–A, III–B, IV–A, IV–B, V, VI, all subcategories of VII, X and XII. Projects for the primary purpose of speculative growth are considered ineligible.

"Facility plan" means a report certified by a professional engineer licensed to practice in Iowa and prepared in conformance with Chapter 11 of the Iowa Wastewater Facilities Design Standards (567—paragraph 64.2(9)*"b"*). This report shall be prepared to include an evaluation of the facility, identify problems, provide alternatives and a recommended solution, outline financing options and project time line, and address other applicable issues ensuring the viability of the project and the facility to meet project goals and discharge requirements.

"Federal cross-cutters" means the federal laws and authorities that apply to projects funded through CWSRF.

"Financial agent" means the entity or entities that have entered into a contract with the department to carry out the financial administration of the nonpoint source set-aside programs.

"Fiscal year" means the state fiscal year starting July 1 and ending June 30.

"Fundable applicant" means an eligible entity that meets the following criteria:

1. Appears on the state project priority list;
2. Has submitted a complete application for a water pollution control project with eligible costs;
3. Will be in a state of readiness to proceed with construction and use loan payments in a timely manner; and
4. Has been included on the state's intended use plan as a proposed loan recipient or is otherwise eligible as described in 567—paragraph 93.5(1)*"c,"* 93.6(1)*"c,"* or 93.7(1)*"c."*

"Intended use plan" or *"IUP"* means a plan identifying the intended uses of funds available for loans in the WPCSRF for each fiscal year as described in Section 606(c) of the Clean Water Act.

"Municipality" means the city, county, sanitary district, state agency, or other governmental corporation or body empowered to provide sewage collection and treatment services, or any combination of two or more such governmental bodies, or corporations acting jointly, in connection with a project.

"Needs category" means identified categories of needs which comprise mutually exclusive classes of facilities:

1. Category I. Standard secondary wastewater treatment. This category includes wastewater treatment costs necessary to meet the minimum level of treatment defined by the federal Clean Water Act.
2. Category II. Advanced wastewater treatment. This category includes the wastewater treatment costs necessary to attain a level of treatment that is more stringent than standard secondary treatment or to produce a significant reduction in nonconventional or toxic pollutants present in the wastewater treated by a facility.
3. Category III–A. Infiltration/inflow correction. This category includes costs for correction of sewer system infiltration/inflow problems. Infiltration includes controlling the penetration of water into a sanitary or combined sewer system from the ground through defective pipes or manholes. Inflow includes controlling the penetration of water into the system from drains, storm sewers, and other improper entries. This category also includes costs for preliminary sewer system analysis and detailed sewer system evaluation surveys.
4. Category III–B. Sewer system replacement/rehabilitation. This category includes costs for the reinforcement or reconstruction of structurally deteriorating sanitary or combined sewers. The corrective actions must be necessary to maintain the structural integrity of the system. Rehabilitation is considered to be extensive repair of existing sewers (collector and interceptor) beyond the scope of normal maintenance programs, when sewers are collapsing or structurally unsound. "Replacement" is defined as the construction of parallel sewer or sewers which perform the function of existing sewers where existing sewers are to be abandoned. Sewer work associated with infiltration/inflow elimination

is considered a Category III–A need. Relief sewers do not fall within this category since they are newly constructed sewers with a function beyond that of existing sewers.

5. Category IV–A. New collector sewers and appurtenances. This category includes costs of new pipes used to collect and carry wastewater from a sanitary or industrial wastewater source to an interceptor sewer that will convey the wastewater to a treatment facility. The collection system is considered as those public sewers which have a principal purpose of providing service for individual users in existing residential and commercially developed areas to enable collection of wastewater in a centralized system. Pumping stations and force mains and other related appurtenant structures are considered part of the collection system if their primary mechanical function relates to the collection system.

6. Category IV–B. New interceptor sewers and appurtenances. This category includes costs for constructing new interceptor sewers and pumping stations to convey wastewater from collection sewer systems to a treatment facility or to another interceptor sewer. Relief sewers are included in this category where additional sewer capacity is required to accommodate all wastewater in a separate sewer system to ensure that it is transported to a wastewater treatment plant for adequate treatment, and to prevent public health hazards within the service area. Relief sewers may include parallel sewers. Pumping stations and force mains and other related appurtenant structures are considered in this category if their primary mechanical function relates to the interceptor's principal purpose. Equalization basins are included in this category.

7. Category V. Correction of combined sewer overflows. This category includes costs to prevent or control the periodic discharges of mixed storm water and untreated wastewater (combined sewer overflows) that occur when the capacity of a sewer system is exceeded during a wet weather event. This category does not include costs for overflow control allocated to flood control, drainage improvement, or the treatment or control of storm water in separate storm systems.

8. Category VI. Storm water management program. This category includes costs to plan and implement structural and nonstructural measures to control the runoff of water resulting from precipitation (storm water) with the purpose of improving and protecting water quality. This category includes controlling storm water pollution from diffuse sources by reducing pollutants from runoff from commercial and residential areas that are served by the storm sewer, detecting and removing illicit discharges and improper disposal into storm sewers, monitoring pollutants in runoff from industrial facilities that flow into municipal separate storm sewer systems, and reducing pollutants in construction site runoff discharged to municipal separate storm sewers.

9. Category VI–A. Storm water conveyance infrastructure. This category includes costs to address the storm water management program activities associated with the planning, design, and construction of conveying storm water via pipes, inlets, roadside ditches, and other similar mechanisms. These costs will be eligible if they are combined with practices described in Category VI–B or VI–C in order to achieve water quality protection or improvement.

10. Category VI–B. Storm water treatment systems. This category includes costs to address the storm water management program activities associated with the planning, design, and construction of treating storm water with wet ponds, dry ponds, manufactured devices, and other similar means. These costs will be eligible if these activities are implemented in order to achieve water quality protection or improvement.

11. Category VI–C. Green infrastructure. This category includes costs to address the storm water management program activities associated with the planning, design, and construction of low impact development and green infrastructure, such as bioretention, constructed wetlands, permeable pavement, rain gardens, green roofs, cisterns, rain barrels, vegetated swales, and restoration of riparian buffers and flood plains. Projects in this category can be both publicly owned and privately owned.

12. Category VI–D. General storm water management. This category includes costs to address the storm water management program activities associated with implementing a storm water management program, such as Geographic Information Systems and tracking systems, equipment such as street sweepers and vacuum trucks, storm water education program startup costs, and storm water management plan development.

13. Category VII–A. Nonpoint source (NPS) control: agriculture (cropland). This category includes costs to address NPS pollution control needs associated with agricultural activities related to croplands, such as plowing, pesticide spraying, irrigation, fertilizing, planting, and harvesting.

14. Category VII–B. NPS control: agriculture (animals). This category includes costs that address NPS pollution control needs associated with agricultural activities related to animal production, such as confined animal facilities, open feedlots, and grazing.

15. Category VII–C. NPS control: silviculture. This category includes costs that address NPS pollution control needs associated with forestry activities such as removal of streamside vegetation, road construction and use, timber harvesting, and mechanical preparation for the planting of trees.

16. Category VII–E. NPS control: groundwater protection (unknown source). This category includes costs that address groundwater protection NPS pollution control needs such as wellhead and recharge protection activities.

17. Category VII–F. NPS control: marinas. This category includes costs that address NPS pollution control needs associated with boating and marinas, such as poorly flushed waterways, boat maintenance activities, discharge of sewage from boats, and the physical alteration of shoreline, wetlands, and aquatic habitat during the construction and operation of marinas.

18. Category VII–G. NPS control: resource extraction. This category includes costs that address NPS pollution control needs associated with mining and quarrying activities.

19. Category VII–H. NPS control: brownfields. This category includes costs that address NPS pollution control needs associated with abandoned industrial sites which might have residual contamination (brownfields).

20. Category VII–I. NPS control: storage tanks. This category includes costs that address NPS pollution control needs associated with tanks designed to hold gasoline, other petroleum products, or chemicals. The tanks may be located above or below ground level.

21. Category VII–J. NPS control: landfills. This category includes costs that address NPS pollution control needs associated with sanitary landfills.

22. Category VII–K. NPS control: hydromodification. This category includes costs to address the degradation of water resources as a result of altering the hydrological characteristics of noncoastal waters, including channelization and channel modification, dam, and streambank and shoreline erosion. Work involving wetland or riparian area protection or restoration is included in this category.

23. Category X. Recycled water distribution. This category includes costs associated with conveyance of treated wastewater that is being reused (recycled water), including associated rehabilitation/replacement needs.

24. Category XII. Decentralized sewage treatment. This category includes costs associated with the rehabilitation or replacement of onsite wastewater treatment systems or clustered (community) systems. This category also includes the treatment portion of other decentralized sewage disposal technologies.

"New AFO" means an animal feeding operation that meets at least one of the following criteria:

1. It was constructed after January 1, 2006.
2. Animal production at the site was resumed after being discontinued for at least 12 months.
3. Production facilities were altered in order to house a different animal species than was produced previously.

"Nontraditional project" means a project where the primary purpose of the project is not to protect or improve water quality. A secondary purpose of the project does include water quality improvement or protection.

"NPS" means nonpoint source pollution which does not have a single point of origin and/or is not introduced into a receiving stream from a specific outlet. NPS pollution sources are diffuse and may be a result of runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrological modification.

"Onsite wastewater treatment system," "onsite treatment system" or *"onsite system"* means the same as "private sewage disposal system" as defined in 567—subrule 69.1(2).

"POTW" means publicly owned treatment works as defined in Section 212 of the Clean Water Act.

"Project completion" means the date the final loan certificate is signed by the recipient.

"Quasi-public agency" means an agency that provides public services and is under private ownership or control.

"Sponsored project" means a water resource restoration project pursuant to 2009 Iowa Code Supplement section 455B.199.

"State project priority list (PPL)" means the list of projects in priority order that may qualify for CWRSF loan assistance. The list is developed in accordance with 567—Chapter 91.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—90.3(455B) Forms. The following forms are used to apply for assistance and to provide required documentation. All forms may be obtained from State Revolving Fund, Department of Natural Resources, 401 SW 7th Street, Suite M, Des Moines, Iowa 50309. Forms may also be downloaded from www.iowasrf.com. Recipients of assistance shall also comply with applicable requirements of the department's rules.

90.3(1) *POTW water pollution control project forms.*

a. Application package - Form 542-1320.

b. Reserved.

90.3(2) *General nonpoint source project forms.*

a. Application form for loan assistance - Form 542-8156.

b. Reserved.

90.3(3) *Onsite wastewater treatment assistance forms.*

a. Application form for loan assistance - Form 542-8045.

b. Reserved.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

These rules are intended to implement Iowa Code sections 455B.291 to 455B.298 and 2009 Iowa Code Supplement section 455B.199.

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CHAPTER 91
CRITERIA FOR RATING AND RANKING PROJECTS FOR THE WATER POLLUTION CONTROL STATE REVOLVING FUND

[Prior to 7/1/83, DEQ 19.2(12)]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—91.1(455B) Statutory authority. The authority for the Iowa department of natural resources to administer the clean water state revolving fund (CWSRF) to assist in the construction of wastewater treatment facilities and water pollution control works is provided in Iowa Code sections 455B.291 to 455B.299. The requirement to have selection criteria and a method for selecting projects or programs for loans is provided in 40 CFR Part 35.3150, July 1, 2002.

567—91.2(455B) Scope of title. The department has jurisdiction over the surface water and groundwater of the state to prevent, abate and control pollution. As part of that general responsibility, the department and the Iowa finance authority are jointly designated to conduct the administration of the CWSRF loan assistance program to assist in the financing of infrastructure projects pursuant to the Clean Water Act. A project must comply with this chapter and 567—Chapter 92 or 567—Chapter 93 to be eligible for a CWSRF loan. This chapter provides the rating criteria to be used to rank eligible projects for funding. Rating criteria are provided for publicly owned treatment works (POTW) projects and nonpoint source projects. Rating criteria for nonpoint source projects will be utilized when 90 percent of the set-aside funds have been allocated. Until that time, the loan assistance is based on a first-come, first-funded concept.
[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—91.3(455B) Purpose. The Clean Water Act requires that all uses of CWSRF funds are prioritized. This chapter identifies the criteria that are used to rate projects and activities for both POTW and nonpoint sources. The commission is to set funding targets for POTW and nonpoint source activities and to adjust the fundable project list to ensure that the short- and long-term goals of the intended use plan (IUP) are achieved. The public has an opportunity annually, and quarterly as needed, to comment on both the fundable list and the short- and long-term goals of the IUP.
[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—91.4 and **91.5** Reserved.

567—91.6(455B) General information—priority rating system. The department shall use the priority rating system to rate eligible projects for funding. An eligible project may be either a point source project or a nonpoint source project or activity. A nonpoint source project activity must be identified in the most recent Iowa nonpoint source management program to be considered eligible.

567—91.7 Reserved.

567—91.8(455B) Project priority rating system.

91.8(1) *Rating criteria.* The rating criteria consider the use classification of the receiving waters, water quality of the receiving waters, groundwater protection, project type, project purpose, and a tiebreaker. Priority ranking for the projects shall be based on the total points awarded for all the categories; the greater the total number of points, the higher the ranking. For POTW projects, the ranking will be done at the time the IUP is prepared. For nonpoint source projects, if 90 percent of the set-aside is allocated, the ranking will be done at the time the project application is received. The tiebreaker category will be used when necessary.

a. Use classification of receiving waters. This category addresses the receiving water that is impacted or potentially impacted by the existing situation and that would be improved or protected by the proposed project. Points shall be awarded and shall be cumulative for all designated use classifications of the receiving stream. Points for sludge stabilization, sewers and lift station projects

normally will be based on the assigned use of the waters that receive or could receive the effluent discharge.

Use and Classification	Points
Outstanding Iowa waters	45
High quality waters	40
High quality resource waters	20
Class A1 waters	50
Class A2 waters	45
Class A3 waters	45
Class C waters	40
Class B (CW1) waters	50
Class B (CW2) waters	30
Class B (WW1) & HH waters	30
Class B (WW2) waters	25
Class B (WW3) waters	20
Class B (LW) waters	35

b. Water quality of receiving waters. This category addresses the quality of water in the receiving stream and whether or not the water has been designated as impaired for some uses. Bodies of water that are impaired by pollutants are identified as the Section 303(d) list of waters in the integrated report of impaired waters status. The Section 303(d) list of waters also identifies probable pollutant source categories for these impairments. Projects that primarily impact these waters are awarded points if the water body that receives or could receive the wastewater discharge is included on the Section 303(d) list and the probable pollutant source is a point source. Waters are also identified in the Section 305(b) report on their use attainment status. Projects that primarily impact these waters are awarded points depending on the use impairment identified for the water body that receives or could receive the wastewater discharge. If no use impairment is identified indicating the water was not assessed, the partially supporting status points will be awarded. Points will be awarded for both A and B of the table below and then totaled for this category.

Indication of water quality	Points
A	
Integrated Report of impaired waters status	
4a, 4b, 4c, 4d, or 5a	15
5b	10
5p	5
B	
Section 305(b) status	
Aquatics or fish consumption or drinking water	
Fully supporting	5
Partially supporting	10
Not supporting	15

Indication of water quality	Points
Not assessed	7
Recreation	
Fully supporting	5
Partially supporting	10
Not supporting	15
Not assessed	7

c. *Protection of groundwater resources.* This category considers the use of the aquifer affected by the project.

Groundwater Category	Points
Wellhead protection area for public water supply	40
Unconfined aquifer that serves as a drinking water source	20
Other groundwater protection	10

d. *Project type.* In this category, points are provided based on the type of project and the relative level of the impact on public health and the environment. Points will be awarded only for the primary project type.

Project Type	Points
Category I. Secondary wastewater treatment	40
Category II. Advanced wastewater treatment	50
Category III–A. Infiltration/inflow correction	30
Category III–B. Sewer replacement/rehabilitation	30
Category IV–A. New collector sewers and appurtenances	10
Category IV–B. New interceptor sewers and appurtenances	20
Category V. Combined sewer overflow correction	40
Category VI. Storm water conveyance treatment systems and green infrastructure	30
Category VII–A. Agriculture (cropland)	30
Category VII–B. Agriculture (animals)	50
Category VII–C. Silviculture	10
Category VII–E. Groundwater protection (unknown sources)	20
Category VII–F. Marinas	10
Category VII–G. Resource extraction	10
Category VII–H. Brownfields	30
Category VII–I. Storage tanks	20
Category VII–J. Landfills	30
Category VII–K. Hydromodification	40
Category X. Recycled water distribution	10
Category XII. Decentralized sewage treatment	40
Refinance of existing projects that meet CWSRF eligibility criteria	5

e. *Project purpose.* In this category, points are awarded based on the purpose and expected outcome of the project. Points will be awarded only for the primary purpose.

Project Purpose	Points
Allows facility to meet new water quality standards	50
Protects or restores the physical, chemical, and biological integrity of water resources at a specific site	50
Reduces the loading of a parameter that has been identified as an impairment to the receiving water or watershed as identified through the total maximum daily load (TMDL) process	40
Provides regional consolidation in wastewater treatment or system management	30
Brings facility into compliance with a National Pollution Discharge Elimination System (NPDES) permit or other administrative or judicial enforcement action as may be required by the department or U.S. Environmental Protection Agency (EPA)	25
Eliminates or remediates a source of groundwater pollution	20
Meets existing or reasonable future needs of the community in order to maintain compliance with an NPDES permit	15
Provides operational reliability improvements, apart from projects which address compliance and enforcement	10

f. *Total points.* Total points are calculated using the following formula:
Total Points = Use Classification + Water Quality or Groundwater Protection + Project Type + Project Purpose

g. *Tiebreaker.* Two or more projects may receive the same total points on the fundable list. If sufficient state revolving loan funds are not available to fund the projects, ties will be broken by determining which project has the highest score in each category in the following order:

- Use Classification of Receiving Streams — Highest
- Water Quality of Receiving Streams (a+b)
- Groundwater Protection
- Project Type
- Project Purpose — Lowest

91.8(2) Reserved.
[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—91.9(455B) Livestock water quality facilities priority rating criteria system. Rescinded IAB 3/10/10, effective 4/14/10.

567—91.10(455B) Local water protection projects rating system. Rescinded IAB 3/10/10, effective 4/14/10.

567—91.11(455B) General nonpoint source projects rating system. Rescinded IAB 3/10/10, effective 4/14/10.

These rules are intended to implement Iowa Code sections 455B.291 to 455B.298.

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CHAPTER 92
CLEAN WATER STATE REVOLVING FUND

567—92.1(455B) Statutory authority. The authority for the Iowa department of natural resources to administer the clean water state revolving fund (CWSRF) to assist in the construction of wastewater treatment facilities and water pollution control projects is provided by Iowa Code sections 455B.291 to 455B.299.

567—92.2(455B) Scope of title. The department has jurisdiction over the surface water and groundwater of the state to prevent, abate and control pollution. As a part of that general responsibility, the department and the Iowa finance authority are jointly delegated the administration of: (1) the clean water state revolving fund (CWSRF) to assist in water pollution prevention and abatement and water quality protection projects pursuant to the Clean Water Act, and (2) the drinking water facilities revolving loan fund (DWSRF) described in 567—Chapter 44. A project must comply with this chapter to be eligible for a CWSRF loan. This chapter provides the general rules of practice for the department's administration of the CWSRF program, including the criteria for loan eligibility, and the general project and program administration rules. Definitions provided in 567—Chapter 90 apply to this chapter.

Section 603(c) of Title VI of the Clean Water Act allows the use of state revolving funds to assist municipalities to construct publicly owned treatment works and to implement a nonpoint source pollution management plan as provided for in Section 319 of the Clean Water Act. Nonpoint source water quality programs are described in 567—Chapter 93.

Water pollution control projects that provide the best water quality improvements or protection based on the rating system and are ready to proceed are to be funded. This chapter provides for the general rules of practice for the department's administration of the CWSRF program based on this principle.

567—92.3 Reserved.

567—92.4(455B) General policy. Loans of up to 100 percent of the eligible costs of water pollution control projects will be made available pursuant to the requirements of these rules, rules established by the authority, and Title VI of the Clean Water Act.

92.4(1) *Administration.* The department, in conjunction with the authority, has been delegated the responsibility of administering the CWSRF program and the DWSRF program described in 567—Chapter 44. The director may coordinate with the authority under the terms of an interagency agreement entered into pursuant to Iowa Code chapter 28E.

The department may enter into agreements with other private, public or quasi-public agencies to assist with the implementation of the CWSRF program.

92.4(2) *Set-aside funding.* Consistent with the pollution sources identified in the department's nonpoint source management program, set-asides will be used to target assistance to nonpoint source activities that are contributors of pollutants to Iowa's waters. Set-asides will be used for assisting construction of water pollution control facilities for livestock operations, local water protection projects, onsite wastewater management systems and general nonpoint source projects. The amount for each set-aside will be determined in the intended use plan.

92.4(3) *Decisions.* Decisions of department staff are final unless the recipient files a written petition for review with the director. The petition must be addressed to the director and clearly state the decision in question and the basis for the requested review. The recipient has the right to appeal a decision to the commission pursuant to Iowa Code chapter 17A or to the state court.

92.4(4) Reserved.

92.4(5) *Fundable project determination.* Projects or activities qualifying for CWSRF assistance shall be identified in the IUP. Only those projects or activities on the state project priority list developed pursuant to 567—Chapter 91 may be considered fundable. CWSRF assistance will be available to point source projects in priority order. Funding for nonpoint source activities will be established in the intended use plan.

92.4(6) *State capitalization grant.* The Clean Water Act authorizes the Environmental Protection Agency (EPA) to offer capitalization grants to states for use in a revolving fund loan program. A portion of the capitalization grant, as allowed by Title VI of the Clean Water Act, will be used to administer the CWSRF program.

92.4(7) *Federal funding coordination.* Projects may use CWSRF funds to complete the financing projects partially funded by other federal programs such as Environmental Quality Incentives Program and Community Development Block Grants.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—92.5 Reserved.

567—92.6(455B) Intended use plan management.

92.6(1) *Intended use plan preparation.*

a. *Development.* The department shall prepare an intended use plan (IUP) at least annually and on a quarterly basis as needed. The IUP will be subject to a public hearing and approved by the commission.

b. *Notification.* A public hearing process is part of the IUP adoption process to provide opportunity for public participation. Notice is published in a newspaper of general circulation prior to the public hearing. A general notice is also made to all applicants and interested agencies and organizations. The notice explains the purpose of the IUP and how additional information may be obtained. All materials relating to the IUP will be posted at www.iowasrf.com.

c. *Comments.* Comments regarding the proposed IUP will be accepted during the notice period, at the public hearing and in writing for five business days following the public hearing. After evaluation of all pertinent comments, the IUP will be revised, if necessary, and recommended for approval by the environmental protection commission. Subsequent approval by the EPC will establish the IUP to be used for loan assistance.

92.6(2) *Contents.* The IUP will identify the anticipated uses of loan funds available for that fiscal year and will include the following:

a. *State project priority list.* The state project priority list contains the projects and set-asides eligible for CWSRF loans. The state project priority list will include, for POTW projects, the name of the eligible applicant, any applicable NPDES permit number and the projected amount of loan assistance. For nonpoint source set-asides, the IUP will include the name of the program and amount set aside.

b. *Fundable list.* The fundable list includes projects scheduled for loans from funds available during the fiscal year. Projects will be considered in priority order for placement on the fundable list. Subsequent segments of a project which has been awarded financial assistance for Category I and Category II needs will be placed on the fundable list ahead of other new projects whose schedules also would allow funding during the fiscal year. The fundable lists of POTW projects and nonpoint source set-asides shall be listed in priority order and shall include the need category(ies) of the projects. The department will consider the following in developing the list of fundable projects for the intended use plan:

(1) How the project conforms to the short- and long-term goals of the CWSRF;

(2) The priority rating of the POTW project;

(3) Whether a POTW project will be ready to proceed on a schedule consistent with time requirements for outlay of funds;

(4) Whether the proposed project addresses the need upon which the eligible entity's priority is based;

(5) The funds available, department priorities and the administrative capacity of the department; and

(6) The applicant's conformance to process guidelines provided by the department.

c. *Contingency list.* A contingency list will be included so that POTW projects on the contingency list could become fundable should a fundable project not proceed in a timely manner.

d. *Goals.* The IUP will include the long- and short-term goals of the CWSRF.

e. *Supported activities.* The IUP will include information on the types of activities to be supported by the CWSRF. The IUP will identify requests for planning and design loans and funds to be directed to the nonpoint source set-asides to implement Iowa's nonpoint source management program.

f. *Assurances.* The IUP will include assurances and specific proposals on how the state intends to meet requirements of the Operating Agreement between the state of Iowa and the U.S. EPA.

g. *Rates, terms and fees.* Loan interest rates and terms, interest rates and terms for linked deposit programs, and loan origination fees and servicing fees will be established in the IUP.

h. *Amendments.* The IUP will include the method to be used by the department if the IUP is amended.

i. *Consistency with water quality management plans.* Projects must be consistent with any Iowa water quality management plans in order to be considered for inclusion on the state project priority list.

92.6(3) *Priority for loan assistance.* A fundable project must be technically and administratively complete. A community is responsible for complying with the technical procedures for facility planning and preparation of plans and specifications, including department approval of those documents.

92.6(4) *Annual update.* The state project priority list will be reviewed at least annually or quarterly as needed to update schedules and project cost estimates.

92.6(5) *Notification of revisions.* The department will notify, in writing, all communities that are removed from or placed on an approved fundable list based on revisions.

92.6(6) *Special considerations.* Exemptions to the point source rating criteria may be considered by the department, and funding variances may be granted by the commission for projects that have unique or unusual circumstances but that do not logically fit into the criteria. The commission may grant interest rate reductions or other favorable loan incentives to applicants that sponsor a project that improves the quality of the water in the watershed where a city water or wastewater facility is located.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—92.7(455B) Point source project procedures.

92.7(1) *Application forms.* An applicant may request an application package from the department. The applicant shall complete the application for placement on the IUP and shall provide documentation on the project. Forms may be obtained from the State Revolving Fund, Iowa Department of Natural Resources, 401 SW 7th Street, Suite M, Des Moines, Iowa 50309. Forms may also be downloaded from www.iowasrf.com.

92.7(2) *General requirements.* In addition to completing the IUP application and providing documentation required in 92.7(1), the applicant must include the following items in a complete CWSRF application for point source projects:

a. Three copies of the facility plan. The facility plan shall be certified by a professional engineer licensed to practice in Iowa and shall be in conformance with Chapter 11 of the Iowa Wastewater Facilities Design Standards (567—paragraph 64.2(9)*"b"*);

b. A schedule for submission of plans and specifications for the project; and

c. A project construction schedule.

92.7(3) *Timing.*

a. All applications received by the department for eligible projects will be given a score using the rating criteria in 567—Chapter 91 and will be placed on the state project priority list. Applications may be submitted on an ongoing basis.

b. Applications received after the drafting of the IUP will not be placed on the state project priority list but will be considered for loan assistance when the next IUP is prepared.

92.7(4) *Project initiation conference.* The department may require the applicant or the applicant's representative to meet at a location designated by the department. The eligible applicant's official representative (and usually the applicant's consultant) will meet with the department to discuss:

a. CWSRF program policies, procedures, and guidelines;

b. Allowable costs;

c. Wastewater treatment alternatives and technologies;

d. Environmental impacts and review considerations;

e. Public participation;

f. Scheduling; and

g. Other information as needed.

92.7(5) *Review criteria for point source projects.* The department shall review CWSRF applications from eligible applicants and verify the following items:

a. The project is on the state project priority list;

b. The applicant has prepared an adequate facility plan report;

c. The project will be in conformance with any applicable areawide water quality management plans;

d. The applicant has adopted or will adopt an acceptable user charge system;

e. The applicant has demonstrated its ability to provide the necessary legal, institutional, managerial and financial capability to ensure adequate construction, operation and maintenance. If the department has reasonable grounds to believe that an applicant's wastewater treatment facilities are not viable, the department may require the applicant to submit management and financial plans as prescribed in Iowa Code section 455B.174; and

f. The applicant has provided an acceptable project schedule for project initiation and completion.

92.7(6) *Allowable and unallowable costs.* Allowable costs shall be limited to those eligible costs deemed necessary, reasonable, and directly related to the efficient completion of the project. Unallowable costs include, but are not limited to, the following:

a. Cost of service lines and in-house plumbing;

b. Administrative costs of the recipient;

c. Purchase of vehicles and tools;

d. Land purchase and easement or rights-of-way costs, except as authorized under the Clean Water Act;

e. Pretreatment program development costs unless required by federal regulations; and

f. Operation and maintenance costs.

92.7(7) *Audit and inspection.* The recipient shall provide access at all times for the department, the authority, the state auditor, and the U.S. EPA Office of the Inspector General to all project records and documents for inspection and audit purposes for a period of three years after the date of last loan payment. The same access to the project site(s) shall be provided for inspection purposes.

92.7(8) *Cross-cutting laws.* Other federal and state statutes and programs may affect a CWSRF project.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—92.8(455B) Point source project requirements. All wastewater treatment system projects receiving assistance from the CWSRF which entered into binding loan commitments on or after October 1, 1994, and did not initiate construction of the projects in whole or in part prior to October 1, 1994, shall meet the following requirements:

92.8(1) *Planning.* The planning phase of a project consists of those necessary plans and studies which directly relate to facilities needed to comply with enforceable requirements of the Clean Water Act and state statutes. This phase consists of a systematic evaluation of alternatives that are feasible considering the unique demographic, topographic, hydrologic, and institutional characteristics of the planning area. Facilities planning must support selection of the proposed alternative. The planning phase must include the following:

a. *Facility plan.* The facility plan must contain a description of the proposed project and the complete system of which it is a part. The facility plan must be prepared in accordance with Chapter 11 of the Iowa Wastewater Facilities Design Standards and meet the applicable provisions of this subrule.

b. *Environmental review.* Loan recipients shall conduct environmental review of projects using procedures in 40 CFR Part 6, July 1, 2002, as a part of facility planning. The applicant should work with the department as early as possible in the facilities planning process to determine if the project qualifies for a categorical exclusion from 40 CFR Part 6 requirements or whether a finding of no significant impact is required. In conjunction with the facility planning process as described in 40 CFR 35.2030(c), July

1, 2002, a potential applicant may request formal determination under 40 CFR Part 6. All of 40 CFR Part 6, July 1, 2002, pertaining to Procedures for Implementing the Requirements of the Council on Environmental Quality of the National Environmental Policy Act, is hereby adopted by reference and incorporated herein. However, all references to the U.S. Environmental Protection Agency as performing acts or reviews shall be substituted with references to the department for the purposes of this chapter.

92.8(2) *Point source project design and construction.* The project design and construction phase must include the following:

a. *Recipient capability.* The recipient must demonstrate to the department that it has the legal, institutional, managerial and financial capability to ensure adequate construction, operation and maintenance of treatment works.

b. *Disadvantaged business enterprise (DBE).* The recipient must comply with requirements of DBE participation as found in 40 CFR Parts 30, 31, 33, 35 and 40, March 26, 2008.

c. *Site.* When it is necessary that real property be acquired as part of the project and within the project period, the recipient may be required to submit documentation of the acquisition, including the legal description, the date the property was acquired, and an appraisal report by a qualified appraiser. If required, submittal to the department is to occur prior to contract award.

d. *Project changes.* Prior to the final loan disbursement, the recipient must submit to the department for approval all modifications to the project including changes to the plans and specifications and changes in the contract (change orders). The recipient is responsible for any costs or actions necessary should the changes be implemented prior to departmental review and subsequently found to be unapprovable.

e. *State inspections.* Personnel of the department shall have the right to examine all construction aspects of the project, including materials and equipment delivered and stored on site for use on the project.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

These rules are intended to implement Iowa Code sections 455B.291 to 455B.299.

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CHAPTER 93
NONPOINT SOURCE POLLUTION CONTROL SET-ASIDE PROGRAMS

567—93.1(455B,466) Statutory authority. The authority for the Iowa department of natural resources to administer the clean water state revolving fund (CWSRF) to assist in the construction of wastewater treatment facilities and water pollution control projects is provided by Iowa Code sections 455B.291 to 455B.299.

567—93.2(455B,466) Scope of title. The department has jurisdiction over the surface water and groundwater of the state to prevent, abate and control pollution. As part of that general responsibility, the department and the Iowa finance authority are jointly delegated the administration of the CWSRF. Definitions provided in 567—Chapter 90 apply to this chapter.

567—93.3(455B,466) Purpose. Iowa's nonpoint source management plan identifies several sources of nonpoint source pollutants. In addition to assisting publicly owned treatment works, it is the intent of the commission to set aside a portion of the CWSRF for the purpose of making low-interest loans for nonpoint source water pollution control projects. Four separate set-asides are identified as follows:

93.3(1) *Onsite wastewater treatment and disposal systems set-aside.* The purpose of this set-aside is to assist homeowners to rehabilitate or improve existing onsite wastewater treatment and disposal systems.

93.3(2) *Livestock water quality facilities set-aside.* The purpose of the set-aside is to assist owners of existing animal feeding operations to meet state and federal requirements or to prevent, minimize or eliminate water pollution. Projects may be selected using the rating and ranking process in 567—Chapter 91.

93.3(3) *Local water protection projects set-aside.* The purpose of the set-aside is to assist local water protection projects that will provide water quality improvement or protection. Projects may be selected using the rating and ranking process in 567—Chapter 91.

93.3(4) *General nonpoint source project assistance set-aside.* The purpose of the set-aside is to assist general nonpoint source projects that will provide water quality improvements or water quality protection. This set-aside allows for funding of the water quality protection portion of nontraditional projects. Projects may be selected using the rating and ranking process in 567—Chapter 91.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10; **ARC 1336C**, IAB 2/19/14, effective 3/26/14]

567—93.4(455B,466) Onsite wastewater system assistance program.

93.4(1) *Onsite wastewater system assistance program.* Assistance under the onsite wastewater treatment system assistance program shall be in the form of low-interest loans made by participating lending institutions through a linked deposit arrangement with the CWSRF. The following eligibility conditions and restrictions apply to such assistance.

a. Location restrictions. Assistance is available for the improvement or rehabilitation of onsite wastewater treatment systems serving homes that do not have a connection to a publicly owned treatment works.

b. County eligibility. Assistance shall be provided only for systems located in counties that have an environmental health program meeting minimum standards for onsite sewage systems. The department shall maintain for public record a list of all counties meeting such standards. At a minimum, counties must carry out statutory responsibilities as provided in Iowa Code section 455B.172 as well as provide for the following measures. The department will adopt guidance in cooperation with county boards of health to evaluate the adequacy of county programs.

(1) Proper site evaluations to determine the appropriate design and size of onsite wastewater treatment systems prior to permitting and installation.

(2) Inspection of onsite systems by a qualified inspector at the time of renovation or construction.

(3) Enforcement of existing monitoring requirements, in accordance with rule 567—69.2(455B), for existing, permitted onsite systems with secondary treatment which discharge aboveground, such as those authorized by NPDES General Permit No. 4 in rule 567—64.6(455B).

(4) Assurance of regular system maintenance and monitoring for the life of the loan for those systems receiving assistance under the onsite wastewater systems assistance program.

c. *Eligible project costs.* The amount of assistance available shall be limited to the total costs deemed necessary, reasonable, and directly related to the repair, rehabilitation, or replacement of an onsite treatment system needed to meet state or local standards for onsite systems. Eligible costs include all costs directly related to the design, permitting and construction of an onsite wastewater treatment system.

d. *Applicant eligibility.* Assistance is limited to applicants who meet the applicable provisions of 567—Chapter 69 and all other local provisions for the siting and construction of onsite wastewater treatment and disposal systems.

e. *Project eligibility.* Assistance can be provided only for the repair, rehabilitation, or replacement of existing onsite wastewater treatment and distribution systems. Assistance is not available for new housing. A system serving an equivalent of 16 individuals or more (with an average daily flow of 1500 gallons or more) is considered a public system (requiring permitting by the DNR) and is not eligible under this program.

93.4(2) *Applying for assistance.* Prior to applying for a loan from a participating lending institution, an eligible individual or entity must receive approval of the proposed improvements from the county in which the onsite wastewater treatment system is located. Application for project approval shall be made on forms provided by the department or its agent. Forms may also be downloaded from www.iowasrf.com.

a. *County requirements for individual applicants.* County approval forms shall include:

(1) A description of the type and general specifications of the proposed work.

(2) Project cost estimate(s).

(3) A proposed construction schedule.

b. *County requirements for cluster system applicants.* County applications for cluster systems using onsite technology must include:

(1) A description, if available, of each participating property owner's current onsite wastewater treatment system, including a discussion of existing and potential problems or failures in the current treatment scheme.

(2) An estimate of the population and number of households to be served.

(3) A rationale for the proposed design of the new treatment system.

(4) Descriptions of the management entity and program.

93.4(3) *County review and approval.* The county shall review applications to determine if the proposed work meets the applicable provisions of 567—Chapter 69 and all other relevant local provisions for the siting and construction of onsite wastewater treatment and distribution systems. For proposed projects that meet relevant criteria, the county shall issue a permit or certificate. The county permit or certificate shall be accompanied by a cost estimate and proposed construction schedule. A county may deny an application for reasons of noncompliance with applicable state and local criteria. Written notification of the denial shall be provided to the applicant and shall state the reason(s) that the application was denied.

93.4(4) *Eligible costs.* All costs directly related to the design, permitting, construction, and financing of the onsite wastewater treatment system are eligible for loans. Eligible costs include the removal of existing structures, such as abandoned septic tanks, earth moving or any land purchases directly related to proper wastewater treatment.

93.4(5) *Ineligible costs.* Costs for additional earthwork, reseeding, replanting, or any other aesthetic improvements are not eligible. Maintenance or monitoring costs will not be allowed as part of the loan.

93.4(6) *Recipient record keeping.* The loan recipient shall maintain adequate records that document all costs associated with the project. The loan recipient shall agree to provide access to these records to the department, the state auditor, the EPA SRF project manager, and the Office of the Inspector General at the Environmental Protection Agency. The loan recipient shall retain all project records and documents for inspection and audit purposes for a period of three years from the date of the final loan payment.

93.4(7) *Site access.* The loan recipient shall agree to provide the department and the administrative authority access to the construction site to verify that the loan was used for the purpose intended and that the constructed works meet applicable state and local environmental requirements and ordinances for onsite wastewater treatment systems. The loan recipient also shall agree to provide access to the onsite system for periodic monitoring by the department and administrative authority, at times mutually agreed upon with the system owner, for the duration of the loan.

93.4(8) *Priority allocation of funds and intended use plan.* The department shall, on an annual basis, prepare a plan describing the amount of funding available for loans under the program for the coming state fiscal year. The plan shall also identify those counties qualified to participate in the program and provide an estimate of the loan funds needed in those counties within the coming year. To the extent that the pool of funds available for lending involves funds controlled by Title VI of the federal Clean Water Act, this plan shall be incorporated into the annual intended use plan authorized in 567—Chapter 92.

93.4(9) *Targeted assistance.* The department may set aside a portion of the annual available funds identified in the IUP for financing onsite wastewater treatment systems in targeted areas. Such targeted areas may include impaired watersheds, high-density housing areas, agricultural drainage areas, or other environmentally sensitive or degraded areas where the repair and rehabilitation of onsite wastewater treatment systems are needed to preserve and protect water quality. The annual intended use plan shall specify the need for targeted assistance, the areas covered, and the estimate of funds needed to address the water quality problems.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10; **ARC 1336C**, IAB 2/19/14, effective 3/26/14]

567—93.5(455B) Livestock water quality facilities requirements.

93.5(1) *Livestock water quality facilities assistance.* Assistance shall be in the form of low-interest loans made by participating lending institutions through a linked deposit arrangement with the CWSRF. The following eligibility conditions and restrictions for participation apply to such assistance.

a. Eligible project costs. All costs directly related to the design, permitting, construction, and financing of the water pollution control facilities are eligible. The amount of assistance available shall be limited to the total costs deemed necessary, reasonable and directly related to the facilities required to provide water pollution control as required by the department or to prevent, minimize or eliminate water pollution.

b. Applicant eligibility. Assistance is limited to livestock producers operating animal feeding operations according to federal law. Concentrated animal feeding operations as defined in 40 CRF Section 122.23 are not eligible.

Loans will be made only to livestock producers that are operators of record or have legal control of the property containing the animal feeding operation for the duration of the loan. The department has the discretion to deny applications for producers if the department has issued an administrative order to the producer pursuant to Iowa Code section 455B.175, if the department notifies the producer in writing of intent to recommend referral or the commission refers the action to the attorney general pursuant to Iowa Code section 455B.175, or if the attorney general has commenced legal proceedings against the producer pursuant to Iowa Code section 455B.112.

c. Eligible projects. The water pollution control facilities considered eligible for assistance include: manure storage structures, solids settling basins, composting facilities and equipment, lagoons (including fencing), portions of feeding floors or loafing areas used for waste collection, water and sediment control basins, vegetative filters or buffers, surface water diversion structures, agitation or transfer pumps, dry bedded confinement feeding operation buildings or structures pursuant to 2009 Iowa Code Supplement chapter 459B when all or part of an open feedlot is replaced, and other practices shown to improve or protect water quality. Replacement animal feeding operations may be eligible where an existing animal feeding operation is eliminated to prevent a water quality impairment or mitigate a documented impairment. Engineering or technical service fees associated with the aforementioned practices are also eligible. A one-time purchase of attachments integral to the manure management system, such as blades, buckets, choppers, or spreaders, may be eligible at the time that an open feedlot is replaced with a dry bedded confinement building.

d. *Funding formula.* Loans for water quality projects for facilities being expanded by an increase in the animal unit capacity shall be funded according to the following formula:
Existing animal unit capacity/new animal unit capacity × total eligible project cost × 1.5 = maximum linked deposit amount

Example: 450 AUC / 900 AUC × $500,000 × 1.5 = $375,000

Example: 300 AUC / 600 AUC × $300,000 × 1.5 = $225,000

Example: 50 AUC / 900 AUC × $500,000 × 1.5 = $41,666

If existing areas in open feedlots are kept open where some pens are replaced and the operation is expanded through the addition of a dry bedded confinement feeding operation building, the remaining open lot areas must comply with 567—65.101(459A).

93.5(2) *Applying for assistance.* Application for project approval shall be made on forms provided by the department or its agent. Forms may also be downloaded from www.iowasrf.com.

93.5(3) *Project review and approval.* Prior to receiving assistance, the applicant shall submit an application to the local soil and water conservation district. The district will evaluate the application, provide an estimated cost, and certify that the practice is eligible and compatible with state water quality goals. All practices must comply with 567—Chapter 65 and shall be constructed to applicable USDA Natural Resource Conservation Service (NRCS) standards. NRCS staff or another technical service provider shall attest that the practice will be constructed to these specifications and standards.

93.5(4) *Duration of the project.* The project is to be maintained, kept in place or operated as proposed for the life of the loan. If an open lot is closed and replaced with an eligible replacement facility, the department or department's agent shall place a restrictive covenant that prohibits the operation of an open feedlot at the site being replaced for the life of the loan. The site or portion of the site that may not house animals shall be defined by the local soil and water conservation district.

93.5(5) *Manure management plan required.* The livestock producer shall have a manure management plan that fits the requirements of 567—65.17(459), a nutrient management plan as defined in 567—65.112(459A), or a comprehensive nutrient management plan as defined by the NRCS, to be eligible for the loan or, as part of the loan, develop a manure management plan, nutrient management plan, or comprehensive nutrient management plan.

a. Costs for development of a manure management plan, nutrient management plan, or comprehensive nutrient management plan are eligible costs.

b. Costs for updating a manure management plan, nutrient management plan, or comprehensive nutrient management plan are eligible costs if required for the implementation of a water quality project financed through the livestock water quality facilities program.

93.5(6) *Ineligible costs.* Costs for development of a new AFO as defined in 567—90.2(455B) are ineligible. Other ineligible costs include but are not limited to: costs for water pollution control facilities, including design, permitting, construction or financing, that allow for the animal feeding operation to expand and become a concentrated animal feeding operation; costs for the purchase of land to be used for application of wastewater or manure; costs for operation and maintenance; and costs for refinancing of water pollution control facilities constructed prior to approval by the department or the department's agent.

93.5(7) *Recipient record keeping.* The loan recipient shall maintain adequate records that document all costs associated with the project. The loan recipient shall agree to provide access to these records to the department, the state auditor, the EPA SRF project manager, and the Office of the Inspector General at the Environmental Protection Agency. The loan recipient shall retain all project records and documents for inspection and audit purposes for a period of three years from the date of the final loan payment.

93.5(8) *Site access.* The livestock producer shall agree to provide the department and the department's agent access to the construction site to verify that the loan was used for the purpose intended and that the construction work meets the applicable state and federal requirements for animal feeding operations. The livestock producer also shall agree to provide the department and the department's agent periodic access to the animal feeding operation, pursuant to biosecurity requirements

in 567—paragraph 65.113(9)*"b,"* for the duration of the loan to ensure that the constructed facility is being operated and maintained as designed.
[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—93.6(455B) Local water protection project requirements.

93.6(1) *Local water protection project assistance.* Assistance under the CWSRF shall be in the form of low-interest loans made by participating lending institutions through a linked deposit arrangement with the CWSRF. The following eligibility conditions and restrictions for participation apply to such assistance.

a. *Eligible project costs.* The amount of assistance available shall be limited to the total costs deemed necessary, reasonable and directly related to the practices required to provide water quality improvements.

b. *Applicant eligibility.* Assistance is available to any person who owns or has legal control over land that needs local water protection projects installed to control runoff of sediments, nutrients, pesticides or other nonpoint source pollutants into waters of the state. Loans will be made only to persons who are owners of record or persons who have legal control of the property where the local water protection projects are to be installed.

c. *Eligible practices.* The local water protection practices that are considered eligible include, but are not limited to, contour buffer strips, diversion, fence, field border, field windbreak, filter strips, grade stabilization structure, grassed waterway, pasture and hayland planting, planned grazing system, pond, riparian forest and vegetative buffers, sediment basin, terrace, underground outlet with secondary water quality treatment, waste management system, water and sediment control basin, stream bank stabilization and restoration, and other practices that are shown to improve or protect water quality.

93.6(2) *Applying for assistance.* Application for project approval shall be made on forms provided by the department or its agent. Forms may also be downloaded from www.iowasrf.com.

93.6(3) *Project review and approval.* Prior to receiving assistance, the applicant shall submit an application to the local soil and water conservation district. The local soil and water conservation district will evaluate the application, provide an estimated cost, and certify that the practice is compatible with state water quality goals. All practices shall be constructed to meet NRCS standards and specifications. NRCS or another technical service provider shall attest that the practice will be constructed to these specifications and standards.

93.6(4) *Duration of the project.* The project is to be maintained, kept in place or operated as proposed for the life span of the practice, but in no case for less than the life of the loan.

93.6(5) *Eligible costs.* All costs directly related to the implementation of local water protection projects approved in the memorandum of project approval are eligible costs.

93.6(6) *Ineligible costs.* Ineligible costs include costs for overbuilding a practice beyond what is required to maintain or improve water quality and costs for the purchase of land.

93.6(7) *Site access.* The applicant shall agree to provide the department or the department's agent access to the project site to verify that the loan was used for the purpose intended.
[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

567—93.7(455B) General nonpoint source project requirements.

93.7(1) *General nonpoint source assistance.* Assistance under the CWSRF general nonpoint source (GNS) set-aside shall be in the form of low-interest loans made directly or by participating lending institutions through a linked deposit or participation arrangement with the CWSRF. The following eligibility conditions and restrictions for participation apply to such assistance.

a. *Eligible project costs.* The amount of assistance available shall be limited to the total costs deemed necessary, reasonable and directly related to the facilities or practices required to provide water quality improvements, restoration or protection. Participation in nontraditional projects where the primary purpose is not water quality protection or improvement will be limited to the portion of the project that is directly related to water quality improvement, restoration or protection.

b. *Applicant eligibility.* Assistance is available to projects for which facilities are needed to protect, restore or improve water quality from nonpoint source pollution. Only applicants that are

owners of record of the property or have long-term control of the property where the project is to be implemented are eligible. In applications where the water pollution control project is a plan or document that will direct water quality protection or improvement efforts, loans will be made to applicants that have the capacity and capability of implementing the plan and repaying the loan.

c. Project eligibility. Eligible projects include, but are not limited to, practices to address nonpoint source pollution control needs associated with storm water treatment and green infrastructure, silviculture, groundwater protection, marinas, resource extraction, brownfield remediation, aboveground and underground storage tanks, sanitary landfills, hydromodification, and watershed planning. Nontraditional nonpoint source projects that may have a water quality protection or improvement component include, but are not limited to, bird sanctuaries and wildlife enhancement projects, vegetative plants, sediment removal and other lake restoration practices, wetland mitigation bank and education programs.

93.7(2) *Applying for assistance.* Applications for storm water and green infrastructure projects shall be submitted to local soil and water conservation districts. Applications for other GNS projects shall be submitted to the department at State Revolving Fund, Iowa Department of Natural Resources, 401 SW 7th Street, Suite M, Des Moines, Iowa 50309. Forms may also be downloaded from www.iowasrf.com. Application forms will be provided by the department. Applications shall include an explanation of how the water quality will be protected, improved or restored by the proposed project. Applications will be accepted on a continuous basis.

93.7(3) *Project approval.* The department will evaluate eligibility and project design and provide the applicant a memorandum of approval for the proposed water pollution control project. The department will earmark the set-aside funds for the water pollution control projects to be funded.

93.7(4) *Eligible costs.* All costs directly related to the implementation of the project approved in the memorandum of approval are eligible costs.

93.7(5) *Ineligible costs.* Costs for livestock water quality facilities are not eligible under this set-aside and are provided for in rule 567—93.5(455B). Costs for the purchase of land are not eligible costs unless specifically approved by the commission.

93.7(6) *Site access.* The recipient shall agree to provide the department and the department's agent access to the project site to verify that the loan was used for the purpose intended.

[**ARC 8596B**, IAB 3/10/10, effective 4/14/10]

These rules are intended to implement Iowa Code sections 455B.291 to 455B.299, 466.8 and 466.9 and 2009 Iowa Code Supplement chapter 459B.

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CHAPTERS 94 to 99
Reserved

TITLE VIII
SOLID WASTE MANAGEMENT AND DISPOSAL

CHAPTER 100
SCOPE OF TITLE — DEFINITIONS — FORMS — RULES OF PRACTICE

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—100.1(455B,455D) Scope of title. The department has jurisdiction over the management, dumping, depositing, and disposal of solid waste by establishing standards for sanitary disposal projects and by regulating solid waste through a system of general rules and specific permits. The construction and operation of any sanitary disposal project requires a specific permit from the department.

This chapter provides general definitions applicable to this title and rules of practice, including forms, applicable to the public in the department's administration of the subject matter of this title.

Chapter 101 contains the general requirements relating to solid waste management and disposal. Chapter 102 pertains to the permits which must be obtained in order to construct and operate a sanitary disposal project. Chapter 103 details the requirements for all sanitary landfills accepting only coal combustion residue. Chapter 104 details the requirements for sanitary disposal projects with processing facilities. Chapter 105 sets forth the requirements for the planning and operation of all composting facilities. Chapter 106 pertains to design and operating requirements for recycling operations. Chapter 107 sets forth the rules pertaining to beverage container deposits and approval of redemption centers. Chapter 108 pertains to the reuse of solid waste. Chapter 109 contains the procedure for the assessment and collection of fees for the disposal of solid waste at sanitary landfills. Chapter 110 contains design, construction, and operation standards for solid waste management facilities. Chapter 112 details the requirements for all sanitary landfills accepting only biosolids. Chapter 113 details the requirements for all sanitary landfills accepting municipal solid waste. Chapter 114 details the requirements for all sanitary landfills accepting only construction and demolition wastes. Chapter 115 details the requirements for all sanitary landfills that are industrial waste monofills. Chapter 117 details the requirements for outdoor storage and processing of waste tires. Chapter 118 governs removal and disposal of PCBs from white goods. Chapter 119 provides requirements for collection and disposal of waste oil. Title VIII, Chapters 120 and 121, govern land application of sludge and other solid waste.

This rule is intended to implement Iowa Code section 455B.304 and chapter 455D.

567—100.2(455B,455D) Definitions. For the purpose of this title, the following terms shall have the meaning indicated in this chapter. The definitions set out in Iowa Code section 455B.301 shall be considered to be incorporated verbatim in these rules.

"Airport" means public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

"Annular space" means the open space formed between the borehole and the well casing.

"Aquifer" means a saturated geologic formation or combination of formations which has appreciably greater ability to transmit water than do adjacent formations. Typically, an aquifer is capable of yielding usable quantities of water to a well.

"Areas susceptible to mass movement" means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the MSWLF site, because of natural or man-induced events, results in the down slope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil function, block sliding, and rockfall.

"Attendant" means an employee of a sanitary disposal project who is not employed or assigned to operate the equipment used on the site.

"Bird hazard" means an increase in the likelihood of bird/aircraft collisions that may cause damage to the aircraft or injury to its occupants.

"Commission" means the environmental protection commission.

"Compost" means organic material resulting from biological decomposition of waste which can be used as a soil conditioner or soil amendment.

"Composting" means the controlled, biological decomposition of selected solid organic waste materials under aerobic conditions resulting in an innocuous final product.

"Comprehensive plan" means a course of action developed and established cooperatively between cities, counties and municipal solid waste sanitary disposal projects regarding their chosen integrated solid waste management system, its participants, waste reduction strategies, and disposal methods.

"Comprehensive plan amendment" means a notification, filed between comprehensive plan updates, that the planning agency seeks to change the participation or change the designated disposal project(s) as set out in the most recent approved comprehensive plan submittal.

"Comprehensive plan update" means a planning document that provides status reports on the integrated solid waste management system and that describes revision to the information and evaluation of the integrated solid waste management system and the proposed course of action for the next planning cycle.

"Confined aquifer" means an aquifer with a confining bed above and below. Water in a confined aquifer is under pressure such that water rises above the top of the aquifer in a well which penetrates the aquifer.

"Confining bed" means a geologic formation exhibiting relatively low ability to transmit water compared to adjacent formations. Confining beds are typically not capable of yielding usable quantities of water to a well.

"Construction and demolition waste" means waste building materials including wood, metals and rubble which result from construction or demolition of structures. Such waste shall also include trees.

"Construction and demolition waste disposal site" means a sanitary landfill which accepts only construction and demolition wastes.

"Consumer price index" means the measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. For the purpose of this title, consumer price index refers to All Urban Consumers (CPI-U), All Items, as published by the U.S. Bureau of Labor Statistics.

"Contaminated animal carcasses" means waste including carcasses, body parts and bedding of animals that were exposed to infectious agents during research, production of biologicals, or testing of pharmaceuticals.

"Contaminated sharps" means all discarded sharp items derived from patient care in medical, research, or industrial facilities including glass vials containing materials defined as infectious, suture needles, hypodermic needles, scalpel blades, and Pasteur pipettes.

"Contaminated soil" means soil that contains any harmful constituent in a concentration that may harm human health.

"Cultures and stocks of infectious agents" means specimen cultures collected from medical and pathological laboratories, cultures and stocks of infectious agents from research and industrial laboratories, wastes from the production of biological agents, discarded live and attenuated vaccines, and culture dishes and devices used to transfer, inoculate or mix cultures.

"Department" means the Iowa department of natural resources.

"Displacement" means the relative movement of any two sides of a fault measured in any direction.

"Downgradient" means direction of decreasing hydraulic head.

"Downgradient well" means a well which has been installed downgradient of the site and is capable of detecting the migration of contaminants from the site.

"FAA certified airport" means an airport serving air carriers certified by the Civil Aeronautics Board that has been issued an airport operating certificate from the Administrator of the Federal Aviation Administration pursuant to Section 612 of the Federal Aviation Act, 49 U.S.C. §1432, and 49 CFR Part 139. (NOTE: This definition includes the municipal airports in or near Iowa as follows: Moline, Illinois; Omaha, Nebraska; and Burlington, Cedar Rapids, Des Moines, Dubuque, Fort Dodge, Mason City, Ottumwa, Sioux City, and Waterloo, Iowa.)

"Fault" means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

"Firewood processing facilities" means facilities which process or allow the public to process trees into firewood.

"Fiscal year" means the state fiscal year from July 1 through June 30.

"Flood plain" means the area adjoining a river or stream which has been or may be hereafter covered by flood water.

"Free liquid" means the liquid produced when a 100-milliliter or 100-gram representative sample is placed on a standard mesh number 60 (fine mesh size) conical paint filter for five minutes. Method 9095 EPA SW 846.

"Garbage" means all solid and semisolid, putrescible animal and vegetable wastes resulting from the handling, preparing, cooking, storing, serving and consuming of food or of material intended for use as food, and all offal, excluding useful industrial byproducts, and shall include all such substances from all public and private establishments and from all residences.

"Geologic cross section" means a drawing of a subsurface profile showing the various strata encountered based on at least three soil borings.

"Groundwater flow path" means the route of water (and contaminant) travel within the groundwater system.

"High water table" is the position of the water table which occurs in the spring in years of normal or above normal precipitation.

"Holocene" means the most recent epoch of the Quaternary Period, extending from the end of the Pleistocene Epoch to the present.

"Human blood and blood products" means human serum, plasma, other blood components, bulk blood, or containerized blood in quantities greater than 20 milliliters.

"Hydraulic head" means the energy contained at a point in the groundwater system. Hydraulic head is measured as the elevation to which water rises in a piezometer.

"Incineration" means the processing and burning of waste for the purpose of volume and weight reduction in facilities designed for such use.

"Industrial process wastes" means waste that is generated as a result of manufacturing activities, product processing or commercial activities. It does not include office waste, cafeteria waste, or other types that are not the direct result of production processes.

"Infectious" means containing pathogens with sufficient virulence and quantity so that exposure to an infectious agent by a susceptible host could result in an infectious disease when the infectious agent is improperly treated, stored, transplanted, or disposed of.

"Infectious waste" means waste which is infectious, including but not limited to contaminated sharps, cultures and stocks of infectious agents, blood and blood products, pathological waste, and contaminated animal carcasses from hospitals or research laboratories.

"Initial comprehensive plan" means a first or new comprehensive plan filed with the department pursuant to the provisions of Iowa Code section 455B.306.

"Integrated solid waste management" means any solid waste management system which is focused on planned development of programs and facilities that reduce waste volume and toxicity, recycle marketable materials and provide for safe disposal of any residuals.

"Karst terranes" means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

"Land application" means a method through which sludge is applied to the ground surface. Land application may include subsurface injection.

"Landfill property" means the entire area of the landfill including the disposal site and any other contiguous property proposed for actual landfill use.

"Land pollution" means the presence in or on the land of any solid waste in such quantity, of such nature and for such duration and under such condition as would affect injuriously any waters of the state, cause air pollution or create a nuisance.

"Leachate" means a liquid that has percolated through or drained from a solid waste landfill.

"Lithified earth material" means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. This term does not include man-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth surface.

"Local governments" means those counties or municipalities using the sanitary disposal project.

"Lower explosive limit" means the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 25° Celsius and atmospheric pressure.

"Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

"Mean" is the sum of all the measurements divided by the number of measurements.

"Monitoring well" means any well installed solely for the sampling of groundwater quality at a given location and depth and constructed in a manner approved by the department.

"Municipal solid waste landfill (MSWLF)" means a discrete area of land or an excavation that receives household waste, and that is not a land application site, surface impoundment, injection well, or waste pile, as those terms are defined under 40 Code of Federal Regulations Part 257.2. An MSWLF also may receive other types of RCRA subtitle D wastes, such as commercial solid waste, nonhazardous dry sludge, and industrial solid waste. An MSWLF may be publicly or privately owned. An MSWLF may be a new MSWLF site, an existing MSWLF site, or a lateral expansion.

"Municipal solid waste sanitary disposal project" means all facilities and appurtenances, including all real and personal property connected with such facilities, which are acquired, purchased, constructed, reconstructed, equipped, improved, extended, maintained, or operated to facilitate the final disposition of household waste without creating a significant hazard to the public health or safety. A municipal solid waste sanitary disposal project also may receive other types of Resource Conservation and Recovery Act (RCRA) Subtitle D wastes, such as construction and demolition debris and commercial and industrial solid waste.

"Open burning" means any burning of combustible materials where the products of combustion are emitted into the open air without passing through a chimney or stack.

"Open dump" means any exposed accumulation of solid waste at a site other than a sanitary disposal project operating under a permit from the department.

"Open dumping" means the depositing of solid wastes on the surface of the ground or into a body or stream of water.

"Operating area" means the immediate portion of a sanitary disposal project used for unloading and handling of solid waste to prepare it for processing or final disposal.

"Operator" means an employee of the sanitary disposal project who is employed and assigned to operate the equipment used on the site.

"Pathological waste" means human tissues and body parts that are removed during surgery or autopsy.

"Perched saturated zone" is a localized saturated zone occurring above the regional zone of saturation. The perched saturated zone's presence is caused by a lens of relatively impermeable material within the unsaturated zone that impedes the downward movement of water toward the zone of saturation.

"Piezometers" are devices used to measure hydraulic head at a specific point in the groundwater system. Piezometers are generally small diameter wells sealed along the entire length and open to water only at the bottom through a short section of well screen, which is the point where hydraulic head is measured. A piezometer may be constructed similar to a monitoring well or may be a driven well point.

"Plan participants" means any individual, group, government or private entity that has direct involvement in an integrated solid waste management system.

"Planning agency" means the designated contact agency on file with the department.

"Planning area" means the combined jurisdiction of the local governments and the designated municipal solid waste sanitary disposal project(s) involved in a comprehensive plan. A planning area may include one or more municipal solid waste sanitary disposal projects.

"Planning cycle" means the length of time between the due date for each comprehensive plan update submittal as approved by the department, which shall be five years effective March 1, 2011.

"Pollution control waste" means any solid waste residue extracted by, or resulting from, the operation of pollution control equipment.

"Poor foundation conditions" means those areas where features exist which indicate that a natural or man-induced event may result in inadequate foundation support for the structural components of an MSWLF site.

"Potentiometric surface" is the imaginary surface that represents the level to which water from an aquifer (confined or unconfined) will rise in wells.

"Private agency" is defined in Iowa Code section 28E.2.

"Processing facility" means the site and equipment for the preliminary and incomplete disposal of solid waste, including but not limited to transfer, open burning, incomplete land disposal, incineration, composting, reduction, shredding and compression.

"Public agency" is defined in Iowa Code section 28E.2.

"Public water supply system" means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes: (1) any collection, treatment, storage, and distribution facilities under control of the supplier of water and used primarily in connection with such system, and (2) any collection (including wells) or pretreatment storage facilities not under such control which are used primarily in connection with such supply system. A public water supply system is either a "community water system" or a "noncommunity water system."

a. "Community water system" means a public water supply system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

b. "Noncommunity water system" means a public water supply system that is not a community water system.

"Recycling" means any process by which waste or materials which otherwise become waste are collected, separated, or processed and reused or returned to use in the form of raw materials or products. Recycling includes, but is not limited to, the composting of yard waste which has been previously separated from other waste and collected by the sanitary facility, but does not include any form of energy recovery.

"Refuse" means putrescible and nonputrescible wastes including but not limited to garbage, rubbish, ashes, incinerator ash, incinerator residues, street cleanings, market and industrial solid wastes and sewage treatment wastes in dry or semisolid form.

"Refuse collection service" means a publicly or privately operated agency, business or service engaged in the collecting and transporting of solid waste for disposal purposes.

"Rubbish" means nonputrescible solid waste consisting of combustible and noncombustible wastes, such as ashes, paper, cardboard, tin cans, yard clippings, wood, glass, bedding, crockery or litter of any kind.

"Rubble" means stone, brick or similar inorganic material.

"Salvageable material" means discarded material no longer of value for its original purpose but which has value if reclaimed.

"Salvaging" means the systematic removal of salvageable material in a formal and orderly manner as a part of the normal operating procedure of a sanitary disposal project.

"Sanitary disposal" means a method of treating solid waste so that it does not produce a hazard to the public health or safety or create a nuisance.

"Sanitary disposal project" is defined in Iowa Code section 455B.301.

"Sanitary landfill" means a method of disposing of solid waste on land by utilizing the principles of engineering to confine the solid waste to the smallest practical volume and to cover it with a layer of earth so that no nuisance or hazard to the public health is created.

"Sanitary landfill operator" means an individual having active, daily, on-site responsibility for day-to-day operation of a department-permitted sanitary landfill. This individual must also have the authority to turn waste away at the gate when the waste is considered unacceptable.

"Scavenging" means the uncontrolled removal of materials from the unloading or working area of a sanitary disposal project.

"Seismic impact zone" means an area with a 10 percent or greater probability that the maximum horizontal acceleration in the lithified earth material, expressed as a percentage of the earth's gravitational pull, will exceed 0.10g in 250 years.

"Service area" means an area served by a specific municipal solid waste sanitary disposal project defined in terms of the jurisdictions of the local governments using the facility. A planning area may include more than one service area. This definition does not apply to 567—Chapter 111.

"Sewage sludge" is defined in 567—Chapter 67.

"Shelby tube" is a thin-walled, seamless steel tube with a sharp cutting edge which is used to obtain undisturbed samples of cohesive or moderately cohesive soils (silts and clays).

"Shoreland" means land within 300 feet of the high water mark of any natural or artificial, publicly or privately owned lake or any impoundment of water used as a source of public water supply.

"Site" means any location, place or tract of land used for collection, storage, conversion, utilization, incineration or landfilling of solid waste, to include the landfill area, nonfill work areas, borrow areas plus a 100-foot wide perimeter surrounding the working areas or the property line if it is closer than 100 feet to the working areas.

"Sludge" means any solid, semisolid, or liquid waste generated from a commercial or industrial wastewater treatment plant, water supply treatment plant or air pollution control facility or any other such waste having similar characteristics and effects.

"Soil boring" means a hole drilled or driven into the subsurface for the purpose of determining subsurface characteristics.

"Solid waste" has the same meaning as found in Iowa Code section 455B.301. Pursuant to Iowa Code section 455B.301(23)*"b,"* the commission has determined that solid waste includes those wastes exempted from federal hazardous waste regulation pursuant to 40 CFR 261.4(b) as amended through November 16, 2016, except to the extent that any such exempted substances are liquid wastes or wastewater. This definition applies to all chapters within Title VIII. To the extent that there is a conflict, this definition controls.

"Solid waste collection" means the gathering of solid waste from public and private places.

"Solid waste incinerator operator" means an individual with active, daily, on-site responsibility for day-to-day operation of a department-permitted solid waste incinerator. This individual must also have the authority to turn waste away when it has been determined to be unacceptable.

"Solid waste storage" means the holding of solid waste pending intermediate or final disposal.

"Solid waste transportation" means the conveying of solid waste from one place to another by means of vehicle, rail car, water vessel, conveyor or other means.

"Special wastes" means any industrial process waste, pollution control waste, or toxic waste which presents a threat to human health or the environment or a waste with inherent properties which make the disposal of the waste in a sanitary landfill difficult to manage. Special waste does not include domestic, office, commercial, medical, or industrial waste that does not require special handling or limitations on its disposal. Special waste does not include hazardous wastes which are regulated under the federal Resource Conservation and Recovery Act (RCRA), hazardous waste as defined in Iowa Code section 455B.411, subsection 3, or hazardous wastes included in the list compiled in accordance with Iowa Code section 455B.464.

"Specific yield" is the ratio of the volume of water that a given mass of saturated rock or soil will yield by gravity to the volume of that mass. This ratio is stated as a percentage.

"Split spoon sampler" means a device used in conjunction with a drilling rig to obtain core samples from unconsolidated strata.

"Stabilized sludge" means sludge that has been processed to a point where it has the ability to resist further change, produces minimal odor, and has achieved a substantial reduction in the pathogenic organism content. (The department recognizes principles of stabilization other than the conventional biological processes. Whether these processes produce a stabilized sludge will be evaluated on an individual basis.)

"Standard deviation" means the square root of the variance.

"Storage coefficient" is the volume of water an aquifer releases from or takes into storage per unit surface area of aquifer per unit change in head.

"Structural components" means liners, leachate collection systems, final covers, run-on/run-off systems, and any other component used in the construction and operation of the MSWLF that is necessary for protection of human health and the environment.

"Toxic wastes" means materials containing poisons, biocides, acids, caustics, pathological wastes, and similar harmful wastes which may require special handling and disposal procedures to protect the environment and the persons involved in the storage, transport and disposal of the wastes.

"Transfer station" means a fixed or mobile intermediate solid waste disposal facility for transferring loads of solid waste, with or without reduction of volume, to another transportation unit.

"Transmissivity" is the rate at which water is transmitted through a unit width of an aquifer under a unit hydraulic gradient.

"Tree chipping facilities" means facilities which chip trees and brush for the purpose of mulch production.

"Trees" means trunks, limbs, stumps, or branches from trees or shrubs and untreated, uncoated, chemically unchanged wood wastes. This shall not include wood products which are part of an otherwise defined waste or have been contaminated by coatings, treatments or metals.

"Tremie tube" means a pipe used to fill the annular space in a well from the bottom up.

"Unconfined aquifer" means an aquifer which does not have a confining bed above it. The level of water in a well in an unconfined aquifer is below the top of the aquifer formation.

"Unsaturated zone" is the subsurface zone above the water table in which the interstitial spaces are only partially filled with water.

"Unstable area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas can include poor foundation conditions, areas susceptible to mass movements, and karst terranes.

"Upgradient" means direction of increasing hydraulic head.

"Upgradient well" means a well which is capable of yielding groundwater samples that are representative of regional conditions and are not affected by the landfill site. Such a well is typically placed upgradient of the site, if possible, and, if not, is placed in an upgradient direction and as near the site as feasible.

"Variance" means the sum of the squared differences between the actual measurement and the mean divided by one less than the number of measurements.

"Waste reduction" means practices which reduce, avoid, or eliminate both the generation of solid waste and the use of toxic materials so as to reduce risks to health and the environment and to avoid, reduce or eliminate the generation of wastes or environmental pollution at the source and not merely achieved by shifting a waste output or waste stream from one environmental medium to another environmental medium. Waste reduction includes, but is not limited to, home yard waste composting, which prevents yard waste from entering the waste stream.

"Water table" means the water surface below the ground at which the unsaturated zone ends and the saturated zone begins.

"Yard waste" means debris such as grass clippings, leaves, garden waste, brush and trees. Yard waste does not include tree stumps.

"Zone of saturation" is the subsurface zone below the water table in which the interstitial spaces are completely filled with water.

This rule is intended to implement Iowa Code section 455B.304 and Iowa Code chapter 455D.

[**ARC 2756C**, IAB 10/12/16, effective 11/16/16]

567—100.3(17A,455B) Forms and rules of practice.

100.3(1) *Applications for permits and renewals.* Any private or public person or agency desiring to secure any permit or renewal of a permit provided for in Iowa Code chapter 455B, division IV, part 1, or the rules promulgated pursuant thereto, shall file a properly completed application with the program operations division of the department.

a. A properly completed application shall consist of the application form with all blanks filled in by the applicant, all signatures, and all documents and information required by the solid waste disposal rules. Application forms may be obtained from:

Administrative Support Station
Environmental Protection Division
Iowa Department of Natural Resources
Henry A. Wallace Building
900 East Grand
Des Moines, Iowa 50319

Properly completed forms should be submitted in accordance with the instructions on the form. Where not specified in the instructions, forms should be submitted to the Solid Waste Section.

b. Application for the following permits or renewals shall be made in triplicate on the forms indicated:

(1) A sanitary disposal project permit pursuant to Iowa Code section 455B.305 — Form 43. 542-3199

(2) A temporary permit pursuant to Iowa Code subsection 455B.307(1) — Form 44. 542-1012

(3) A renewal of a sanitary disposal project permit pursuant to 567—subrule 102.2(1) — Form 45. 542-3208

c. It is strongly recommended that applicants contact the department before engineering plans are drafted, to ensure that the requirements of the rules are understood and to discuss any special problems of the proposed project.

100.3(2) Rescinded IAB 3/12/97, effective 4/16/97.

567—100.4(455B) General conditions of solid waste disposal. Except as provided otherwise in 567—Chapters 100 to 121, a private or public agency shall not dump or deposit or permit the dumping or depositing of any solid waste at any place other than a sanitary disposal project approved by the director, or pursuant to a permit granted by the department which allows the disposal of solid waste on land owned or leased by the agency.

100.4(1) *Definitions.* For the purposes of this rule:

"Farm animals" means cattle, swine, sheep or lambs, horses, turkeys, chickens and other domestic animals;

"Farm buildings" means barns, machine sheds, storage cribs, animal confinement buildings, and homes located on the premises and used in conjunction with crop production or with livestock or poultry raising and feeding operations; and

"Farm waste" means machinery, vehicles and equipment used in conjunction with crop production or with livestock or poultry raising and feeding operations, trees, brush and grubbed stumps generated on the same property, or ashes from the burning thereof, but specifically does not include agricultural chemicals, fertilizers or manures, or domestic household wastes.

100.4(2) *Special requirements for farm waste, farm buildings, and dead animals.*

a. A private agency may dispose of farm waste and farm buildings without first having obtained a sanitary disposal project permit, in accordance with paragraph 100.4(2)*"c,"* provided that:

(1) The farm waste was owned by the private agency and was used on the premises where disposal occurs.

(2) Prior to disposal of vehicles, machinery, and equipment, all fluids shall be drained, including motor oils, motor fuels, lubricating fluids, coolants and solvents, and agricultural chemicals; and all batteries and rubber tires shall be removed.

(3) Prior to disposal of storage or feeding equipment, the equipment shall be emptied of all contents not otherwise authorized for burial pursuant to these rules.

(4) Farm buildings have been emptied of contents not otherwise authorized for burial pursuant to these rules and have been buried on the premises where they were located.

(5) All materials drained or removed from farm waste or farm buildings prior to disposal shall be recycled, reused or disposed of in accordance with Iowa Code chapter 455B and the rules implementing that chapter.

(6) The farm waste and farm buildings are buried in soils listed in tables contained in the county soil surveys and soil interpretation records (published by the U.S. Soil Conservation Service) as being moderately well drained, well drained, somewhat excessively drained, or excessively drained soils. Other soils may be used if artificial drainage is installed to obtain water-level depth more than two feet below the burial depth of the waste.

(7) The lowest elevation of the burial pit is six feet or less below the surface.

(8) The farm waste and farm buildings are immediately covered with a minimum of 6 inches of soil and finally covered with a total minimum of 24 inches of soil.

b. A private agency may dispose of dead farm animals without first having obtained a sanitary disposal project permit, provided that the disposal is in accordance with paragraph 100.4(2)*"c,"* the rules of the department of agriculture and land stewardship, and:

(1) The dead farm animals result from operations located on the premises where disposal occurs.

(2) A maximum loading rate of 7 cattle, 44 swine, 73 sheep or lambs or 400 poultry carcasses on any given acre per year. All other species will be limited to 2 carcasses per acre. Animals that die within two months of birth may be buried without regard to number.

(3) The dead animals are buried in soils listed in tables contained in the county soil surveys and soil interpretation records (published by the U.S. Soil Conservation Service) as being moderately well drained, well drained, somewhat excessively drained, or excessively drained soils. Other soils may be used if artificial drainage is installed to obtain water-level depth more than two feet below the burial depth of the waste.

(4) The lowest elevation of the burial pit is six feet or less below the surface.

(5) The dead farm animals are immediately covered with a minimum of 6 inches of soil and finally covered with a total minimum of 30 inches of soil.

c. Farm waste, farm buildings, and dead farm animals must be disposed of in accordance with the following separation distances:

(1) At least 100 feet from any private and 200 feet from any public well which is being used or would be used without major renovation for domestic purposes.

(2) At least 50 feet from adjacent property line.

(3) At least 500 feet from an existing neighboring residence.

(4) More than 100 feet from any body of surface water such as a stream, lake, pond, or intermittent stream, except as provided in (6) below.

(5) Outside the boundaries of a flood plain, wetland, or shoreline area, except as provided in (6) below.

(6) Trees, brush and grubbed stumps generated as a result of clearing, snagging, maintenance or repair of drainage ditches or outlets may be buried within 100 feet of a surface water, and within a flood plain or shoreline area.

567—100.5(455B) Disruption and excavation of sanitary landfills or closed dumps. No person shall excavate, disrupt, or remove any deposited material from any active or discontinued sanitary landfill or closed dump without first having notified the department in writing.

100.5(1) Notification shall include an operational plan stating the area involved, lines and grades defining limits of excavation, estimated number of cubic yards of material to be excavated, sanitary disposal project where material is to be disposed and estimated time required for excavation procedures.

100.5(2) An excavation shall be confined to an area consistent with the number of pieces of digging equipment and trucks used for haulage.

100.5(3) The disposal of all solid waste resulting from excavation shall be in conformity with Iowa Code chapter 455B and these rules.

These rules are intended to implement Iowa Code section 455B.307.

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CHAPTER 101
SOLID WASTE COMPREHENSIVE PLANNING REQUIREMENTS

[Prior to 7/1/83, DEQ Ch 26]
[Prior to 12/3/86, Water, Air and Waste Management [900]]

567—101.1(455B,455D) Purpose. The purpose of these rules is to provide general definitions and direction for comprehensive integrated solid waste management planning for every city and county of this state and to provide an orderly and efficient process for the assessment and collection of fees for the disposal of solid waste at a sanitary landfill.
[**ARC 8037B**, IAB 8/12/09, effective 9/16/09]

567—101.2(455B,455D) Definitions. For the purposes of this chapter, the definitions found in 567—100.2(455B,455D) shall apply.
[**ARC 8037B**, IAB 8/12/09, effective 9/16/09; **ARC 2756C**, IAB 10/12/16, effective 11/16/16]

567—101.3(455B,455D) Waste management hierarchy. Rescinded **ARC 2756C**, IAB 10/12/16, effective 11/16/16.

567—101.4(455B,455D) Duties of cities and counties. Every city and county of this state shall, for the solid waste generated within the jurisdiction of its political subdivision, provide for the establishment and operation of an integrated solid waste management system consistent with the waste management hierarchy under Iowa Code section 455B.301A and designed to meet the state's waste reduction and recycling goals. Integrated systems and municipal solid waste sanitary disposal projects may be established separately or through cooperative efforts, including Iowa Code chapter 28E agreements as provided by law.

101.4(1) To meet these responsibilities, cities and counties may execute, with public and private agencies, contracts, leases, or other necessary instruments, purchase land and do all things necessary not prohibited by law for the implementation of waste management programs, collection of solid waste, establishment and operation of municipal solid waste sanitary disposal projects, and general administration of the same.

101.4(2) If a planning agency refuses any particular solid waste type for management or disposal, the planning agency must identify another municipal solid waste sanitary disposal project for that waste within the planning area. If no other municipal solid waste sanitary disposal project exists within the planning area, the planning agency must, in cooperation with the waste generator, establish or arrange for access to another municipal solid waste sanitary disposal project. Municipal solid waste sanitary disposal projects are required to maintain written approval from both the department and the planning agency in the planning area of origin in order to accept any Iowa-generated waste from outside the planning area.

101.4(3) All cities and counties or Iowa Code chapter 28E agencies established for the purpose of managing solid waste or implementing integrated solid waste management systems, or both, on behalf of cities and counties shall demonstrate compliance with the provisions of this chapter by their participation in a comprehensive plan approved by the department.
[**ARC 8037B**, IAB 8/12/09, effective 9/16/09; **ARC 2756C**, IAB 10/12/16, effective 11/16/16]

567—101.5(455B,455D) Contracts with permitted agencies.

101.5(1) Every city, county, and other public agency which complies with the requirements of Iowa Code chapter 455B for the disposal of solid waste by means of a contract with an agency holding a municipal solid waste sanitary disposal project permit or by means of a contract with a hauler that has a contract with an agency holding a municipal solid waste sanitary disposal project permit shall submit to the department notification of that executed contract. All such agencies shall have on file at the department at all times a list of valid contracts. Notification of any renewal of the contract or any new or amended contract shall be submitted.

101.5(2) All public agencies which contract with a hauler to comply with the requirements of part 1 of division IV of Iowa Code chapter 455B shall include, as terms of that contract, a requirement that all solid waste collected by the hauler for that agency shall be disposed of or deposited at a municipal solid

waste sanitary disposal project designated within said agency's comprehensive plan in accordance with the rules of the department.
[**ARC 8037B**, IAB 8/12/09, effective 9/16/09]

567—101.6(455B,455D) State volume reduction and recycling goals. The goal of the state is to reduce the amount of materials in the waste stream, existing as of July 1, 1988, by an intermediate goal of 25 percent, and by a final goal of at least 50 percent, through the practice of waste volume reduction at the source and through recycling. The updated goal progress calculations provided by the department for each planning area shall be used by the department in reporting to the general assembly on the state's progress toward meeting the 25 and 50 percent goals. The specific methodology for determining goal progress is outlined in rule 567—101.7(455B,455D).
[**ARC 2756C**, IAB 10/12/16, effective 11/16/16]

567—101.7(455B,455D) Base year adjustment method. Planning agencies may request that the department complete a goal progress recalculation once per fiscal year to resolve any discrepancies and to further evaluate progress toward the state's waste volume reduction and recycling goals. At the time of approval of a comprehensive plan or comprehensive plan update, the department will use the most current complete fiscal year data set available to complete goal progress calculations, which will be used to meet the requirements outlined in rule 567—101.14(455B,455D).

101.7(1) The base year adjustment method (see Formula 1) controls for population, employment, and taxable sales to more accurately determine progress toward the state's waste volume reduction and recycling goals. Factors included within the base year adjustment method include:

a. Base year residential waste disposal tonnage - (A).
b. Base year commercial waste disposal tonnage - (B).
c. Base year population data (U.S. Bureau of the Census) - (C).
d. Base year employment data - total nonfarm (Iowa Department of Workforce Development) - (D).
e. Base year taxable sales data (Iowa Department of Revenue) - (E).
f. Base year consumer price index - (F).
g. Most current complete fiscal year data set available for waste disposal tonnage - (G).
h. Most current complete fiscal year data set available for population (U.S. Bureau of the Census) - (H).
i. Most current complete fiscal year data set available for employment - total nonfarm (Iowa Department of Workforce Development) - (I).
j. Most current complete fiscal year data set available for taxable sales (Iowa Department of Revenue) - (J).
k. Most current complete fiscal year data set available for consumer price index - (K).

Formula I

$$100\% - \left[\frac{G}{A\left[\dfrac{\dfrac{H}{C} + \left[\dfrac{\dfrac{I}{D} + \dfrac{J\,\dfrac{F}{K}}{E}}{2}\right]}{2}\right] + B\left[\dfrac{\dfrac{I}{D} + \left[\dfrac{J\,\dfrac{F}{K}}{E}\right]}{2}\right]} \right] \times 100\%$$

101.7(2) Planning agencies must document the amount of waste disposed of in both the base year and the most current fiscal year where a complete data set is available. If no changes have occurred within the planning area that would affect the base year, then only data for the most current fiscal year for which a complete data set is available need to be presented in the comprehensive plan update, since information on each planning area's base year tonnage is presented in prior comprehensive plan submittals. Tonnage data sources that each planning agency must identify include, but are not limited to:

a. Landfill(s) within the planning area and its respective service area(s).

b. Transfer station(s) or hauler(s) transporting waste into or out of the planning area for final disposal.

c. Incineration with or without energy recovery of waste within the planning area.

d. Allowable base year adjustment method exemptions, including exceptional events, waste originating from out of state, and solid waste generated outside the planning area.

101.7(3) Waste generated as part of an exceptional event or contaminated soils removed as part of a brownfield or contaminated site cleanup should not negatively affect a planning area's goal progress calculation.

a. Exceptional events include, but are not limited to, such unforeseen disasters as storms, fires, floods, tornadoes, or train wrecks. Exceptional events do not include economic development, derelict housing removal, or other planned activities/demolitions. Written requests to exempt exceptional event debris from goal progress calculations shall be made to the department on the required Quarterly Solid Waste Fee Schedule and Retained Fees Report, DNR Form 542-3276.

Requests for goal progress calculation exemptions must be made within six months after initial disposal of the debris. The determination to exempt exceptional-event debris from goal progress calculations shall be made solely by the department and shall not be made independently by individual municipal solid waste sanitary disposal projects or planning agencies. Upon review of the request, the department will notify the municipal solid waste sanitary disposal project and planning agency of the determination in writing or request further documentation.

(1) Exemption requests shall, at a minimum, include:

1. Date(s) of duration of the exceptional event.
2. Type of event (i.e., flood, tornado, combination thereof).
3. Description of affected area(s), including approximate number of buildings and addresses, if available.
4. Type(s) of waste to be exempted.
5. Actual tonnage of debris disposed of during the quarter.
6. Preliminary estimate of the total tonnage to be exempted (i.e., tons already disposed of and potential tons to be disposed of in future quarters).

(2) Additional documentation to verify the exceptional event and the debris it generated may be requested by the department. Failure to submit requested documentation may result in denial of the goal progress calculation exemption request. Documentation may include:

1. Protocol used by the municipal solid waste sanitary disposal project staff for determining which waste(s) coming into the facility was attributed to the exceptional event.
2. Summary of existing policies to divert storm debris from disposal, as well as the amount of waste(s) diverted.
3. Copies of scale tickets and summary report of scale tickets.
4. Federal Emergency Management Agency (FEMA) reports, if any.
5. Newspaper articles or pictures of affected areas.
6. Supporting documentation indicating estimated remaining tonnage expected as a result of the exceptional event (i.e., supporting documentation from local insurance companies or municipal building inspectors).
7. Contact information for the person(s) responsible for compiling the exceptional event report(s).

b. Contaminated soils removed as part of a brownfield or contaminated site cleanup should not negatively affect a planning area's goal progress calculation. If the contaminated soil is to be disposed of in a municipal solid waste sanitary disposal project, the municipal solid waste sanitary disposal project or planning agency must request the goal progress exemption in writing, in accordance with the procedures outlined in this rule. Written requests to exempt contaminated soil from goal progress calculations shall be made to the department on the Quarterly Solid Waste Fee Schedule and Retained Fees Report, DNR Form 542-3276. Requests for goal progress exemptions must be made within six months after initial disposal of the contaminated soil.

The determination to exempt contaminated soil from goal progress calculations shall be made solely by the department and shall not be made independently by individual municipal solid waste sanitary

disposal projects or planning agencies. The department shall notify the municipal solid waste sanitary disposal project or planning agency in writing of the determination or shall request further clarification to make an exemption decision. Failure to submit additional information requested by the department regarding the request to exempt contaminated soil may result in a denial of the goal progress calculation exemption request. Contaminated soil occurrences not eligible for goal progress exemption include, but are not limited to, illegal municipal solid waste disposal sites and contaminated soils formed for the sole purpose of requesting goal progress exemption. Exemption requests shall include, at a minimum, the following:

(1) Contact information of the primary and any other government agency overseeing or involved with site cleanup.

(2) Address of the brownfield or contaminated site.

(3) Date(s) when the site was believed to have been contaminated, if known.

(4) Type of operation and owners of the operation that led to the contamination, if known.

(5) Constituents of concern present in the soil.

(6) Types of miscellaneous waste mixed with the soil, if any.

(7) Appropriate testing for identified contaminants of the contaminated soil.

(8) Actual tonnage of contaminated soil disposed of during the quarter.

(9) Preliminary estimate of the total tonnage to be exempted (i.e., tons of contaminated soil already disposed of and potential tons to be disposed of in future quarters).

(10) Narrative justification to explain why disposal in a municipal solid waste sanitary disposal project is the best site cleanup methodology.

[**ARC 8037B**, IAB 8/12/09, effective 9/16/09; **ARC 2756C**, IAB 10/12/16, effective 11/16/16]

567—101.8(455B,455D) Submittal of initial comprehensive plans and comprehensive plan updates. Initial comprehensive plans and comprehensive plan updates filed with the department must include a signed electronic submission certificate. Comprehensive plan updates shall be submitted in accordance with the schedule and instructions provided by the department 12 months prior to the due date of the first comprehensive plan update for each planning cycle.

[**ARC 8037B**, IAB 8/12/09, effective 9/16/09; **ARC 2756C**, IAB 10/12/16, effective 11/16/16]

567—101.9(455B,455D) Review of initial comprehensive plans and comprehensive plan updates. Initial comprehensive plans and comprehensive plan updates submitted in accordance with rule 567—101.13(455B,455D) shall be reviewed by the department for compliance with this chapter. The director may reject, suggest modification of, or approve a comprehensive plan based upon the criteria outlined in rule 567—101.13(455B,455D).

567—101.10(455B,455D) Municipal solid waste and recycling survey. Rescinded **ARC 2756C**, IAB 10/12/16, effective 11/16/16.

567—101.11(455B,455D) Online database. Rescinded **ARC 2756C**, IAB 10/12/16, effective 11/16/16.

567—101.12(455B,455D) Solid waste comprehensive plan types. A city, county, or private agency operating or planning to operate a municipal solid waste sanitary disposal project shall file with the director one of two types of comprehensive plans detailing the method by which the city, county, or private agency will comply with solid waste comprehensive planning requirements. The first type is a comprehensive plan in which solid waste is disposed of in a sanitary landfill within the planning area. The second type is a comprehensive plan in which all solid waste is consolidated at, and transported from, a permitted transfer station for disposal at a sanitary landfill in another comprehensive planning area or state.

101.12(1) A planning area that closes all of the municipal solid waste sanitary landfills located in the planning area and chooses instead to use a municipal solid waste sanitary landfill in another planning area may choose to retain its autonomy as long as the sanitary landfill in the other planning area complies with all the requirements of this chapter, and all solid waste generated within the planning area closing

its landfills is consolidated at, and transported from, a permitted transfer station. For purposes of this subrule, a planning area closing its own landfills that chooses to retain its autonomy shall not be required to join the planning area that contains the landfill it is using for final disposal of its solid waste.

101.12(2) If a planning area chooses to retain autonomy pursuant to this rule, the planning area receiving solid waste from the planning area sending it shall not be required to include the sending planning area in its comprehensive plan provided that no services other than the acceptance of solid waste for disposal are shared between the two planning areas. A planning area receiving solid waste shall only be responsible for the permitting, planning, and waste reduction and diversion programs within that planning area.

101.12(3) If the department determines that solid waste cannot reasonably be consolidated and transported from a particular transfer station (e.g., asbestos or bulky construction and demolition waste), the department may establish permit conditions to address the transport and disposal of the solid waste. A planning area sending solid waste for disposal in another planning area may retain autonomy pursuant to subrule 101.12(1) only if both comprehensive planning areas enter into an agreement pursuant to Iowa Code chapter 28E that includes both of the following:

a. A detailed methodology of the manner in which solid waste will be tracked and reported between the two planning areas.

b. A detailed methodology of the manner in which the receiving sanitary landfill will collect, remit, and report tonnage fees, pursuant to Iowa Code section 455B.310, paid by the planning area that is transporting the solid waste. The methodology shall include both the remittances of tonnage fees to the state and the retained tonnage fees.

[**ARC 8037B**, IAB 8/12/09, effective 9/16/09]

567—101.13(455B,455D) Types of comprehensive plan submittals to be filed. There are three types of comprehensive plan submittals: initial, updates, and amendments. The purpose of these types of comprehensive plans is the development of a specific plan and schedule for implementing technically and economically feasible solid waste management methods that will prevent or minimize any adverse environmental impact and meet the state's waste volume reduction and recycling goals pursuant to rule 567—101.6(455B,455D).

Cities and counties planning to use a municipal solid waste sanitary disposal project in Iowa must participate in a comprehensive plan with all other cities and counties using that municipal solid waste sanitary disposal project. Cities and counties planning to use an out-of-state disposal facility(ies) must file a comprehensive plan that identifies the out-of-state facility(ies) used. Cities or counties using an out-of-state disposal facility(ies) are still required to meet all comprehensive plan submittal requirements.

If it is demonstrated to the department that any of the provisions outlined in paragraphs "1" through "3" below will not impact the planning area significantly, then the department may consider accepting a comprehensive plan amendment. If during the planning cycle a change occurs to an existing planning area, the submission of an initial comprehensive plan may be required. An initial comprehensive plan is needed if:

1. A new planning area is established.
2. A change increases or decreases the population or the disposal tonnage of the planning area by more than 30 percent.
3. The solid waste disposal method has changed or a new method has been initiated, including siting of a new municipal solid waste landfill or municipal solid waste incinerator.

101.13(1) *Content of an initial comprehensive plan.* In fulfillment of the requirements of Iowa Code section 455B.301A and Iowa Code chapter 455D, an initial comprehensive plan shall include the following information:

a. A description of the planning area and the public and private agencies involved in the integrated solid waste management system, including a description of each agency's role in managing solid waste generated in the area.

b. A resolution or resolutions from all local governments or 28E agencies established for the purpose of managing solid waste or implementing integrated solid waste management systems, or both,

on behalf of local governments, and letters of cooperation from privately owned municipal solid waste sanitary disposal projects participating in the comprehensive plan. The resolution(s) shall include a statement that the comprehensive plan participants have reviewed the initial comprehensive plan and will adopt the implementation schedule contained within the initial comprehensive plan. Letters of cooperation from private agencies shall include a statement that the private agencies have reviewed the comprehensive plan and support the waste volume reduction and recycling efforts outlined therein. The letter of cooperation shall briefly summarize the implementation schedule. If a local government included in the planning area refuses to provide a resolution, then that local government must prepare its own comprehensive plan and is no longer considered to be in the original planning area. In such cases, the original comprehensive plan may still be approved if it includes a brief addendum stating the effect of the change on the waste stream, but the municipal solid waste sanitary disposal project(s) in the planning area may no longer accept waste from the local government that has withdrawn from the comprehensive plan. Privately owned municipal solid waste sanitary disposal projects failing to provide letters of cooperation will be unable to receive a permit or permit renewal. If a city, county, or other public agency complies with comprehensive planning requirements by means of a contract(s) with an agency holding a municipal solid waste sanitary disposal project permit or with a hauler(s) that has a contract(s) with an agency holding a municipal solid waste sanitary disposal project permit, a list of those contracts shall be submitted as provided in rule 567—101.5(455B,455D).

c. A detailed description of public participation, including:

(1) Details of ongoing strategies to provide the public with opportunities to provide input.

(2) A list of all public hearings or meetings that were held in conjunction with the development of the initial comprehensive plan and the methods used to publicize public meetings on the initial comprehensive plan.

(3) An account of opportunities for the public to comment on the initial comprehensive plan and minutes from any meetings regarding initial comprehensive plan development.

(4) Proof that a minimum of two public meetings were held during the development of the initial comprehensive plan. The first meeting shall inform the public of the initial comprehensive plan development process, while the second meeting shall provide the public with an opportunity for review and comment on the initial comprehensive plan.

d. A description of past local and regional planning activities.

e. A report of the base year waste stream in total tons per year. Progress toward meeting the state's waste volume reduction and recycling goals pursuant to rule 567—101.6(455B,455D) shall be demonstrated through methods described in this chapter.

f. A description of population, employment, and industrial production as of the planning area's base year waste stream.

g. A description of the current waste composition and waste generation rates and a projection of waste composition and waste generation rates during the next planning cycle. This description should include the effects of anticipated planning area modifications on waste generation and composition in the future. These factors may include economic changes, population changes, loss or addition of communities to the planning area, and any other modification expected to affect the amount of waste generated.

h. A description of the current integrated solid waste management system that contains a specific methodology for meeting the state's waste volume reduction and recycling goals pursuant to rule 567—101.6(455B,455D). This description shall include:

(1) Details of strategies and educational efforts designed to:

1. Increase public awareness about proper recycling and disposal options for motor oil and lead-acid batteries.

2. Encourage residents of the planning area to dispose of household appliances properly.

3. Encourage tire stewardship and proper tire recycling and disposal.

4. Encourage backyard composting and proper management of yard waste.

5. Encourage residents of the planning area to properly manage household hazardous waste.

(2) A list of collectors/recyclers used by the permitted municipal solid waste sanitary disposal project(s) for the proper management of tires or household appliances.

(3) A detailed narrative of all other existing waste management programs in the planning area that addresses all components of the state's waste management hierarchy. This narrative must include specific methodologies for the separation of glass, paper, plastic and metal. For each specific waste management program, the following shall be included:

1. Program description.
2. Responsibility for program oversight.
3. Funding source(s).
4. Public education strategies employed.
5. Targeted audiences (business and industry, urban residents, rural residents, local governments, and public institutions).
6. The anticipated impact on the waste stream and diversion during the next planning cycle.

(4) A discussion of the strengths and weaknesses of existing programs, efforts and strategies in the current integrated solid waste management system.

(5) An evaluation of the planning area's progress toward meeting the state's waste volume reduction and recycling goals. This evaluation shall address the goal progress calculation that was most recently provided in writing by the department. The department, upon written notification of intent to submit an initial comprehensive plan, will, within 30 days after receipt of notification, perform a goal progress calculation using the most current complete fiscal year data set available.

i. An assessment of alternative waste management systems, programs and strategies that addresses each of the following tiers of the state's waste management hierarchy:

(1) Source reduction options including, but not limited to, backyard composting and management of household hazardous waste.

(2) Recycling and reuse options.

(3) Combustion options with or without energy recovery. Any programs using incineration, with or without energy recovery, must include methodologies for prior removal of recyclable and reusable material, material that will result in uncontrolled toxic or hazardous air emissions when burned, and hazardous or toxic materials which are not rendered nonhazardous or nontoxic by incineration.

(4) Use of other existing or planned sanitary landfills or transfer stations.

j. If construction of a new or purchase of an existing municipal solid waste sanitary disposal project is considered or proposed, an initial comprehensive plan shall include:

(1) A summary of established and anticipated regulatory requirements regarding future siting, operation, closure and postclosure of each facility.

(2) A financial plan detailing the actual cost of the municipal solid waste sanitary disposal project, including the funding sources of the project, and a description that spans two planning cycles of the methods of financing. The financial plan shall address:

1. Initial capital expenditures, including land acquisition, if applicable.
2. Local approval costs, including legal, engineering, and administrative fees.
3. Long-term costs, operations, closure and postclosure.
4. A mechanism to fund closure and postclosure costs.
5. Projected annual revenues.

(3) A description of expected environmental impacts from the construction of a new or purchase of an existing municipal solid waste sanitary disposal project.

[1](4) Rescinded IAB 7/4/07, effective 10/1/07.

k. A specific plan and schedule for implementing the initial comprehensive plan during the next planning cycle. Items that shall be addressed include:

(1) Proposed activities and locations.

(2) Responsible organization(s).

(3) Implementation milestones.

(4) Public education strategies.

(5) Anticipated impact on the waste stream and diversion.

101.13(2) *Comprehensive plan updates for municipal solid waste sanitary disposal projects.* The department shall notify a planning agency of the due dates of the comprehensive plan update submittal a minimum of 12 months prior to the beginning of the planning cycle. In fulfillment of the requirements of Iowa Code section 455B.301A and Iowa Code chapter 455D, a comprehensive plan update shall include the following information:

a. A narrative that describes any permanent change in the planning area that has resulted in change in the waste stream, if applicable. An amendment to the comprehensive plan update is required prior to the facility's receiving waste on an ongoing basis from outside the delineated planning area.

b. A resolution or resolutions from all local governments or 28E agencies established for the purpose of managing solid waste or implementing integrated solid waste management systems, or both, on behalf of local governments, and letters of cooperation from privately owned municipal solid waste sanitary disposal projects participating in the comprehensive plan update. The resolution(s) shall include a statement that the comprehensive plan participants have reviewed the comprehensive plan update and will adopt the implementation schedule contained in the comprehensive plan update. Letters of cooperation from private agencies shall include a statement that they have reviewed the comprehensive plan update and support the waste reduction and recycling efforts outlined therein. The letter of cooperation shall briefly summarize the implementation schedule. If a local government included in the planning area refuses to provide a resolution, then that local government must prepare its own comprehensive plan and is no longer considered to be in the original planning area. In such cases, the original comprehensive plan update may still be approved if it includes a brief addendum stating the effect of the change on the waste stream, but the municipal solid waste sanitary disposal project(s) in the planning area may no longer accept waste from the local government that has withdrawn from the comprehensive plan. Privately owned municipal solid waste sanitary disposal projects failing to provide letters of cooperation will be unable to receive a permit or permit renewal. If a city, county, or other public agency complies with comprehensive planning requirements by means of a contract(s) with an agency holding a municipal solid waste sanitary disposal project permit or with a hauler(s) that has a contract(s) with an agency holding a municipal solid waste sanitary disposal project permit, a list of those contracts shall be submitted as provided in rule 567—101.5(455B,455D).

c. A description of public participation, including:

(1) A summary of ongoing strategies to provide the public with opportunities to provide input.

(2) A list of all public hearings or meetings that were held in conjunction with the development of the comprehensive plan update and the methods used to publicize public meetings.

(3) Proof that a minimum of two public meetings were held during the development of the comprehensive plan update. The first meeting shall inform the public of the comprehensive plan update development process, while the second meeting shall provide the public with an opportunity for review and comment on the comprehensive plan update.

(4) An account of opportunities for the public to comment on the comprehensive plan update and minutes from any meetings regarding comprehensive plan update development.

d. A report of the base year waste stream in total tons per year. This base year data and landfill tonnage information for the most current completed fiscal year data set available will be used to demonstrate progress toward meeting the state's waste volume reduction and recycling goals pursuant to rule 567—101.6(455B,455D) through methods described in this chapter.

e. A description of changes in population, employment, and industrial production since the last approved comprehensive plan or comprehensive plan update.

f. A description of current waste composition and waste generation rates, including:

(1) Changes since the last approved comprehensive plan or comprehensive plan update.

(2) The effects of anticipated planning area modifications on waste generation and composition in the future. These factors may include economic changes, population changes, loss or addition of communities to the planning area and any other modification expected to affect the amount of waste generated.

g. A discussion of changes to the integrated solid waste management system since the last approved comprehensive plan or comprehensive plan update, including:

(1) New and evolving strategies, efforts, and programs implemented within the planning area to:

1. Increase public awareness about proper recycling and disposal options for motor oil and lead-acid batteries.

2. Encourage residents of the planning area to dispose of household appliances properly.

3. Encourage tire stewardship and proper tire recycling and disposal.

4. Encourage backyard composting and proper management of yard waste.

5. Encourage residents of the planning area to properly manage household hazardous waste.

6. Provide for the separation of glass, paper, plastic and metal.

(2) A list of collectors/recyclers used by the permitted municipal solid waste sanitary disposal project(s) for the proper management of tires or household appliances.

(3) A detailed narrative of all waste management programs implemented since the last approved comprehensive plan or comprehensive plan update that addresses all components of the state's waste management hierarchy. For each specific waste management program implemented since the last approved comprehensive plan or comprehensive plan update, the following shall be included:

1. Program description.

2. Responsibility for program oversight.

3. Public education strategies employed.

4. Targeted audiences (business and industry, urban residents, rural residents, local governments, and public institutions).

5. The anticipated impact on the waste stream and diversion during the next planning cycle.

h. An evaluation of progress toward meeting the state's waste volume reduction and recycling goals using the goal progress calculation provided by the department 12 months prior to the due date of the comprehensive plan update, if requested by the planning agency. This analysis may use any combination of the following methodologies:

(1) Trend analysis of goal progress since the initial comprehensive plan.

(2) Formal, stakeholder-based collaborative goal-setting process leading to development of long-range integrated solid waste management system goals. The process shall include development of detailed objective-based strategies to achieve the desired goals. If programs have been implemented since the establishment of the goals, the comprehensive plan update shall include analysis of their impact on the long-range goals.

(3) An analysis of the effectiveness or benefit of existing programs, individually and in aggregate, including a discussion of opportunities and need for improvement, modification or expansion.

i. Analysis of the impact of alternative solid waste management methods not currently employed, but being considered within the planning area.

j. A specific plan and schedule for implementing the comprehensive plan during the next planning cycle. Items that shall be addressed include:

(1) Proposed activities and locations.

(2) Responsible organization(s).

(3) Implementation milestones.

(4) Public education strategies.

(5) Anticipated impact on the waste stream and diversion.

k. Annual reports submitted by planning agencies designated as environmental management systems, pursuant to Iowa Code section 455J.7, which satisfy the comprehensive plan update submittal requirements of this subrule.

101.13(3) *Transfer stations and construction and demolition waste disposal sites.* Rescinded IAB 8/12/09, effective 9/16/09.

101.13(4) *Comprehensive plan updates for permitted monowaste facilities.* Rescinded IAB 8/12/09, effective 9/16/09.

101.13(5) *Comprehensive plan updates for permitted monogenerator facilities.* Rescinded IAB 8/12/09, effective 9/16/09.

101.13(6) *Comprehensive plan updates for permitted incinerators.* Rescinded IAB 8/12/09, effective 9/16/09.

101.13(7) *Comprehensive plan amendments.* If a municipal solid waste sanitary disposal project or city or county requests to be included in a planning area after completion of an initial comprehensive plan or a comprehensive plan update but before the next comprehensive plan update is due, and the planning area participants agree to include the city, county, or municipal solid waste sanitary disposal project, the following procedure is required:

a. A letter must be submitted to the department by the facility operator describing the facility's operation and the amount of waste to be managed, or by the city or county describing that local government's intention to participate in the specified comprehensive plan.

b. In a letter that must be submitted to the department, the planning agency must agree to accept the city, county, or municipal solid waste sanitary disposal project in the planning agency's planning area and must state how the change will affect the planning area's waste stream, including an explanation of the change in the planning area, the amount of waste involved and details of waste reduction and recycling efforts that will be implemented in any new communities, if applicable.

c. The next comprehensive plan update submitted by the planning agency shall include the amended city, county, or municipal solid waste sanitary disposal project.

d. If a city or county joins a planning area, a resolution must be submitted to the department stating the city's or county's commitment to the comprehensive plan of the planning area, and stating that the city or county will work to implement the comprehensive plan of the planning area.

101.13(8) *Failure to meet the 25 percent waste volume reduction and recycling goal.* Rescinded **ARC 2756C**, IAB 10/12/16, effective 11/16/16.

[**ARC 8037B**, IAB 8/12/09, effective 9/16/09; **ARC 2756C**, IAB 10/12/16, effective 11/16/16]

[1] Effective date of rescission of 101.13(1)*"j"*(4) delayed 70 days by the Administrative Rules Review Committee at its meeting held September 11, 2007.

567—101.14(455B,455D) Fees for disposal of solid waste at sanitary landfills.

101.14(1) *Authority, purpose and applicability.*

a. *Authority.* Pursuant to Iowa Code section 455B.310, the department has authority to collect fees for the disposal of solid waste at sanitary landfills. All tonnage fees received by the department under this rule shall be deposited in the solid waste account of the groundwater protection fund created under Iowa Code section 455E.11(1).

b. *Purpose.* The purpose of this rule is to provide an orderly and efficient process for the assessment and collection of fees for the disposal of solid waste at a sanitary landfill. This rule clarifies the applicability of the fees and sets forth a fee schedule, means of filing, and record-keeping requirements.

c. *Applicability.* Except as provided in subrule 101.14(2), operators of all sanitary landfills located within Iowa and subject to the permitting requirements of the department shall pay a fee for each ton of solid waste disposed of in the landfill.

101.14(2) *Exclusion.* Fees do not apply to wastes which will not be buried at a sanitary landfill if such material is salvaged or recycled in accordance with the provisions of the landfill permit.

101.14(3) *Fee schedule.*

a. The base tonnage fee is $4.25 per ton of solid waste.

b. The statewide goal progress average is 36 percent, as determined by the department on July 1, 1999.

c. If at any time the department notifies a planning agency or municipal solid waste sanitary disposal project(s) in writing that the planning area has failed to meet the 25 percent goal, all municipal solid waste sanitary disposal projects within that planning area that are required to remit state tonnage fees shall collect an additional 50 cents per ton, in addition to the base tonnage fee starting with the next scheduled fee payment. All municipal solid waste sanitary disposal projects within the planning area that are required to remit state tonnage fees shall remit to the department $3.30 per ton for the tonnage fees collected, and the sanitary landfill operator(s) shall retain the remaining $1.45 per ton. Of the tonnage fee retained by the sanitary landfill operator(s), 95 cents per ton is to be used for comprehensive plan implementation and 50 cents per ton is to be used for environmental protection activities and for

comprehensive planning. Environmental protection activities include the development of a closure or postclosure plan, the development of a plan for the control and treatment of leachate including the preparation of facility plans and detailed plans and specifications, the preparation of a financial plan, or other environmental protection activities. Moneys due to the department under this paragraph shall be remitted until such time as evidence of attainment of the 25 percent goal by the planning area is documented and approved in writing by the department.

d. If at any time the department notifies a planning agency and municipal solid waste sanitary disposal project(s) in writing that the planning area has met or exceeded the 25 percent goal, all municipal solid waste sanitary disposal projects within that planning area that are required to remit state tonnage fees shall reduce by 60 cents per ton the total amount of the base tonnage fee collected, starting with the next scheduled fee payment.

(1) If the planning area meets the 25 percent goal but is under the statewide average described in paragraph 101.14(3)*"b,"* all municipal solid waste sanitary disposal projects within that planning area that are required to remit state tonnage fees shall remit to the department $2.20 per ton for the tonnage fees collected, and the sanitary landfill operator(s) shall retain the remaining $1.45 per ton. Of the tonnage fee retained by the sanitary landfill operator(s), 95 cents per ton is to be used for comprehensive plan implementation and 50 cents per ton is to be used for environmental protection activities and for comprehensive planning. Environmental protection activities include the development of a closure or postclosure plan, the development of a plan for the control and treatment of leachate including the preparation of facility plans and detailed plans and specifications, the preparation of a financial plan, or other environmental protection activities. Moneys due to the department under this paragraph shall be remitted until such time as evidence of a change in the planning area's progress toward meeting the state's waste volume reduction and recycling goals is documented and approved in writing by the department.

(2) If the planning area meets the 25 percent goal and exceeds the statewide average described in paragraph 101.14(3)*"b,"* all municipal solid waste sanitary disposal projects within that planning area that are required to remit state tonnage fees shall remit to the department $2.10 per ton for the tonnage fees collected, and the sanitary landfill operator(s) shall retain the remaining $1.55 per ton. Of the tonnage fee retained by the sanitary landfill operator(s), $1.05 per ton is to be used for comprehensive plan implementation and 50 cents per ton is to be used for environmental protection activities and for comprehensive planning. Environmental protection activities include the development of a closure or postclosure plan, the development of a plan for the control and treatment of leachate including the preparation of facility plans and detailed plans and specifications, the preparation of a financial plan, or other environmental protection activities. Moneys due to the department under this paragraph shall be remitted until such time as evidence of a change in the planning area's progress toward meeting the state's waste volume reduction and recycling goals is documented and approved in writing by the department.

e. If at any time the department notifies a planning agency or municipal solid waste sanitary disposal project(s) in writing that the planning area has met or exceeded the 50 percent goal, all municipal solid waste sanitary disposal projects within that planning area that are required to remit state tonnage fees shall reduce by $1.00 per ton the total amount of the base tonnage fee collected, starting with the next scheduled fee payment. All municipal solid waste sanitary disposal projects within the planning area that are required to remit state tonnage fees shall remit to the department $1.95 per ton for the tonnage fees collected, and the sanitary landfill operator(s) shall retain the remaining $1.30 per ton. Of the tonnage fee retained by the sanitary landfill operator(s), 80 cents per ton is to be used for comprehensive plan implementation and 50 cents per ton is to be used for environmental protection activities and for comprehensive planning. Environmental protection activities include the development of a closure or postclosure plan, the development of a plan for the control and treatment of leachate including the preparation of facility plans and detailed plans and specifications, the preparation of a financial plan, or other environmental protection activities. Moneys due to the department under this paragraph shall be remitted until such time as evidence of a change in the planning area's progress toward meeting

the state's waste volume reduction and recycling goals is documented and approved in writing by the department.

Table 1 sets forth the solid waste tonnage fee schedule.

Table 1	
Planning areas with less than 25% diversion level:	
Collect	$4.75 per ton
Remit	$3.30 per ton to the department
Retain	$1.45 per ton ($0.95 per ton for implementing planning, $0.50 per ton for environmental protection, comprehensive plan development and implementation)
Planning areas over 25% diversion, under the state average, and under 50%:	
Collect	$3.65 per ton
Remit	$2.20 per ton to the department
Retain	$1.45 per ton ($0.95 per ton for implementing planning, $0.50 per ton for environmental protection, comprehensive plan development and implementation)
Planning areas over 25% diversion, over the state average, and under 50%:	
Collect	$3.65 per ton
Remit	$2.10 per ton to the department
Retain	$1.55 per ton ($1.05 per ton for implementing planning, $0.50 per ton for environmental protection, comprehensive plan development and implementation)
Planning areas over 50% diversion:	
Collect	$3.25 per ton
Remit	$1.95 per ton to the department
Retain	$1.30 per ton ($0.80 per ton for implementing planning, $0.50 per ton for environmental protection, comprehensive plan development and implementation)

f. Retained tonnage fees collected pursuant to this subrule shall be approved by the department and used for implementation of programs and services designed to satisfy the requirements of this chapter.

g. For purposes of calculating tonnage fees, sanitary landfills shall utilize scales and shall base the fee assessment on the net scale weight of solid wastes disposed of at the landfill during the reporting period.

h. If special conditions existing at a sanitary landfill make it impractical to use the landfill's scales to determine waste tonnages, the landfill may propose, for department review and approval, an alternate method for determining the weight of disposed solid waste.

101.14(4) *Form, manner, time and place of filing.*

a. *Form.* Any person to whom or entity to which this rule applies shall file a completed DNR Form 542-3276, Quarterly Solid Waste Fee Schedule and Retained Fees Report.

b. *Manner, time and place.* Fees are to be paid on a quarterly basis. Sanitary landfills serving more than one planning area, as expressed in rule 101.12(455B,455D), shall submit separate Quarterly Solid Waste Fee Schedule and Retained Fees Reports for each planning area. The fees and report on retained fees will be due January 1, April 1, July 1, and October 1 for the quarters ending September 30, December 31, March 31, and June 30, respectively. The completed form shall be submitted with the appropriate fees to Accounting, Department of Natural Resources, Wallace State Office Building, 502 East 9th Street, Des Moines, Iowa 50319.

101.14(5) *Reporting and record keeping.*

a. *Operating records.* Those sanitary landfill operators who are subject to the fee assessment requirements of this rule shall maintain adequate records to determine and document the weight of

solid waste received at and disposed of in the sanitary landfill during the calendar year. Planning areas entering into an agreement pursuant to Iowa Code Supplement section 455B.306(2) shall submit documentation to the department and a planning area receiving the solid waste under such an agreement shall, in addition, submit evidence to the department demonstrating that required retained fees were returned in a timely manner to other planning area(s) under the agreement.

b. Retention of records. All records used in determining the solid waste fee assessment must be kept for a period of at least three years from the end of the calendar year which the records represent.

c. Availability of records. All records required under this rule must be furnished upon request and be made available at all reasonable times for inspection to any officer, employee, or representative of the department who is duly designated by the director.

101.14(6) *Failure to pay fees.* If it is found that a person or entity has failed to pay the fees assessed by this rule, the director shall enforce the collection of the delinquent fees. A person or entity required to pay fees as required by Iowa Code section 455B.310 that fails or refuses to pay the fees by the due date shall be assessed a penalty of 2 percent of the quarterly fee due, to be assessed on January 2, April 2, July 2, and October 2, and on a monthly basis on the first day of each month thereafter, until paid. A person or entity required to retain fees as required by Iowa Code section 455B.310 that fails or refuses to report the use of the retained fees by the due date shall be assessed a penalty of 2 percent of the retained fees due to the department, with said penalty to be assessed on January 2, April 2, July 2, and October 2, and on a monthly basis on the first day of each month thereafter, until paid. All penalties shall be paid in addition to the fees due.

[**ARC 8037B**, IAB 8/12/09, effective 9/16/09]

These rules are intended to implement Iowa Code sections 455B.301A, 455B.302, 455B.306, 455B.310 and 455D.3.

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[1] Rules 101.4 and 101.7 rescinded, rules 101.5, 101.6 and 101.8 renumbered as 101.4 to 101.6, IAB 9/12/84.

[2] Effective date of rescission of 101.13(1)*"j"*(4) delayed 70 days by the Administrative Rules Review Committee at its meeting held September 11, 2007.

CHAPTER 102
PERMITS

[Prior to 7/1/83, DEQ Ch 27]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—102.1(455B) Permit required. No public or private agency shall construct or operate a sanitary disposal project without first obtaining a permit from the director.

567—102.2(455B) Types of permits. There are four types of permits issued by the director. These are described in this rule.

102.2(1) *Sanitary disposal project permit.* This permit is issued by the director under the authority of Iowa Code section 455B.305. Such permits are issued for a term of three years and are renewable for similar terms.

a. Applications for renewal to be timely filed must be received at the department's office at least 90 days before the expiration date of the existing permit. For application forms, see 567—100.3(17A,455B).

b. The department shall conduct an inspection of the sanitary disposal project following receipt of the application for renewal. Following the inspection, the permit holder shall be notified of all measures needed to bring the sanitary disposal project into conformance with Iowa Code chapter 455B and these rules.

c. A permit shall be renewed when a properly completed application has been received and all corrective measures required under 102.2(1)*"b"* have been completed.

102.2(2) *Temporary permit.* This permit is issued by the director under the authority of Iowa Code subsection 455B.307(1) for solid waste disposal sites which do not comply with the requirements of Iowa Code chapter 455B and these rules. Such permits are issued for a term of one year, and are renewable. Temporary permits may be renewed if the director finds that the public interest will be best served by granting a renewal and the terms of the previous temporary permit have been complied with.

a. Temporary permits shall incorporate as a condition a compliance schedule specifying how and when the applicant will meet the requirements of Iowa Code chapter 455B and these rules.

b. The decision of the director whether to issue a temporary permit, being discretionary, shall be a final decision. Once a temporary permit has been issued, it may be suspended or revoked only as provided in Iowa Code section 455B.305 and 567—Chapter 7.

102.2(3) *Developmental permit.* The director may issue a developmental permit for construction and operation of a sanitary disposal project which is not specifically described in these rules if the permit applicant demonstrates at a public hearing that the proposed project can provide satisfactory disposal of solid waste without adverse health-related or environmental effects.

a. No such permit shall be issued until the director, after public hearing, considers and approves the proposed project.

b. Developmental permits shall be issued for a term no less than one year and no more than three years.

c. Developmental permits may be renewed if the director finds, following public hearing, that the sanitary disposal project provided satisfactory disposal of solid waste without adverse health-related or environmental effects over the term of the prior permit.

102.2(4) *Closure permit.* This permit is issued by the director under the authority of Iowa Code section 455B.305 for sanitary disposal projects which no longer accept solid waste. Such permits are issued for a term of 30 years. The term of subsequent renewal of the permit, if the postclosure period is extended, will be determined on a site-specific basis. A sanitary disposal project shall require a closure permit until the department determines that postclosure maintenance, postclosure monitoring, and operation of required leachate control system are no longer necessary.

a. Application shall be filed at the time of departmental notification of intended closure as required by this rule.

b. The application for issuance of this permit shall be based on a previously approved comprehensive plan and other rules adopted pursuant to the authority of Iowa Code section 455B.306.

c. This permit shall require submission of an annual audit report detailing the status of the financial instrument and other funds as required to guarantee completion of postclosure and monitoring requirements.

d. This permit may be modified by the issuance of an amendment by the department. Requests for permit amendments may be initiated by the department or by the permit holder.

e. At the end of the applicable postclosure period, and upon satisfactory completion of all required postclosure activities as established by Iowa Code chapter 455B, written notification shall be issued by the director stating that a permit is no longer required for the facility.

This rule is intended to implement Iowa Code section 455B.304.

567—102.3(455B) Applications for permits.

102.3(1) *Application requirements for permits and renewals.* See 567—100.3(17A,455B).

102.3(2) *Time limit on submittal of information.*

a. *Sanitary disposal project permit applications.* If an application for a sanitary disposal project permit is found to be incomplete by the department, the applicant will be notified of that fact and of the specific deficiencies. Thirty days following such notification, the application may be returned by the department as incomplete without prejudice to the applicant's right to reapply. The applicant may be granted, upon request, an additional 30 days to complete the application.

b. *Applications for renewal or amendment of a sanitary disposal project.* If an application for a sanitary disposal project permit renewal or amendment is found to be incomplete by the department, the applicant will be notified of that fact and of the specific deficiencies. Thirty days following such notification, the application may be denied by the department.

This rule is intended to implement Iowa Code section 455B.304.

567—102.4(455B) Preparation of plans. All plans and specifications submitted in the application for a sanitary disposal project permit or a developmental permit shall be prepared in conformance with Iowa Code chapter 114 and shall be submitted in triplicate.

567—102.5(455B) Construction and operation. All sanitary disposal projects shall be constructed and operated according to the plans and specifications as approved by the department and the terms of the permit. The approved plans and specifications shall constitute a term of the permit.

567—102.6(455B) Compliance with rule changes.

102.6(1) *Design and construction.* Sanitary disposal projects designed and constructed in accordance with rules in effect at the time of construction shall not be required to be redesigned or reconstructed due to subsequent rule changes unless the department finds that such facilities are causing pollution. Such facilities shall be brought into compliance with rules in effect at the time of reconstruction, enlarging, or otherwise modifying the sanitary disposal project, or at the time of permit renewal.

102.6(2) *Operation.* If any new rule conflicts with an operating procedure prescribed in the engineering plans or the permit of a sanitary disposal project, the operation shall conform with the new rule.

567—102.7(455B) Amendments. Sanitary disposal project permits, temporary permits, and developmental permits may be modified by the issuance of an amendment by the department, except as provided in 102.6(1).

567—102.8(455B) Transfer of title and permit. If title to an operational sanitary disposal project is transferred, and the transferee desires to continue operation of the project, the transferee shall apply in writing to the department within 30 days of the transfer for a transfer of the permit.

102.8(1) The department shall transfer the permit when it determines that the sanitary disposal project is in compliance with Iowa Code chapter 455B and these rules and the terms of the permit, and

that the transferee possesses the equipment and personnel to operate the project in conformance with chapter 455B and these rules and the terms of the permit.

102.8(2) No permit is valid after 60 days following transfer of title, unless the permit has been transferred by the department to the new titleholder pursuant to this rule.

567—102.9(455B) Permit conditions. Any permit may be issued subject to conditions specified in writing which are necessary to ensure the sanitary disposal project can be constructed and operated in compliance with these rules.

567—102.10(455B) Effect of revocation. If a permit held by any public or private agency for a sanitary disposal project is revoked by the director, no new permit shall be issued to that agency for that disposal project for a period of one year from the date of revocation. This shall not prohibit the issuance of a permit for the disposal project to another public or private agency.

This rule is intended to implement Iowa Code section 455B.305.

567—102.11(455B) Inspection prior to start-up. The department shall be notified when the initial construction of a sanitary disposal project has been completed, in order that an inspection may be made to determine that the project is constructed as designed. No solid waste shall be accepted by a sanitary disposal project until that project has been inspected and approved by the department.

567—102.12(455B) Primary plan requirements for all sanitary disposal projects. Every application for any permit issued by the department shall include the following. In addition, every application shall include the particular information required by the chapter describing the type of project to be constructed.

102.12(1) The name, address and telephone number of:

a. Owner of site where project will be located.

b. Permit applicant.

c. Official responsible for operation of project.

d. Design engineer.

e. Agency to be served by the project, if any.

f. Responsible official of agency served, if any.

102.12(2) A legal description of the site.

102.12(3) A map or aerial photograph locating the boundaries of the site and identifying:

a. North or other principal compass points.

b. Zoning and land use within one-half mile.

c. Haul routes to and from the site with load limits or other restrictions.

d. Homes and buildings within one-half mile.

e. Section lines or other legal boundaries.

f. Any nearby runway used or planned to be used by turbojet or piston-type aircraft at FAA certificated airports.

102.12(4) Type, source, and expected volume or weight of waste to be handled per day, week or year.

102.12(5) An organizational chart.

102.12(6) A detailed description of the disposal process to be used.

102.12(7) A table listing the equipment to be used, its design capacities and expected loads.

102.12(8) A contingency plan detailing specific procedures to be followed in case of equipment breakdown, maintenance downtime, or fire in equipment or vehicles, including methods to be used to remove or dispose of accumulated waste.

102.12(9) Proof of the applicant's ownership of the site or legal entitlement to use the site for the disposal of solid waste for the term of the permit for which application is made.

102.12(10) Closure/postclosure plan. A closure/postclosure plan shall be submitted which:

a. Details how and when the facility will be closed in accordance with applicable requirements.

b. Describes the proposed groundwater monitoring plan, leachate control system, and site inspection and maintenance activities necessary to comply with 567—Chapter 110.

c. States the name, address and telephone number of the person or office to serve as a contact with regard to the facility during the postclosure period.

d. The closure/postclosure plan shall be submitted at the time of the first permit renewal after enactment of this rule, but not less than 180 days prior to closure.

102.12(11) Such other information as may be required by the director.

This rule is intended to implement Iowa Code section 455B.305.

567—102.13(455B) Operating requirements for all sanitary disposal projects. Every application for any permit issued by the department shall detail the means by which the following operating requirements shall be complied with. All sanitary disposal projects shall be operated in conformance with these requirements.

102.13(1) Open burning shall be prohibited except when permitted by 567—Chapter 23. Any burning to be conducted at the site shall be at a location and separate and distinct from the operating area.

102.13(2) Litter shall be confined to the property on which the sanitary disposal project is located. At the conclusion of each day of operation, any litter strewn beyond the confines of the operating area shall be collected and stored in covered leakproof containers or properly disposed.

102.13(3) Scavenging shall be prohibited. Any salvaging to be conducted must be described in the permit application and all salvaged materials must be stored and removed from the sanitary disposal project site in conformance with the permit conditions.

102.13(4) Effective means shall be taken to control flies, other insects, rodents and other vermin.

102.13(5) Equipment designated in the plans and specifications or equivalent equipment shall be used to operate the site at all times.

102.13(6) The major internal roads shall be of all weather construction and maintained in good condition. Dust shall be controlled on internal roads.

102.13(7) Sites open to the public shall have a permanent sign posted at the site entrance specifying:

a. Name of the operation.

b. The site permit number.

c. The hours and days the site is open to the public.

d. The categories of waste which will be accepted for disposal or, as an alternative, identifies the categories of waste which are prohibited.

e. Telephone number of official responsible for the operation.

102.13(8) Free liquids or waste containing free liquids. No free liquids or waste containing free liquids shall be disposed in a sanitary landfill.

102.13(9) General closure requirements.

a. The owner or operator shall notify the department in writing at least 180 days prior to closure of the facility or suspension of operations.

b. Notice of closure shall be posted at least 180 days prior to closure at the facility indicating the date of closure and alternative solid waste management facilities. Notice of closure shall also be published at least 180 days prior to closure in a newspaper of local circulation. This notice shall include the date of closure and alternative solid waste management facilities.

c. Implementation of the closure/postclosure plan shall be completed within 90 days of the closure of the facility. The owner and an engineer registered in Iowa shall certify that the closure/postclosure plan has been implemented in compliance with the rules, the closure/postclosure plan and the permit.

d. Upon completion of closure activities, as-built plans shall be submitted showing changes from the original design plans, test results indicating compliance with final cover as applicable, waste removal, equipment decontamination, and other forms of documentation as required, to include a copy of the notation filed with the county recorder.

This rule is intended to implement Iowa Code section 455B.304.

567—102.14(455B) Emergency response and remedial action plans.

102.14(1) *Purpose.* The purpose of this rule is to implement Iowa Code section 455B.306(6)*"d"* by providing the criteria for developing a detailed emergency response and remedial action plan (ERRAP) for permitted sanitary disposal projects.

102.14(2) *Applicability.* The requirements of this rule apply to the owners or operators of all sanitary disposal projects that are permitted under 567—102.2(455B). Permitted project types include: municipal and industrial waste landfills; construction and demolition waste landfills; coal combustion residue landfills; waste storage facilities; waste processing facilities; recycling and material recovery facilities; transfer stations; composting facilities; incinerator facilities; regional collection centers; land application facilities; and any facility deemed necessary to have a project permit under sanitary disposal project definition. Centralized regional collection center ERRAP documents shall specifically address the ERRAP requirements for each of the regional collection center's satellite facilities. This rule is not applicable to waste tire management facilities.

102.14(3) *Submittal requirements.*

a. The owner or operator of facilities that are subject to this rule and have been permitted prior to October 24, 2001, shall submit a complete detailed ERRAP that meets the requirements set forth in this rule no later than December 31, 2001.

b. Applications for a new permit after October 24, 2001, shall incorporate a complete detailed ERRAP that meets the requirements set forth in this rule.

c. An updated ERRAP that meets the requirements of this rule shall be submitted at the time of each permit renewal or permit reissuance application that is due after December 31, 2001.

d. An updated ERRAP shall be included with any request for permit modification to incorporate a facility expansion or significant changes in facility operation that require modification of the currently approved ERRAP.

e. Facilities that submitted an ERRAP meeting the requirements defined under Iowa Code section 455B.306(6)*"d"* by May 1, 2001, including regional collection centers that, prior to this date, have met the contingency plan submittal requirement described in 567—Chapter 211, and were approved by the department prior to October 24, 2001, are not required to submit an updated ERRAP that meets the requirements of this rule until the next permit renewal application due date after December 31, 2001.

f. Three sets of ERRAP documents shall be submitted for department approval.

102.14(4) *Content.* The content of ERRAP documents shall be concise and readily usable as a reference manual by facility managers and operators during emergency conditions. The ERRAP document content shall address at least the following primary issues in detail, unless project conditions render the specific issue as not applicable. The rationale for exclusion of any issue areas that are determined not to be applicable must be provided in either the body of the plan or as a supplement to facilitate department review. Additional emergency response and remedial action plan requirements unique to the facility shall be addressed, as applicable.

a. Facility information.

(1) Permitted agency.

(2) DNR permit number.

(3) Facility description.

(4) Responsible official and contact information.

(5) Project location.

(6) Site and environs map.

b. Regulatory requirements.

(1) Iowa Code section 455B.306(6)*"d"* criteria citation.

(2) Reference to provisions of the permit.

c. Emergency conditions—response activities—remedial action.

(1) Failure of utilities.

1. Short-term (48 hours or less).

2. Long-term (over 48 hours).

(2) Weather-related events.

1. Tornado.
2. Windstorms.
3. Intense rainstorms and erosion.
4. Lightning strikes.
5. Flooding.
6. Event and postevent conditions.

(3) Fire and explosions.

1. Waste materials.
2. Buildings and site.
3. Equipment.
4. Fuels.
5. Utilities.
6. Facilities.
7. Working area.
8. Hot loads.
9. Waste gases.
10. Evacuation.

(4) Regulated waste spills and releases.

1. Waste materials.
2. Leachate.
3. Waste gases.
4. Waste stockpiles and storage facilities.
5. Waste transport systems.
6. Litter and airborne particulates.
7. Site drainage systems.
8. Off-site releases.

(5) Hazardous material spills and releases.

1. Load check control points.
2. Mixed waste deliveries.
3. Fuels.
4. Waste gases.
5. Site drainage systems.
6. Off-site releases.

(6) Mass movement of land and waste.

1. Earthquakes.
2. Slope failure.
3. Waste shifts.
4. Waste subsidence.

(7) Emergency and release notifications and reporting.

1. Federal agencies.
2. State agencies.
3. County and city agencies.
4. News media.
5. Public and private facilities with special populations within five miles.
6. Emergency response agencies and contact information.
7. Reporting requirements and forms.

(8) Emergency waste management procedures.

1. Communications.
2. Temporary discontinuation of services—short- and long-term.
3. Facilities access and rerouting.
4. Waste acceptance.
5. Wastes in process.

(9) Primary emergency equipment inventory.
1. Major equipment.
2. Fire hydrants and water sources.
3. Off-site equipment resources.
(10) Emergency aid.
1. Responder contacts.
2. Medical services.
3. Contracts and agreements.
(11) ERRAP training requirements.
1. Training providers.
2. Employee orientation.
3. Annual training updates.
4. Training completion and record keeping.
(12) Reference tables, figures and maps.

567—102.15(455B) Disposal of special wastes. Rescinded IAB 4/17/02, effective 5/22/02.

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CHAPTER 103
SANITARY LANDFILLS: COAL COMBUSTION RESIDUE

[Prior to 7/1/83, DEQ Ch 28]
[Prior to 12/3/86, Water, Air and Waste Management [900]]

567—103.1(455B) Coal combustion residue landfills. The following are the minimum requirements for siting, designing, and operating a solid waste landfill accepting only coal combustion residue.

This chapter stands alone and is not affected by references in other rules, except for the variance provision in 567—101.2(455B). "Coal combustion residue" means any solid waste produced by the burning of coal, either by itself or in conjunction with natural gas or other carbon-based fuels. "Coal combustion residue" includes, but is not limited to, bottom ash, fly ash, slag and flue gas desulfurization system material generated by coal combustion and associated air pollution control equipment.

103.1(1) *Site requirements.*

a. The site cannot be a wetland, cannot be within a 100-year flood plain and cannot have any sinkholes or similar karst features.

b. No wastes shall be deposited within 300 feet of an inhabitable residence or a commercial enterprise, unless there is a written agreement with the property owner(s) allowing a lesser distance, or within 50 feet of the property boundary. The written agreement shall be filed with the county recorder for abstract of title purposes and a copy shall be submitted to the department.

c. All waste must be a minimum of 5 feet above the high groundwater table.

103.1(2) *Permit application requirements.* The application for a permit shall include the following:

a. A completed application Form 50.542-1542.

b. A copy of the letter from the waste management assistance division approving the comprehensive plan required by 567—101.5(455B).

c. Proof of legal entitlement to use the property as proposed.

d. A topographic map of the site and the adjacent area within 300 feet of the site, with contour intervals not exceeding 10 feet, that shows the location of existing improvements or alterations such as structures, wells, lakes, roads, drain tiles or similar items. The highest point of elevation on the site shall also be identified and given.

e. The results of a minimum of three soil borings for sites of ten acres or less with one additional boring for each additional three acres to determine the hydrogeologic conditions and establish the direction of groundwater flow throughout the site and the minimum depth to groundwater on the site.

f. An adequate number of representative groundwater sample results, minimum of three locations with one sample from each location, to fully characterize the groundwater quality at the site. The following are the analytical parameters that are required to characterize groundwater quality and establish a baseline for those parameters: arsenic, barium, beryllium, cobalt, copper, iron, lead, magnesium, manganese, selenium, zinc, chlorides, and sulfate. The analysis shall be for dissolved metals with filtering in the field.

g. Construction drawings and specifications of the improvements and alterations that are to take place on the site such as roads, structures, utilities, drainage ways, gates and fences.

h. A copy of the local siting approval required by Iowa Code section 455B.305A.

103.1(3) *Design criteria.*

a. The design of a coal combustion residue solid waste landfill shall contain a method for ensuring protection of the groundwater and surface water.

b. The design plan shall include a method of ash transportation that prevents blowing ash and a method for preventing blowing dust and air emissions when the ash is unloaded.

c. Surface runoff must be diverted from all active or closed areas, both during the active life of the facility and during the postclosure period.

d. The site must be secured with a fence and gate(s) to prevent unauthorized entry when the site is unattended.

e. The site must have all-weather access roads adequate to accommodate all delivery vehicles and operating equipment.

f. The site must be fenced and gated in a manner that will prevent unauthorized deposition of wastes at the site.

103.1(4) *Operating requirements.*

a. An operation plan shall be prepared and submitted to the appropriate department field office prior to initiating operations. The plan, at a minimum, shall include:

(1) An identification of the area to be filled during the period for which a permit is being requested.

(2) The method(s) that will be utilized to prevent illicit municipal or putrescible solid wastes from being deposited as a result of mixing with authorized waste brought to the site.

(3) The frequency, extent and method of spreading and compacting the waste; the optimum layer thickness; and the size and slope of the operating face.

(4) A description of the operating procedures that will be followed when wastes are brought to the site.

(5) If removal of waste from the landfill for beneficial reuse is intended, that activity should be addressed in the original operation plan. If the permit holder decides to remove waste after completion of the original operation plan, the plan must be amended prior to removing any waste.

b. After the waste is deposited, it must be treated as necessary to control fugitive dust that would leave the site and to control erosion that would impact operations in the active fill area. If the methods used do not adequately control dust and erosion, the department may require site-specific controls including a soil cover.

c. A minimum of one down gradient monitoring well must be installed within one year of initiating operations. Additional wells may be required when it is apparent that more than one potential contaminant pathway exists. Monitoring wells will normally be placed within 50 feet of the waste boundary.

d. Quarterly sampling of all monitoring wells and analysis for the parameters specified in paragraph 103.1(2)*"f"* shall commence within one year of initiating operations for the purpose of establishing the average baseline concentrations for each well. Annual sampling of all monitoring wells for the parameters specified in paragraph 103.1(2)*"f"* shall commence within one year of completing the quarterly baseline monitoring. Additional sampling or a site assessment may be required by the department when there is an exceedance of any primary or secondary Maximum Contaminant Level (MCL) or the Health Advisory Level (HAL) of the Drinking Water Standards and Health Advisories of the federal Environmental Protection Agency. When an MCL or HAL does not exist for a parameter and a sample analysis exceeds the average value for that parameter for the most recent two years of data, the department will require the collection and analysis of a sample for three consecutive months. If the average result of those sample analyses equals or exceeds the value that required the monthly samples to be collected, the department may require a site assessment.

e. A report of the groundwater monitoring results shall be submitted to the department by the end of the first year's operation and annually thereafter.

103.1(5) *Closure/postclosure requirements.*

a. The owner/operator shall submit a postclosure plan to the department 180 days prior to closure. The plan shall list the date of closure, the actions that will be taken to close the site, the final site contours and final cover design, and the parties responsible for postclosure maintenance.

b. The final cover shall consist of not less than two feet of compacted soil and one foot of uncompacted soil capable of sustaining a growth of common grasses.

c. The slope of the landfill area after final closure shall be not less than 3 percent or more than 25 percent.

d. A growth of common grasses shall be established on the final cover by the end of the first full growing season.

e. A minimum of one sample from each monitoring well shall be collected annually during the postclosure period and analyzed for the parameters specified in the permit. The results shall be included in the annual report.

f. After closure, an annual inspection of the site shall be conducted. Any differential settling, surface cracks, holes, erosion channels, or any interference with surface drainage shall be corrected

by restoration to the original condition. A report on the findings and corrective actions taken shall be included in the annual report. These postclosure actions are required for a minimum of ten years following closure. The department may extend the monitoring and reporting period if it appears that continued maintenance and monitoring are warranted.

103.1(6) *Permit renewal.* The term for a permit to operate a solid waste landfill accepting only coal combustion residue waste shall be ten years, and the permit shall be renewable for a similar term.

567—103.2(455B) Emergency response and remedial action plans.

103.2(1) *Purpose.* The purpose of this rule is to implement Iowa Code section 455B.306(6)*"d"* by providing the criteria for developing a detailed emergency response and remedial action plan (ERRAP) for permitted sanitary disposal projects.

103.2(2) *Applicability.* The requirements of this rule apply to the owners or operators of all sanitary landfills.

103.2(3) *Submittal requirements.*

a. The owner or operator of facilities that are subject to this rule and have been permitted prior to October 24, 2001, shall submit a complete detailed ERRAP that meets the requirements set forth in this rule no later than December 31, 2001.

b. Applications for a new permit after October 24, 2001, shall incorporate a complete detailed ERRAP that meets the requirements set forth in this rule.

c. An updated ERRAP that meets the requirements of this rule shall be submitted at the time of each permit renewal or permit reissuance application that is due after December 31, 2001.

d. An updated ERRAP shall be included with any request for permit modification to incorporate a facility expansion or significant changes in facility operation that require modification of the currently approved ERRAP.

e. Facilities that submitted an ERRAP meeting the requirements defined under Iowa Code section 455B.306(6)*"d"* by May 1, 2001, including regional collection centers that, prior to this date, have met the contingency plan submittal requirement described in 567—Chapter 211, and were approved by the department prior to October 24, 2001, are not required to submit an updated ERRAP that meets the requirements of this rule until the next permit renewal application due date after December 31, 2001.

f. Three sets of ERRAP documents shall be submitted for department approval.

103.2(4) *Content.* The content of ERRAP documents shall be concise and readily usable as a reference manual by facility managers and operators during emergency conditions. The ERRAP document content shall address at least the following primary issues in detail, unless project conditions render the specific issue as not applicable. The rationale for exclusion of any issue areas that are determined not to be applicable must be provided in either the body of the plan or as a supplement to facilitate department review. Additional emergency response and remedial action plan requirements unique to the facility shall be addressed, as applicable.

a. Facility information.

(1) Permitted agency.

(2) DNR permit number.

(3) Facility description.

(4) Responsible official and contact information.

(5) Project location.

(6) Site and environs map.

b. Regulatory requirements.

(1) Iowa Code section 455B.306(6)*"d"* criteria citation.

(2) Reference to provisions of the permit.

c. Emergency conditions—response activities—remedial action.

(1) Failure of utilities.

1. Short-term (48 hours or less).

2. Long-term (over 48 hours).

(2) Weather-related events.

1. Tornado.
2. Windstorms.
3. Intense rainstorms and erosion.
4. Lightning strikes.
5. Flooding.
6. Event and postevent conditions.

(3) Fire and explosions.

1. Waste materials.
2. Buildings and site.
3. Equipment.
4. Fuels.
5. Utilities.
6. Facilities.
7. Working area.
8. Hot loads.
9. Waste gases.
10. Evacuation.

(4) Regulated waste spills and releases.

1. Waste materials.
2. Leachate.
3. Waste gases.
4. Waste stockpiles and storage facilities.
5. Waste transport systems.
6. Litter and airborne particulates.
7. Site drainage systems.
8. Off-site releases.

(5) Hazardous material spills and releases.

1. Load check control points.
2. Mixed waste deliveries.
3. Fuels.
4. Waste gases.
5. Site drainage systems.
6. Off-site releases.

(6) Mass movement of land and waste.

1. Earthquakes.
2. Slope failure.
3. Waste shifts.
4. Waste subsidence.

(7) Emergency and release notifications and reporting.

1. Federal agencies.
2. State agencies.
3. County and city agencies.
4. News media.
5. Public and private facilities with special populations within five miles.
6. Emergency response agencies and contact information.
7. Reporting requirements and forms.

(8) Emergency waste management procedures.

1. Communications.
2. Temporary discontinuation of services—short- and long-term.
3. Facilities access and rerouting.
4. Waste acceptance.
5. Wastes in process.

(9) Primary emergency equipment inventory.
1. Major equipment.
2. Fire hydrants and water sources.
3. Off-site equipment resources.
(10) Emergency aid.
1. Responder contacts.
2. Medical services.
3. Contracts and agreements.
(11) ERRAP training requirements.
1. Training providers.
2. Employee orientation.
3. Annual training updates.
4. Training completion and record keeping.
(12) Reference tables, figures and maps.

567—103.3(455B) Coal combustion residue sanitary landfill financial assurance.

103.3(1) *Purpose.* The purpose of this rule is to implement Iowa Code sections 455B.304(8) and 455B.306(9) by providing the criteria for establishing financial assurance for closure, postclosure and corrective action at coal combustion residue sanitary landfills (CCR landfills).

103.3(2) *Applicability.* The requirements of this rule apply to all owners and operators of CCR landfills accepting waste as of October 31, 2007, except owners or operators that are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.

103.3(3) *Financial assurance for closure.* The owner or operator of a CCR landfill must establish financial assurance for closure in accordance with the criteria in this rule. The owner or operator must provide continuous coverage for closure until released from this requirement by demonstrating compliance with subrule 103.1(5). Proof of compliance pursuant to paragraphs 103.3(3)*"a"* to *"e"* must be submitted by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit the current version of department Form 542-8090, Sanitary Landfill Financial Assurance Report Form, which contains, but is not limited to, the amount of the financial assurance, the annual financial statement required by Iowa Code sections 455B.306(9)*"e"* and 455B.306(7)*"c,"* and the current balances of the closure and postclosure accounts at the time of submittal as required by Iowa Code section 455B.306(9)*"b."*

b. The owner or operator shall submit a copy of the financial assurance instruments or the documents establishing the financial assurance instruments in an amount equal to or greater than the amount specified in subrule 103.3(8). Documentation for the mechanism(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in paragraphs 103.3(6)*"a"* to *"i."*

c. The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to close the CCR landfill in accordance with the closure/postclosure plan as required by subrule 103.1(5). Such estimate must be available at any time during the active life of the landfill.

(1) The cost estimate must equal the cost of closing the CCR landfill at any time during the permitted life of the facility when the extent and manner of its operation would make closure the most expensive.

(2) The costs contained in the third-party estimate for closure must be accurate and reasonable when compared to the cost estimates used by other similarly situated landfills in Iowa.

(3) During the active life of the CCR landfill, the owner or operator must annually adjust the closure cost estimate for inflation.

(4) The owner or operator must, annually or at the time of application for a permit amendment that increases closure costs, whichever occurs first, increase the closure cost estimate and the amount of financial assurance provided if changes to the closure plan or CCR landfill conditions increase the maximum cost of closure at any time during the remaining active life of the facility.

(5) The owner or operator may reduce the amount of financial assurance for closure if the most recent estimate of the maximum cost of closure at any time during the active life of the facility is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the closure cost estimate and the updated documentation required by paragraphs 103.3(3)*"a"* to *"e"* and receive department approval for the reduction. Approval or denial shall be issued within 30 days of receipt of the reduction request.

(6) The third-party estimate submitted to the department must include the site area subject to closure and account for at least the following factors determined by the department to be minimal necessary costs for closure:

1. Closure and postclosure plan document revisions;
2. Site preparation, earthwork and final grading;
3. Drainage control culverts, piping and structures;
4. Erosion control structures, sediment ponds and terraces;
5. Final cap construction;
6. Cap vegetation soil placement;
7. Cap seeding, mulching and fertilizing;
8. Monitoring well and piezometer modifications;
9. Leachate system cleanout and extraction well modifications;
10. Monitoring well installations and abandonments;
11. Facility modifications to effect closed status;
12. Engineering and technical services;
13. Legal, financial and administrative services; and
14. Closure compliance certifications and documentation.

d. For CCR landfills owned by local governments, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa.

e. Privately held CCR landfills shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by a certified public accountant to determine whether the privately owned landfill is in compliance with this rule. The affidavit shall state the name of the certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

103.3(4) *Financial assurance for postclosure.* The owner or operator of a CCR landfill must establish financial assurance for the costs of postclosure in accordance with the criteria in this rule. The owner or operator must provide continuous coverage for postclosure until released from this requirement by demonstrating compliance with the closure/postclosure plan and the closure permit. Proof of compliance pursuant to paragraphs 103.3(4)*"a"* to *"e"* must be submitted by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit the current version of department Form 542-8090, Sanitary Landfill Financial Assurance Report Form, which contains, but is not limited to, the amount of the financial assurance, the annual financial statement required by Iowa Code sections 455B.306(9)*"e"* and 455B.306(7)*"c,"* and the current balances of the closure and postclosure accounts required by Iowa Code section 455B.306(9)*"b."*

b. The owner or operator shall submit a copy of the documents establishing a financial assurance instrument in an amount equal to or greater than the amount specified in subrule 103.3(8). Documentation for the mechanism(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in paragraphs 103.3(6)*"a"* to *"i."*

c. The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to conduct postclosure for the CCR landfill in compliance with the closure/postclosure plan developed pursuant to subrule 103.1(5). The cost estimate must account for the total cost of conducting postclosure, as described in the plan, for the entire postclosure period.

(1) The cost estimate for postclosure must be based on the most expensive costs of postclosure during the entire postclosure period.

(2) The costs contained in the third-party estimate for postclosure must be accurate and reasonable when compared to the cost estimates used by other similarly situated landfills in Iowa.

(3) During the active life of the CCR landfill and during the postclosure period, the owner or operator must annually adjust the postclosure cost estimate for inflation.

(4) The owner or operator must, annually or at the time of application for a permit amendment that increases postclosure costs, whichever occurs first, increase the estimate and the amount of financial assurance provided if changes in the postclosure plan or CCR landfill conditions increase the maximum cost of postclosure.

(5) The owner or operator may reduce the amount of financial assurance for postclosure if the most recent estimate of the maximum cost of postclosure beginning at any time during the active life of the facility is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the postclosure cost estimate and the updated documentation required by paragraphs 103.3(4)*"a"* to *"e"* and must receive department approval for the reduction. Approval or denial shall be issued within 30 days of receipt of the reduction request.

(6) The third-party estimate submitted to the department must include the site area subject to postclosure and account for at least the following factors determined by the department to be minimal necessary costs for postclosure:

1. General site facilities, access roads and fencing maintenance;
2. Cap and vegetative cover maintenance;
3. Drainage and erosion control systems maintenance;
4. Groundwater to waste separation systems maintenance;
5. Groundwater and surface water monitoring systems maintenance;
6. Groundwater and surface water quality monitoring and reports;
7. Groundwater monitoring systems performance evaluations and reports;
8. Leachate control systems maintenance;
9. Leachate management, transportation and disposal;
10. Leachate control systems performance evaluations and reports;
11. Facility inspections and reports;
12. Engineering and technical services;
13. Legal, financial and administrative services; and
14. Financial assurance, accounting, audits and reports.

d. For CCR landfills owned by local governments, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa.

e. Privately held CCR landfills shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by a certified public accountant to determine whether the privately owned landfill is in compliance with this rule. The affidavit shall state the name of the certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

103.3(5) *Financial assurance for corrective action.*

a. An owner or operator required to undertake corrective action must have a detailed written estimate, in current dollars, prepared by an Iowa-licensed professional engineer, of the cost of hiring a third party to perform the required corrective action. The estimate must account for the total costs of the activities described in the approved corrective action plan for the entire corrective action period. The owner or operator must submit to the department the estimate and financial assurance documentation within 30 days of department approval of the corrective action plan.

(1) The owner or operator must annually adjust the estimate for inflation until the corrective action plan is completed.

(2) The owner or operator must increase the cost estimate and the amount of financial assurance provided if changes in the corrective action plan or CCR landfill conditions increase the maximum cost of corrective action.

(3) The owner or operator may reduce the amount of the cost estimate and the amount of financial assurance provided if the estimate exceeds the maximum remaining costs of the remaining corrective action. The owner or operator must submit to the department the justification for the reduction of the cost estimate and documentation of financial assurance.

b. The owner or operator of a CCR landfill required to undertake a corrective action plan must establish financial assurance for the most recent corrective action plan by one of the mechanisms prescribed in subrule 103.3(6). The owner or operator must provide continuous coverage for corrective action until released from financial assurance requirements by demonstrating compliance with the following:

(1) Upon completion of the remedy, the owner or operator must submit to the department a certification of compliance with the approved corrective action plan. The certification must be signed by the owner or operator and by an Iowa-licensed professional engineer.

(2) Upon department approval of completion of the corrective action remedy, the owner or operator shall be released from the requirements for financial assurance for corrective action.

103.3(6) *Allowable financial assurance mechanisms.* The mechanisms used to demonstrate financial assurance as required by Iowa Code section 455B.306(9)*"a"* must ensure that the funds necessary to meet the costs of closure, postclosure, and corrective action for known releases will be available whenever the funds are needed. Owners or operators must choose from options in paragraphs 103.3(6)*"a"* to *"i."*

a. Trust fund.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by establishing a trust fund which conforms to the requirements of this subrule. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. A copy of the trust agreement must be submitted pursuant to subrules 103.3(3), 103.3(4), and 103.3(5) and placed in the facility's official files.

(2) Payments into the trust fund must be made annually by the owner or operator over ten years or over the remaining life of the CCR landfill, whichever is shorter, in the case of a trust fund for closure or postclosure; or over one-half of the estimated length of the corrective action plan in the case of a response to a known release. This period is referred to as the pay-in period.

(3) For a trust fund used to demonstrate financial assurance for closure and postclosure, the first payment into the fund must be at least equal to the amount specified in subrule 103.3(8) for closure or postclosure divided by the number of years in the pay-in period as defined in subparagraph 103.3(6)*"a"*(2). The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{CE - CB}{Y}$$

where CE is the amount specified in 103.3(8) for closure or postclosure (updated for inflation or other changes), CB is the current balance of the trust fund, and Y is the number of years remaining in the pay-in period.

(4) For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action divided by the number of years in the corrective action pay-in period as defined in subparagraph 103.3(6)*"a"*(2). The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{RB - CV}{Y}$$

where RB is the most recent estimate of the required trust fund balance for corrective action, which is the total cost that will be incurred during the second half of the corrective action period, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(5) The initial payment into the trust fund must be made before the initial receipt of waste or within 30 days of close of the first fiscal year that begins after October 31, 2007, in the case of existing facilities; before the cancellation of an alternative financial assurance mechanism in the case of closure and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department.

(6) The owner or operator or another person authorized to conduct closure, postclosure, or corrective action activities may request reimbursement from the trustee for these expenditures, including partial closure, as the expenditures are incurred. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, postclosure, or corrective action and if justification and documentation of the costs are placed in the operating record. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that reimbursement has been received.

(7) The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternative financial assurance as specified in this rule or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

(8) After the pay-in period has been completed, the trust fund shall be adjusted annually to correct any deficiency of the fund with respect to the adjusted cost estimate and may be adjusted annually should the balance in the fund exceed the adjusted cost estimate.

b. Surety bond guaranteeing payment or performance.

(1) An owner or operator may demonstrate financial assurance for closure or postclosure by obtaining a payment or performance surety bond which conforms to the requirements of this subrule. An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond which conforms to the requirements of this subrule. The bond must be effective before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department. The owner or operator must submit a copy of the bond to the department and keep a copy in the facility's official files. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. The state shall not be considered a party to the surety bond.

(2) The penal sum of the bond must be in an amount at least equal to the amount specified in subrule 103.3(9) for closure and postclosure or corrective action, whichever is applicable.

(3) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond and also upon notice from the department pursuant to subparagraph 103.3(6)*"b"*(6).

(4) The owner or operator must establish a standby trust fund. The standby trust fund must meet the requirements of paragraph 103.3(6)*"a"* except the requirements for initial payment and subsequent annual payments specified in subparagraphs 103.3(6)*"a"*(2) to (5).

(5) Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund. Payments from the trust fund must be approved by the trustee and the department.

(6) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice from the surety of withdrawal of the cancellation, or proof of a deposit into the standby trust fund of a sum equal to the amount of the bond. If the owner or operator has not complied with this subparagraph within the 60-day time period, this shall constitute a failure to perform, and the department shall notify the surety, prior to the expiration of the 120-day notice period, that such a failure has occurred.

(7) The bond must be conditioned upon faithful performance by the owner or operator of all closure, postclosure, or corrective action requirements of the Code of Iowa and this rule. A failure to comply with subparagraph 103.3(6)*"b"*(6) shall also constitute a failure to perform under the terms of the bond.

(8) Liability under the bond shall be for the duration of the operation and the closure and postclosure periods.

(9) The owner or operator may cancel the bond only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

c. Letter of credit.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph. The letter of credit must be effective before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or no later than 120 days after the corrective action plan is approved by the department. The owner or operator must submit to the department a copy of the letter of credit and place a copy in the facility's official files. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year in an amount at least equal to the amount specified in subrule 103.3(8) for closure, postclosure, or corrective action, whichever is applicable. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a standby trust fund established pursuant to paragraph 103.3(6)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the standby trust fund established by the owner or operator. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

(4) The owner or operator may cancel the letter of credit only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

d. Insurance.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action by obtaining insurance which conforms to the requirements of this paragraph. The insurance must be effective before the initial receipt of waste or prior to cancellation of an alternative financial assurance, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department. At a minimum, the insurer must be licensed to transact the business of insurance or be eligible to provide insurance as an excess or surplus lines insurer in one or more states. The owner or operator must submit to the department a copy of the insurance policy and retain a copy in the facility's official files.

(2) The closure or postclosure insurance policy must guarantee that funds will be available to close the CCR landfill whenever final closure occurs or to provide postclosure for the CCR landfill whenever the postclosure period begins, whichever is applicable. The policy must also guarantee that once closure or postclosure begins, the insurer will be responsible for the paying out of funds to the owner or operator

or other person authorized to conduct closure or postclosure, up to an amount equal to the face amount of the policy.

(3) The insurance policy must be issued for a face amount at least equal to the amount specified in subrule 103.3(8) for closure, postclosure, or corrective action, whichever is applicable. The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) An owner or operator or another person authorized to conduct closure or postclosure may receive reimbursements for closure or postclosure expenditures, including partial closure, as applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or postclosure, and if justification and documentation of the cost are placed in the operating record. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that the reimbursement has been received.

(5) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

(6) The insurance policy must provide that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice from the insurer of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the insurance coverage into a standby trust fund established pursuant to paragraph 103.3(6)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, this shall constitute a failure to perform and shall be a covered event pursuant to the terms of the insurance policy. A failure by the owner or operator to comply with this subrule within the 60-day period shall make the insurer liable for the closure and postclosure of the covered facility up to the amount of the policy limits, which shall be equal to the most recently submitted cost estimates.

(7) For insurance policies providing coverage for postclosure, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the U.S. Department of the Treasury for 26-week treasury securities.

(8) The owner or operator may cancel the insurance only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

e. Corporate financial test. An owner or operator that satisfies the requirements of this paragraph may demonstrate financial assurance up to the amount specified below:

(1) Financial component. The owner or operator must satisfy the requirements of numbered paragraphs 103.3(6)*"e"*(1)"1," "2" and "3" to meet the financial component of the corporate financial test.

1. The owner or operator must satisfy one of the following three conditions:

- A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or
- A ratio of less than 1.5 comparing total liabilities to net worth (net worth calculations may not include future permitted capacity of the subject landfill as an asset); or
- A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities;

2. The tangible net worth, excluding future permitted capacity of the subject landfill, of the owner or operator must be greater than:

- The sum of the current closure, postclosure, and corrective action cost estimates and any other environmental obligations, including guarantees, covered by this financial test plus $10 million except as provided in the second bulleted paragraph of numbered paragraph 103.3(6)*"e"*(1)"2"; or
- Net worth of $10 million, excluding future permitted capacity of the subject landfill, plus the amount of any guarantees that have not been recognized as liabilities on the financial statements, provided that all of the current closure, postclosure, and corrective action costs and any other environmental obligations covered by a financial test are recognized as liabilities on the owner's or operator's audited financial statements, and are subject to the approval of the department; and

3. The owner or operator must have, located in the United States, assets, excluding future permitted capacity of the subject landfill, amounting to at least the sum of current closure, postclosure, and corrective action cost estimates and any other environmental obligations covered by a financial test as described in subparagraph 103.3(6)*"e"*(5).

(2) Record-keeping and reporting requirements. The owner or operator must submit the following records to the department and place a copy in the facility's official files prior to the initial receipt of solid waste or cancellation of an alternative financial assurance instrument, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department:

1. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a financial test including, but not limited to, cost estimates required by subrules 103.3(3) to 103.3(5); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
- Provides evidence demonstrating that the owner or operator meets the conditions of subparagraph 103.3(6)*"e"*(1).

2. A copy of the independent certified public accountant's unqualified opinion of the owner's or operator's financial statements for the latest completed fiscal year. To be eligible to use the financial test, the owner's or operator's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this mechanism. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate financial test, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

3. If the certified public accountant's letter providing evidence of financial assurance includes financial data which shows that the owner or operator satisfies subparagraph 103.3(6)*"e"*(1) but which differs from data in the audited financial statements referred to in numbered paragraph 103.3(6)*"e"*(2)"2," then a special report from the owner's or operator's independent certified public accountant to the owner or operator is required. The special report shall be based upon an agreed-upon procedures engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the certified public accountant's letter derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of that comparison, and the reasons for any differences.

4. If the certified public accountant's letter provides a demonstration that the owner or operator has assured for environmental obligations as provided in the second bulleted paragraph of numbered paragraph 103.3(6)*"e"*(2)"1," then the letter shall include a report from the independent certified public accountant that verifies that all of the environmental obligations covered by a financial test have been recognized as liabilities on the audited financial statements and that documents how these obligations

have been measured and reported and verifies that the tangible net worth of the owner or operator is at least $10 million plus the amount of any guarantees provided.

(3) The owner or operator may cease the submission of the information required by paragraph 103.3(6)*"e"* only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

(4) The department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of subparagraph 103.3(6)*"e"*(1), require the owner or operator to provide reports of its financial condition in addition to or including current financial test documentation as specified in subparagraph 103.3(6)*"e"*(2). If the department finds that the owner or operator no longer meets the requirements of subparagraph 103.3(6)*"e"*(1), the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

(5) Calculation of costs to be assured. When calculating the current cost estimates for closure, postclosure, corrective action, or the sum of the combination of such costs to be covered, and any other environmental obligations assured by a financial test referred to in paragraph 103.3(6)*"e,"* the owner or operator must include cost estimates required for subrules 103.3(3) to 103.3(5); cost estimates for municipal solid waste management facilities pursuant to 40 CFR Section 258.74; and cost estimates required for the following environmental obligations, if the owner or operator assures those environmental obligations through a financial test: obligations associated with UIC facilities under 40 CFR Part 144, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265.

f. Local government financial test. An owner or operator that satisfies the requirements of this paragraph may demonstrate financial assurance up to the amount specified below:

(1) Financial component.

1. The owner or operator must satisfy one of the following requirements:

- If the owner or operator has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the owner or operator must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or
- The owner or operator must satisfy both of the following financial ratios based on the owner's or operator's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

2. The owner or operator must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa

3. A local government is not eligible to assure its obligations in paragraph 103.3(6)*"f"* if it:

- Is currently in default on any outstanding general obligation bonds; or
- Has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or
- Operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or
- Receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement as required under numbered paragraph 103.3(6)*"f"*(1)"2." A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism.

4. The following terms used in this paragraph are defined as follows:

"Cash plus marketable securities" means all the cash plus marketable securities held by the local government on the last day of a fiscal year, excluding cash and marketable securities designated to satisfy past obligations such as pensions.

"Debt service" means the amount of principal and interest due on a loan in a given time period, typically the current year.

"Deficit" means total annual revenues minus total annual expenditures.

"Total expenditures" means all expenditures, excluding capital outlays and debt repayment.

"Total revenues" means revenues from all taxes and fees, excluding revenue from funds managed by local government on behalf of a specific third party, and does not include the proceeds from borrowing or asset sales.

(2) Public notice component. The local government owner or operator must include disclosure of the closure and postclosure costs assured through the financial test in its next annual audit report prior to the initial receipt of waste at the facility or prior to cancellation of an alternative financial assurance mechanism, whichever is later. A reference to corrective action costs must be placed in the next annual audit report after the corrective action plan is approved by the department. For the first year the financial test is used to assure costs at a particular facility, the reference may instead be placed in the facility's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure and postclosure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(3) Record-keeping and reporting requirements.

1. The local government owner or operator must submit to the department the following items:

- A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by a financial test, as described in subparagraph 103.3(6)*"f"*(4); that provides evidence and certifies that the local government meets the conditions of numbered paragraphs 103.3(6)*"f"*(1)"1," "2," and "3"; and that certifies that the local government meets the conditions of subparagraphs 103.3(6)*"f"*(2) and (4); and
- The local government's annual financial report indicating compliance with the financial ratios required by numbered paragraph 103.3(6)*"f"*(1)"1," second bulleted paragraph, if applicable, and the requirements of numbered paragraph 103.3(6)*"f"*(1)"2" and the third and fourth bulleted paragraphs of numbered paragraph 103.3(6)*"f"*(1)"3" and also indicating that the requirements of Governmental Accounting Standards Board Statement 18 have been met.

2. The items required in numbered paragraph 103.3(6)*"f"*(3)"1" must be submitted to the department and placed in the facility's official files prior to the receipt of waste or prior to the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or, in the case of corrective action, not later than 120 days after the corrective action plan is approved by the department.

3. After the initial submission of the required items and their placement in the facility's official files, the local government owner or operator must update the information and place the updated information in the facility's official files within 180 days following the close of the owner's or operator's fiscal year.

4. The owner or operator may cease the submission of the information required by paragraph 103.3(6)*"f"* only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

5. A local government must satisfy the requirements of the financial test at the close of each fiscal year. If the local government owner or operator no longer meets the requirements of the local government financial test, the local government must, within 180 days following the close of the owner's or operator's fiscal year, obtain alternative financial assurance that meets the requirements of this rule, place the required submissions for that assurance in the operating record, and notify the department that the owner or operator no longer meets the criteria of the financial test and that alternative financial assurance has been obtained.

6. The department, based on a reasonable belief that the local government owner or operator may no longer meet the requirements of the local government financial test, may require additional reports of financial conditions from the local government. If the department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of the local government financial test, the local government must provide alternative financial assurance in accordance with this rule

(4) Calculation of costs to be assured. The portion of the closure, postclosure, and corrective action costs which an owner or operator may assure under this paragraph is determined as follows:

1. If the local government owner or operator does not assure other environmental obligations through a financial test, the owner or operator may assure closure, postclosure, and corrective action costs that equal up to 43 percent of the local government's total annual revenue.

2. If the local government assures other environmental obligations through a financial test, including those associated with UIC facilities under 40 CFR Section 144.62, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, the owner or operator must add those costs to the closure, postclosure, and corrective action costs it seeks to assure under this paragraph. The total that may be assured must not exceed 43 percent of the local government's total annual revenue.

3. The owner or operator must obtain an alternative financial assurance instrument for those costs that exceed the limits set in numbered paragraphs 103.3(6)*"f"*(4)"1" and "2."

g. Corporate guarantee.

(1) An owner or operator may meet the requirements of this paragraph by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator. The guarantor must meet the requirements for owners or operators in paragraph 103.3(6)*"e"* and must comply with the terms of the guarantee. A certified copy of the guarantee must be placed in the facility's operating record along with copies of the letter from a certified public accountant and the accountant's opinions. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the certified public accountant must describe the value received in consideration of the guarantee. If the guarantor is an owner or operator with a ``substantial business relationship" with the owner or operator, this letter must describe this ``substantial business relationship" and the value received in consideration of the guarantee.

(2) The guarantee must be effective and all required submissions made to the department prior to the initial receipt of waste or before cancellation of an alternative financial mechanism, in the case of closure and postclosure; or, in the case of corrective action, no later than 120 days after the corrective action plan has been approved by the department.

(3) The terms of the guarantee must provide that:

1. If the owner or operator fails to perform closure, postclosure, or corrective action of a facility covered by the guarantee, or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to numbered paragraphs 103.3(6)*"g"*(3)"2" and "3," the guarantor will:

- Perform, or pay a third party to perform, closure, postclosure, or corrective action as required (performance guarantee); or
- Establish a fully funded trust fund as specified in paragraph 103.3(6)*"a"* in the name of the owner or operator (payment guarantee); or
- Obtain alternative financial assurance as required by numbered paragraph 103.3(6)*"g"*(3)"3."

2. The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this rule unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts

3. If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of the establishment of a fully funded trust fund pursuant to paragraph 103.3(6)*"a."* If the owner or operator fails to comply with the provisions of this numbered paragraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the corporate guarantee.

(4) If a corporate guarantor no longer meets the requirements of paragraph 103.3(6)*"e,"* the owner or operator must, within 90 days, obtain alternative financial assurance and submit proof of alternative financial assurance to the department. If the owner or operator fails to provide alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

(5) The owner or operator is no longer required to meet the requirements of paragraph 103.3(6)*"g"* upon the submission to the department of proof of the substitution of alternative financial assurance or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

h. Local government guarantee. An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E. The guarantor must meet the requirements of the local government financial test in paragraph 103.3(6)*"f"* and must comply with the terms of a written guarantee.

(1) Terms of the written guarantee. The guarantee must be effective before the initial receipt of waste or before the cancellation of alternative financial assurance, in the case of closure and postclosure; or no later than 120 days after the corrective action plan is approved by the department. The guarantee must provide that:

1. If the owner or operator fails to perform closure, postclosure, or corrective action of a facility covered by the guarantee or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to numbered paragraphs 103.3(6)*"h"*(1)"2" and "3," the guarantor will:

- Perform, or pay a third party to perform, closure, postclosure, or corrective action as required; or
- Establish a fully funded trust fund as specified in paragraph 103.3(6)*"a"* in the name of the owner or operator; or
- Obtain alternative financial assurance as required by numbered paragraph 103.3(6)*"h"*(1)"3."

2. The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this rule unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

3. If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of the establishment of a fully funded trust fund pursuant to paragraph 103.3(6)*"a."* If the owner or operator fails to comply with the provisions of this numbered paragraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the guarantee.

(2) Record-keeping and reporting requirements.

1. The owner or operator must submit to the department a certified copy of the guarantee along with the items required under subparagraph 103.3(6)*"f"*(3) and place a copy in the facility's official files before the initial receipt of waste or before cancellation of alternative financial assurance, whichever is later, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department.

2. The owner or operator shall no longer be required to submit the items specified in numbered paragraph 103.3(6)*"h"*(2)"1" when proof of alternative financial assurance has been submitted to the

department or the owner or operator is no longer required to provide financial assurance pursuant to this rule.

3. If a local government guarantor no longer meets the requirements of paragraph 103.3(6)*"f,"* the owner or operator must, within the 90-day period, submit to the department proof of alternative financial assurance. If the owner or operator fails to obtain alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

i. Local government dedicated fund. The owner or operator of a publicly owned CCR landfill or a local government serving as a guarantor may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by establishing a dedicated fund or account that conforms to the requirements of this paragraph. A dedicated fund will be considered eligible if it complies with subparagraph 103.3(6)*"i"*(1) or (2) below, and all other provisions of this paragraph, and if documentation of this compliance has been submitted to the department.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, or order to pay for closure, postclosure, or corrective action costs that arise from the operation of the CCR landfill and shall be funded for the full amount of coverage or funded for part of the required amount of coverage and used in combination with another mechanism(s) that provides the remaining coverage.

(2) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, or order as a reserve fund and shall be funded for no less than the full amount of coverage or funded for part of the required amount of coverage and used in combination with another mechanism(s) that provides the remaining coverage.

(3) Payments into the dedicated fund must be made annually by the owner or operator for ten years or over the permitted life of the CCR landfill, whichever is shorter, in the case of a dedicated fund for closure or postclosure; or over one-half of the estimated length of an approved corrective action plan in the case of a response to a known release. This is referred to as the pay-in period. The initial payment into the dedicated fund must be made before the initial receipt of waste in the case of closure and postclosure or no later than 120 days after the corrective action plan has been approved by the department.

(4) For a dedicated fund used to demonstrate financial assurance for closure and postclosure, the first payment into the dedicated fund must be at least equal to the amount specified in subrule 103.3(8), divided by the number of years in the pay-in period as defined in paragraph 103.3(6)*"i."* The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{CE - CB}{Y}$$

where CE is the total required financial assurance for the owner or operator, CB is the current balance of the fund, and Y is the number of years remaining in the pay-in period.

(5) For a dedicated fund used to demonstrate financial assurance for corrective action, the first payment into the dedicated fund must be at least one-half of the current cost estimate, divided by the number of years in the corrective action pay-in period as defined in paragraph 103.3(6)*"i."* The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{RB - CF}{Y}$$

where RB is the most recent estimate of the required dedicated fund balance, which is the total cost that will be incurred during the second half of the corrective action period, CF is the current amount in the dedicated fund, and Y is the number of years remaining in the pay-in period.

(6) The initial payment into the dedicated fund must be made before the initial receipt of waste or within 30 days of close of the first fiscal year that begins after October 31, 2007, in the case of existing facilities; before the cancellation of an alternative financial assurance mechanism in the case of closure

and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department.

(7) After the pay-in period has been completed, the dedicated fund shall be adjusted annually to correct any deficiency of the fund with respect to the adjusted cost estimate and may be adjusted annually should the balance in the fund exceed the adjusted cost estimate.

103.3(7) *General requirements.*

a. Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this rule by establishing more than one financial mechanism per facility. The mechanisms must be a combination of those mechanisms outlined in this rule and must provide financial assurance for an amount at least equal to the current cost estimate for closure, postclosure, or corrective action, whichever is applicable. The financial test and a guarantee provided by a corporate parent, sibling or grandparent shall not be combined if the financial statements of the two entities are consolidated.

b. Use of one mechanism for multiple facilities. An owner or operator may satisfy the requirements of this rule for multiple CCR landfills by the use of one mechanism if the owner or operator ensures that the mechanism provides financial assurance for an amount at least equal to the current cost estimates for closure, postclosure, or corrective action, whichever is applicable, for all CCR landfills covered.

c. Criteria. The language of the financial assurance mechanisms listed in this rule must ensure that the instruments satisfy the following criteria:

(1) The financial assurance mechanisms must ensure that the amount of funds assured is sufficient to cover the costs of closure, postclosure, or corrective action for known releases, whichever is applicable;

(2) The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed;

(3) The financial assurance mechanisms must be obtained by the owner or operator prior to the initial receipt of solid waste and no later than 120 days after the corrective action remedy has been approved by the department until the owner or operator is released from the financial assurance requirements; and

(4) The financial assurance mechanisms must be legally valid, binding, and enforceable under Iowa law.

d. No permit shall be issued by the department pursuant to Iowa Code section 455B.305 unless the applicant has demonstrated compliance with rule 103.3(455B).

103.3(8) *Amount of required financial assurance.* A financial assurance mechanism established pursuant to subrule 103.3(6) shall be in the amount of the third-party cost estimates required by subrules 103.3(3), 103.3(4), and 103.3(5) except that the amount of the financial assurance may be reduced by the sum of the cash balance in a trust fund or local government dedicated fund plus the current value of investments held by said trust fund or local government dedicated fund if invested in one or more of the investments listed in Iowa Code section 12B.10(5).

These rules are intended to implement Iowa Code section 455B.304.

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CHAPTER 104
SANITARY DISPOSAL PROJECTS WITH PROCESSING FACILITIES

[Prior to 7/1/83, DEQ Ch 29]
[Prior to 12/3/86, Water, Air and Waste Management[900]]
[Prior to 6/12/02, see also 567—Ch 106]

567—104.1(455B) Scope and applicability. Any sanitary disposal project utilizing any of the equipment described in this chapter shall comply with the requirements for that equipment set out in this chapter, in addition to the requirements of 567—Chapter 102. If a composting process is to be used, the contents of 567—Chapter 105 are applicable.

104.1(1) Detailed engineering drawings of the sanitary disposal project shall be submitted showing all conveyor lines, holding areas, loading and unloading areas, transfer points, and initial and permanent roads, buildings and equipment to be installed, unloading and holding areas, fences and gates, landscaping and screening devices, personnel and maintenance facilities, sewer and water lines, lines of flow for all waste and salvaged materials.

104.1(2) Design specifications for all equipment shall be as follows:

a. All equipment which may be cleaned by washing shall be installed on reasonably smooth impermeable floors so designed as to be easily cleaned and having drainage to a sanitary sewer unless other acceptable provisions are made to control process water or washwater.

b. All equipment shall be so designed as to prevent spilling of waste and to be easily cleaned and shall be adequately enclosed so as to prevent blowing of dust or litter or wetting of the waste from precipitation or runoff.

567—104.2(455B) Dumping or holding floors or pits.

104.2(1) All unloading area surfaces shall be constructed of impervious, reasonably smooth material so designed as to be easily cleaned, with drainage to a sanitary sewer.

104.2(2) All unloading areas shall have a storage capacity of at least one day's processing capacity.

104.2(3) All unloading areas shall be adequately enclosed and roofed so as to prevent blowing of dust or litter and to prevent precipitation or drainage onto any accumulated waste.

567—104.3(455B) Compaction equipment. All compactors shall be located on reasonably smooth impermeable aprons so designed as to control wash water and area runoff, be easily cleaned, and avoid creation of fly or rodent habitats.

567—104.4(455B) Hammermills.

104.4(1) All hammermills shall be equipped with adjustable water spray or other dust suppression equipment.

104.4(2) All hammermills shall be provided with fire and explosion control or suppression devices or equipment.

104.4(3) Solid waste which cannot be processed by the hammermill or is rejected by it shall be stored in enclosed leakproof containers.

567—104.5(455B) Hydropulping or slurrying equipment. All solid waste which cannot be processed by such equipment or is rejected by it shall be stored in enclosed leakproof containers.

567—104.6(455B) Air classifiers. All air classifiers shall be equipped with dust suppression equipment unless air is recirculated.

567—104.7(455B) Metals separation equipment.

104.7(1) Metals separation equipment shall be installed at that point in the process which minimizes possible organic contamination of the metal.

104.7(2) Provisions shall be made for storage of separated materials in enclosed leakproof containers.

567—104.8(455B) Sludge processing.

104.8(1) If introduced to solid waste, sludges shall be introduced after any resource recovery operation.

104.8(2) Sludge addition equipment and storage facilities shall be sanitary and odor free.

567—104.9(455B) Storage containers and facilities.

104.9(1) *Storage of solid waste.*

a. Containers used for the storage of all solid wastes except salvaged materials but including refuse-derived fuels shall be covered, leakproof, durable and of easily cleanable construction.

b. Facilities used for the storage of all solid wastes except municipal sewage sludge and salvaged materials but including refuse-derived fuels shall be constructed as follows:

(1) Storage facilities shall have a smooth, impervious, easily cleaned base.

(2) Storage facilities shall provide leachate collection.

(3) Storage facilities shall prevent runoff entering the facility from adjacent areas.

(4) Storage facilities shall be enclosed to prevent blowing litter and roofed to prevent precipitation into any solid waste.

c. Facilities used for the storage of municipal sewage sludge shall be constructed as follows:

(1) Storage facilities shall have a smooth, impervious, easily cleaned base.

(2) Storage facilities shall provide leachate monitoring and collection. The executive director may accept contingency plans in lieu of an installed collection system.

(3) Storage facilities shall prevent runoff entering the facility from adjacent areas.

(4) Storage facilities shall be designed and constructed to prevent odor, litter, leaching and vector problems. The acceptability of any such facility shall be based on the materials being stored, duration of storage and conditions to be experienced.

104.9(2) *Storage of salvaged materials.* Containers and facilities used for the storage of salvaged materials shall be designed and constructed to prevent odor, litter, leaching and vector problems. The acceptability of any such container shall be based on the materials being stored, duration of storage and conditions to be experienced.

567—104.10(455B) Operating requirements for all processing facilities. All sanitary disposal projects with processing facilities shall be operated in conformance with 567—Chapter 102 and this rule. The plan submitted shall detail how the facility will comply with these requirements.

104.10(1) All equipment shall be cleaned daily unless the department approves less frequent cleaning on a specific schedule stipulating component part, cleaning method, and schedule.

104.10(2) Sewage sludge shall not be handled in such a manner as to present a health hazard or potential source of pollution.

104.10(3) All solid waste processed or rejected by the facility shall be disposed in conformance with these rules.

104.10(4) Emergency access shall be provided to the material in solid waste storage facilities.

104.10(5) Storage time.

a. Solid waste. Solid waste, except for composted materials, but including refuse-derived fuels shall not be stored on the site for more than 72 hours.

b. Rescinded IAB 10/17/90, effective 11/21/90.

104.10(6) Solid waste shall be unloaded at the operating areas only when an operator is on duty at that area. Solid waste may be deposited in storage containers inside the site under the supervision of an attendant or operator.

104.10(7) The operating area for solid waste shall be as small as practicable and shall be surrounded with appropriate barriers to prevent litter from blowing beyond the operating area.

104.10(8) The site shall be fenced to control access and a gate shall be provided at the entrance to the site and kept locked when an attendant or operator is not on duty.

104.10(9) A copy of the permit, engineering plans and reports shall be kept at the site at all times.

104.10(10) Sites not open to the public shall have a permanent sign posted at the site entrance specifying:

a. Name of operation.

b. The site permit number.

c. That the site is not open to the public.

d. The name and telephone number of the responsible official.

567—104.11(455B) Closure requirements. All sanitary disposal projects with processing facilities shall close in conformance with their approved closure plan, this rule, and the requirements of 567—Chapter 102.

104.11(1) All equipment, storage facilities, holding areas, and drainage collection systems shall be cleaned and decontaminated.

104.11(2) All processed waste, stored waste and waste from cleaning and decontaminating the facility shall be removed and disposed of in a permitted disposal facility.

104.11(3) Disposal projects with processing facilities may be required to obtain a closure permit, described in 567—subrule 102.2(4), dependent upon the potential of the closed facility for environmental impact.

567—104.12 to **104.20** Reserved.

RECYCLING OPERATIONS

[Prior to 7/1/83, DEQ Ch 31]

[Prior to 12/3/86, Water, Air and Waste Management[900]]

[Prior to 6/12/02, 567—Ch 106]

567—104.21(455B) Specific design requirements. The plans required in 567—102.12(455B) shall include a complete description of initial and permanent roads, buildings and equipment to be installed; unloading and holding areas; fences and gates; landscaping and screening devices; personnel and maintenance facilities; sewer and water lines; the method of processing reclaimed salvageable materials, the disposition of such materials, the transfer points to which they will be moved, capacities of such points, and frequency of interchange shall be shown.

567—104.22(455B) Specific operating requirements for all recycling operations. The plans required in 567—102.12(455B) shall detail the means by which the following requirements will be complied with.

104.22(1) Material which cannot be recycled or removed during processing shall be handled in a manner which will not create pollution or a nuisance and shall be disposed of by another method provided in these rules.

104.22(2) Solid waste shall be unloaded at the operating areas only when an operator is on duty at that area. Solid waste may be deposited in storage containers inside the site under the supervision of an attendant or operator.

104.22(3) The operating area for solid waste shall be as small as practicable and shall be surrounded with appropriate barriers to prevent litter from blowing beyond the operating area.

104.22(4) The site shall be fenced to control access and a gate shall be provided at the entrance to the site and kept locked when an attendant or operator is not on duty.

104.22(5) A copy of the permit, engineering plans and reports shall be kept at the site at all times.

104.22(6) Sites not open to the public shall have a permanent sign posted at the site entrance specifying:

a. Name of operation.

b. The site permit number.

c. That the site is not open to the public.

d. The name and telephone number of the responsible official.

These rules are intended to implement Iowa Code section 455B.304.

567—104.23(455B) Recycling operations processing paper, cans, and bottles. Recycling operations which handle only paper, cans, and bottles are exempt from 104.21(455B) and 104.22(455B), and 567—Chapters 102 and 104 if the operation has no mechanical processing facilities or if the operation receives on average less than two tons of paper, cans, and bottles per day. Such operations shall submit the following information to the department for distribution to the public: address or legal description of site, organization operating the facility, name and telephone number of the responsible official of the facility, type of waste to be handled, operating days and hours.

567—104.24(455B) Closure requirements. All recycling operations shall be closed in conformance with their approved closure plan, this rule, rule 567—104.11(455B), and the requirements of 567—Chapter 102.

[1]**567—104.25(455B) Operator certification.** Solid waste incinerator operators shall be trained, tested, and certified by a department-approved certification program.

104.25(1) A solid waste incinerator operator shall be on duty during all hours of operation of a solid waste incinerator, consistent with the respective certification.

104.25(2) To become a certified operator, an individual shall complete a basic operator training course that has been approved by the department or alternative, equivalent training approved by the department and shall pass a departmental examination as specified by this rule. An operator certified by another state may have reciprocity subject to approval by the department.

104.25(3) A solid waste incinerator operator certification is valid from the date of issuance until June 30 of the following even-numbered year.

104.25(4) Basic operator training course. The required basic operator training course for a certified solid waste incinerator operator shall have at least 12 contact hours and shall address the following areas, at a minimum:

a. Description of types of wastes;

b. Incinerator design;

c. Interpreting and using engineering plans;

d. Incinerator operations;

e. Environmental monitoring;

f. Applicable laws and regulations;

g. Permitting processes;

h. Incinerator maintenance;

i. Ash and residue disposal.

104.25(5) Alternative basic operator training must be approved by the department. It shall be the applicant's responsibility to submit any documentation the department may require to evaluate the equivalency of alternative training.

104.25(6) Fees.

a. The examination fee for each examination is $20.

b. The initial certification fee is $8 for each one-half year of a two-year period from the date of issuance to June 30 of the next even-numbered year.

c. The certification renewal is $24.

d. The penalty fee is $12.

104.25(7) Examinations.

a. The operator certification examinations will be based on the basic operator training course curriculum.

b. All persons wishing to take the examination required to become a certified operator of a solid waste incinerator shall complete the Operator Certification Examination Application, Form 542-1354. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate the basic operator training course taken. Evidence of training course completion must be submitted with the application for certification. The completed application and the application fee shall be sent to the department addressed to 502 East 9th Street, Des

Moines, Iowa 50319. Application for examination must be received by the department at least 30 days prior to the date of examination.

c. A properly completed application for examination shall be valid for one year from the date the application is approved by the department.

d. Upon failure of the first examination, the applicant may be reexamined at the next scheduled examination. Upon failure of the second examination, the applicant shall be required to wait a period of 180 days before taking a subsequent examination.

e. Upon each reexamination when a valid application is on file, the applicant shall submit to the department the examination fee at least ten days prior to the date of examination.

f. Failure to successfully complete the examination within one year from the date of approval of the application shall invalidate the application.

g. Completed examinations will be retained by the department for a period of one year after which they will be destroyed.

h. Oral examinations may be given at the discretion of the department.

104.25(8) Certification.

a. All operators who passed the operator certification examination by July 1, 1991, are exempt from taking the required operator training course. Beginning July 1, 1991, all operators will be required to take the basic operator training course and pass the examination in order to become certified.

b. Application for certification must be received by the department within 30 days of the date the applicant receives notification of successful completion of the examination. All applications for certification shall be made on a form provided by the department and shall be accompanied by the certification fee.

c. Applications for certification by examination which are received more than 30 days but less than 60 days after notification of successful completion of the examination shall be accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days of notice of successful completion of the examination will not be certified on the basis of that examination.

d. For applicants who have been certified under other state mandatory certification programs, the equivalency of which has been previously reviewed and accepted by the department, certification without examination will be recommended.

e. For applicants who have been certified under voluntary certification programs in other states, certification will be considered. The applicant must have successfully completed a basic operator training course and an examination generally equivalent to the Iowa examination. The department may require the applicant to successfully complete the Iowa examination.

f. Applicants who seek Iowa certification pursuant to paragraph 104.25(8)*"d"* or 104.25(8)*"e"* shall submit an application for examination accompanied by a letter requesting certification pursuant to this subrule. Application for certification pursuant to this subrule shall be received by the department in accordance with paragraphs 104.25(8)*"b"* and 104.25(8)*"c."*

104.25(9) Renewals. All certificates shall expire every two years, on even-numbered years, and must be renewed every two years to maintain certification. Application and fee are due prior to expiration of certification.

a. Late application for renewal of a certificate may be made provided that such late application shall be received by the department or postmarked within 30 days of the expiration of the certificate. Such late application shall be on forms provided by the department and accompanied by the penalty fee and the certification renewal fee.

b. If a certificate holder fails to apply for renewal within 30 days following expiration of the certificate, the right to renew the certificate automatically terminates. Certification may be allowed at any time following such termination, provided that the applicant successfully completes an examination. The applicant must then apply for certification in accordance with subrule 104.25(8).

c. An operator may not continue to operate a solid waste incinerator after expiration of a certificate without renewal thereof.

d. Continuing education must be earned during the two-year certification period. All certified operators must earn ten contact hours per certificate during each two-year period. The two-year period will begin upon certification.

e. Only those operators fulfilling the continuing education requirements before the end of each two-year period will be allowed to renew their certificates. The certificates of operators not fulfilling the continuing education requirements shall be void upon expiration, unless an extension is granted.

f. All activities for which continuing education credit will be granted must be related to the subject matter of the particular certificate to which the credit is being applied.

g. The department may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to three months within which the applicant may fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator which prevent attendance at the required activities. All requests for extensions must be made 60 days prior to expiration of certification.

h. The certified operator is responsible for notifying the department of the continuing education credits earned during the period. The continuing education credits earned during the period shall be shown on the application for renewal.

i. A certified operator shall be deemed to have complied with the continuing education requirements of this rule during periods that the operator serves honorably on active duty in the military service; or for periods that the operator is a resident of another state or district having a continuing education requirement for operators and meets all the requirements of that state or district for practice there; or for periods that the person is a government employee working as an operator and is assigned to duty outside of the United States; or for other periods of active practice and absence from the state approved by the department.

104.25(10) Discipline of certified operators.

a. Disciplinary action may be taken on any of the following grounds:

(1) Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified operator. Duties of certified operators include compliance with rules and permit conditions applicable to incinerator operation.

(2) Failure to submit required records of operation or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

(3) Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

b. Disciplinary sanctions allowable are:

(1) Revocation of a certificate.

(2) Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional education or training or reexamination may be required as a condition of probation.

c. The procedure for discipline is as follows:

(1) The department shall initiate disciplinary action. The commission may direct that the department investigate any alleged factual situation that may be grounds for disciplinary action under paragraph 104.25(10)*"a"* and report the results of the investigation to the commission.

(2) A disciplinary action may be prosecuted by the department.

(3) Written notice shall be given to an operator against whom disciplinary action is being considered. The notice shall state the informal and formal procedures available for determining the matter. The operator shall be given 20 days to present any relevant facts and indicate the operator's position in the matter and to indicate whether informal resolution of the matter may be reached.

(4) An operator who receives notice shall communicate verbally, in writing, or in person with the department, and efforts shall be made to clarify the respective positions of the operator and department.

(5) The applicant's failure to communicate facts and positions relevant to the matter by the required date may be considered when appropriate disciplinary action is determined.

(6) If agreement as to appropriate disciplinary sanction, if any, can be reached with the operator and the commission concurs, a written stipulation and settlement between the department and the operator shall be entered into. The stipulation and settlement shall recite the basic facts and violations alleged, any facts brought forth by the operator, and the reasons for the particular sanctions imposed.

(7) If an agreement as to appropriate disciplinary action, if any, cannot be reached, the department may initiate formal hearing procedures. Notice and formal hearing shall be in accordance with 561—Chapter 7 related to contested and certain other cases pertaining to licensee discipline.

104.25(11) Revocation of certificates. Upon revocation of a certificate, application for certification may be allowed after two years from the date of revocation. Any such applicant must successfully complete an examination and be certified in the same manner as a new applicant.

104.25(12) A temporary operator of a solid waste incinerator may be designated for a period of six months when an existing certified operator is no longer available to the facility. The facility must make application to the department, explain why a temporary certification is needed, identify the temporary operator, and identify the efforts which will be made to obtain a certified operator. A temporary operator designation shall not be approved for greater than a six-month period except for extenuating circumstances. In any event, not more than one six-month extension to the temporary operator designation may be granted. Approval of a temporary operator designation may be rescinded for cause as set forth in subrule 104.25(10).

[1] October 1, 2007, effective date of rule 567—104.25(455B) was delayed 70 days by the Administrative Rules Review Committee at its meeting held September 11, 2007.

567—104.26(455D) Financial assurance for solid waste processing facilities. Permitted solid waste processing facilities must obtain and submit a financial assurance instrument to the department for preprocessed and postprocessed waste storage in accordance with this rule. The financial assurance instrument shall provide monetary funds to properly dispose of any materials that may remain at a facility due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

104.26(1) *No permit without financial assurance.* The department shall not issue or renew a permit to an owner or operator of a solid waste processing facility until a financial assurance instrument has been submitted to and approved by the department.

104.26(2) *Proof of compliance.* Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted to the department by July 1, 2008, or at the time of application for a permit for a new solid waste processing facility or application for a permit renewal, whichever occurs first. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

104.26(3) *Use of one financial assurance instrument for multiple permitted activities.* Solid waste processing facilities required to maintain financial assurance pursuant to any other provisions of 567—Chapters 100 to 123 may satisfy the requirements of this rule by the use of one financial assurance instrument if the permit holder ensures that the instrument provides financial assurance for an amount at least equal to the current cost estimates for closure of all sanitary disposal project activities covered.

104.26(4) *Financial assurance amounts required.* The estimate submitted to the department must be certified by an Iowa-licensed professional engineer and must account for at least the following factors determined by the department to be minimal necessary costs for closure:

a. The cost of hiring a third party to properly clean and decontaminate all equipment, storage facilities, holding areas and drainage collection systems pursuant to subrule 104.11(1). This estimate shall include the cost of properly disposing of a one-week volume of washwater from the processing facility. If the facility utilizes washwater storage tanks, then this estimate shall assume that the storage tanks are full and add that volume to the one-week volume.

b. Third-party labor and transportation costs and total tip fees to properly dispose of all preprocessed and postprocessed waste equal to the maximum storage capacity of the processing facility

pursuant to subrule 104.11(2). If materials are temporarily stored on site in transportation vehicles or waste receptacles, then this estimate shall include disposal costs for the maximum number of transportation vehicles and waste receptacles that can be on site at any one time.

c. The costs for maintaining financial assurance pursuant to any other provisions of 567—Chapters 100 to 123, if any, in accordance with subrule 104.26(3).

104.26(5) *Acceptable financial assurance instruments.* The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with subrule 104.26(4) and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. Financial assurance may be provided by cash in the form of a secured trust fund or local government dedicated fund, surety bond, letter of credit, or corporate or local government guarantee as follows:

a. *Secured trust fund.* The owner or operator of a solid waste processing facility or entity serving as a guarantor may demonstrate financial assurance for closure by establishing a secured trust fund that conforms to the requirements of this paragraph.

(1) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The fund shall be restricted for the sole purpose of funding closure activities at the facility, and a copy of the trust agreement must be submitted to the department and placed in the facility's official files.

(2) A secured trust fund shall name the department of natural resources as the entity authorized to draw funds from the trust, subject to the provision of proper notification to the trust officer of failure by the permittee to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) Moneys in the fund shall not be assigned for the benefit of creditors with the exception of the state.

(4) Moneys in the fund shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

(5) The owner or operator or another person authorized to conduct closure activities may request reimbursement from the trustee for closure expenditures as they are incurred. Requests for reimbursement shall be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure and if documentation of the justification for reimbursement has been submitted to the department for prior approval.

(6) If the balance of the trust fund exceeds the current cost estimate for closure at any time, the owner or operator may request withdrawal of the excess funds from the trustee so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

b. *Local government dedicated fund.* The owner or operator of a publicly owned solid waste processing facility or a local government serving as a guarantor may demonstrate financial assurance for closure by establishing a dedicated fund that conforms to the requirements of this paragraph.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, resolution or order as a restricted fund to pay for closure costs arising from the operation of the solid waste processing facility.

(2) A copy of the document establishing the dedicated fund must be submitted to the department and placed in the facility's official files.

(3) If the balance of the dedicated fund exceeds the current cost estimate for closure at any time, the owner or operator may withdraw excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

c. *Surety bond.* A surety bond must be written by a company authorized by the commissioner of insurance to do business in the state. The surety bond shall comply with the following:

(1) The bond shall be in a form approved by the commissioner of insurance and shall be payable to the department of natural resources.

(2) The bond shall be specific to a particular facility for the purpose of properly disposing of any preprocessed and postprocessed waste that may remain on site due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) The owner or operator shall provide the department with a statement from the surety with each permit application renewal, noting that the bond is paid and current for the permit period for which the owner or operator has applied for renewal.

d. Letter of credit. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(1) The owner or operator must submit to the department a copy of the letter of credit and place a copy in the facility's official files.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 90 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a secured trust fund that meets the requirements of paragraph 104.26(5)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the secured trust fund established by the owner or operator. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

e. Corporate guarantee. An owner or operator may meet the requirements of this rule by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 104.26(5)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following three conditions:

1. A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or

2. A ratio of less than 1.5 comparing total liabilities to net worth; or

3. A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities.

(3) The tangible net worth of the guarantor must be greater than the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(4) The guarantor must have assets amounting to at least the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(5) Record-keeping and reporting requirements. The guarantor must submit the following records to the department and place a copy in the facility's official files:

1. A copy of the written guarantee between the owner or operator and the guarantor.

2. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a guarantee including, but not limited to, cost estimates required by subrule 104.26(4); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40

CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and

- Provides evidence demonstrating that the guarantor meets the conditions of subparagraphs 104.26(5)*"e"*(2), (3) and (4).

3. A copy of the independent certified public accountant's unqualified opinion of the guarantor's financial statements for the latest completed fiscal year. In order for the guarantor to be eligible to use the guarantee, the guarantor's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this instrument. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate guarantee, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

f. Local government guarantee. An owner or operator may demonstrate financial assurance for closure by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 104.26(5)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following requirements:

1. If the guarantor has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the guarantor must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or

2. The guarantor must satisfy each of the following financial ratios based on the guarantor's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

(3) The guarantor must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

(4) A guarantor is not eligible to assure its obligations if:

1. The guarantor is currently in default on any outstanding general obligation bonds; or

2. The guarantor has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or

3. The guarantor operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or

4. The guarantor receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement. A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism; or

5. The closure costs to be assured are greater than 43 percent of the guarantor's total annual revenue.

(5) The local government guarantor must include disclosure of the closure costs assured through the guarantee in its next annual audit report prior to the initial receipt of waste at the facility or prior to cancellation of an alternative financial assurance instrument, whichever is later. For the first year the guarantee is used to assure costs at a particular facility, the reference may instead be placed in the

guarantor's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(6) The local government owner or operator must submit to the department the following items:

1. A copy of the written guarantee between the owner or operator and the local government serving as guarantor for the closure costs at the facility.

2. A copy of the guarantor's most recent annual financial audit report indicating compliance with the financial ratios required by numbered paragraph 104.26(5)*"f"*(2)"2," if applicable, and the requirements of subparagraphs 104.26(5)*"f"*(3) and (4).

3. A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by the guarantor, as described in subrule 104.26(4); and that provides evidence and certifies that the local government meets the conditions of subparagraphs 104.26(5)*"f"*(2), (3), (4) and (5).

104.26(6) *Financial assurance cancellation and permit suspension.*

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance prior to cancellation, as specified in this rule, or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider or until the department gives written notification to the owner, operator, and financial assurance provider that the covered site has been properly closed. The financial assurance provider shall give at least 90 days' notice in writing to the owner or operator and the department in the event of any intent to cancel the instrument.

c. Within 60 days of receipt of a written notice of cancellation of financial assurance by the financial assurance provider, the owner or operator must provide the department an alternative financial assurance instrument. If a means of continued financial assurance is not provided within that 60 days, the department shall suspend the permit.

d. The owner or operator shall perform proper closure within 30 days of the permit suspension. For the purpose of this rule, "proper closure" means completion of all items pursuant to rule 104.11(455B) and subrule 104.26(4).

e. If the owner or operator does not properly close the site within the 30-day period allowed, the department shall file a claim with the financial assurance instrument provider to collect the amount of funds necessary to properly close the site.

f. An owner or operator who elects to terminate a permitted activity, whose renewal application has been denied, or whose permit has been suspended or revoked for cause must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 60 days from the date of termination of the permit.

g. The director may also request payment from any financial assurance provider for the purpose of completing closure when the following circumstances exist:

(1) The owner or operator is more than 15 days late in providing a schedule for closure or for meeting any date in the schedule for closure.

(2) The owner or operator declares an economic inability to comply with this rule, either by sending written notification to the director or through an action such as, but not limited to, filing for bankruptcy.

These rules are intended to implement Iowa Code section 455B.304.

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[2] Effective date of 567—104.25(455B) delayed 70 days by the Administrative Rules Review Committee at its meeting held September 11, 2007.

CHAPTER 105
ORGANIC MATERIALS COMPOSTING FACILITIES

567—105.1(455B,455D) General. This chapter shall apply to the composting of solid and yard wastes. Composting facilities may include vermicomposting, turned windrows, aerated static piles, aerated in-vessel systems, or other methods approved by the department. Composting facilities existing as of June 19, 2002, must comply with the requirements of this chapter within two years or by the permit renewal date, whichever is later.

105.1(1) Definitions. For the purposes of this chapter, the following definitions apply:

"Agricultural waste" means organic materials normally discarded during the production of plants and animals from agronomic, horticultural or silvicultural operations. "Agricultural waste" includes but is not limited to manure, crop residuals, bedding, and other vegetative by-products produced during farm processing. Dead animals are not included.

"Best management practices" means the practices described in the most recent version of the Compost Facility Operating Guide published by the United States Composting Council or other best management practices as approved by the department.

"Bulking agent" means a material that contributes structure and porosity, usually a dry, rigid material such as shredded wood or tire chips.

"Compostable" means an organic material that undergoes degradation by biological processes during composting to yield carbon dioxide, water, inorganic compounds and biomass.

"Compostable plastics" means a plastic that undergoes degradation by biological processes at a rate consistent with other known compostable materials and leaves no visually distinguishable or toxic residue. Testing according to ASTM D6400-00 criteria should be used to designate compostable plastics.

"Composting" means the accelerated biological decomposition of organic matter under managed aerobic conditions resulting in a stable, innocuous final product.

"Composting facility" means all related receiving, processing, production, curing, and storage areas and necessary roads, buildings, equipment, litter control devices, pollution control devices, fire control devices, landscaping, gates, personnel and maintenance facilities, sewer and water lines, and process water.

"Compost leachate" means a liquid that has percolated through or drained from compost.

"Compost maturity," according to Test Methods for the Examination of Composting and Compost (TMECC), means an organo-chemical state of compost that indicates the presence or lack of organic phytotoxic chemicals in stable compost. Measurements for maturity are based on the amount of volatile fatty acids present. Mature compost will have fatty acids of no more than 2 mg/g dry weight solids or as specified in the most recent version of TMECC.

"Compost stability," according to TMECC, means a stage in the composting process when microbial activity is diminished with the corresponding decrease of available organic carbon and other energy sources. Stability is measured through respiration. Stable compost will have oxygen uptake rates in the range of 0-3.5 mg O_2/g BVS/hr. or as specified in the most recent version of TMECC.

"Cured compost" means compost that is both stable and mature according to the definitions found in this chapter.

"Curing" means a process in which compost is further monitored to control pathogen regrowth while increasing stability and maturity.

"Finished compost" means cured and, if necessary, screened or refined.

"Household organic waste" means general household compostable items such as food residuals and paper produced on premises.

"Infectious waste" means waste that is infectious, including but not limited to contaminated sharps, cultures, and stocks of infectious agents, blood and blood products, pathological waste, and contaminated animal carcasses from hospitals or research laboratories.

"Municipality" means any city or county in the state.

"Nuisance" means whatever is injurious to health, indecent, or unreasonably offensive to the senses, or an obstruction to the free use of property, so as essentially to unreasonably interfere with the

comfortable enjoyment of life or property, and a civil action by ordinary proceedings may be brought to enjoin and abate the same and to recover damages sustained on account thereof.

"Organic materials" means any material of animal or plant origin.

"Premises" means a geographically contiguous property owned by a generator or noncontiguous property owned by a generator and that is connected by a controlled right-of-way to which the public does not have access. Two or more pieces of property that are geographically contiguous and divided by public or private right-of-way are a single premises.

"Small compost facilities" means facilities meeting the requirements set forth in rule 567—105.5(455B,455D).

"Solid waste composting" means the composting of any organic material with or without yard waste. For the purposes of this chapter, facilities exempt under 567—105.2(455B,455D) are not considered solid waste composting facilities. In addition, facilities in compliance with 567—105.4(455B,455D), 567—105.5(455B,455D) or 567—105.6(455B,455D) are not considered solid waste composting facilities. Only facilities that are required to obtain or have a permit are considered solid waste composting facilities.

"Vector" means a carrier organism that is capable of transmitting a pathogen from one organism to another. Vectors include, but are not limited to, birds, rats and other rodents, and insects.

"Yard waste" means vegetative matter such as grass clippings, leaves, garden waste, brush and trees, and any clean wood waste which is necessary as bulking agent and which is free of coatings and preservatives.

105.1(2) There are three different levels of compost facility regulation:

a. Exempt operations in accordance with 567—105.2(455B,455D).

b. Permit by rule. Yard waste composting facilities are exempt from permitting if operated in conformance with 567—105.3(455B,455D) and 567—105.4(455B,455D). Facilities that compost dead farm animals are exempt from permitting if operated in conformance with 567—105.3(455B,455D) and 567—105.6(455B,455D). Small quantity solid waste compost operations as defined in 567—105.5(455B,455D) are exempt from permitting if operated in conformance with 567—105.3(455B,455D) and 567—105.5(455B,455D).

c. Solid waste composting. Solid waste composting facilities must obtain a permit from the department. Solid waste composting facilities involving municipal sewage sludge shall also operate in conformance with 567—Chapter 67.

105.1(3) Burial of yard waste at a sanitary landfill is prohibited, except in the following circumstances:

a. When the yard waste is collected for disposal as a result of a severe storm and the yard waste originates in an area declared to be a disaster area in a declaration issued by the President of the United States or the governor.

b. When the yard waste is collected for disposal to control, eradicate, or prevent the spread of insect pests, tree and plant diseases, or invasive plant species.

c. When the yard waste is disposed of in a sanitary landfill that operates a methane collection system that produces energy. A methane collection system that burns landfill gas without using the energy for a purpose other than reducing the amount of methane released is not considered to be a system that produces energy.

105.1(4) Each city and county shall, by ordinance, require persons within the city or county to separate yard waste from other solid waste generated.

105.1(5) Yard waste that has been separated at its source from other solid waste may be accepted by a sanitary landfill for the purposes of soil conditioning or composting. Yard waste accepted by a sanitary landfill for the purpose of soil conditioning shall be used only on finished areas of the landfill that have received the final earthen cover, developed areas with intermediate cover, and restoration of soil borrow areas. Burning of yard waste at a sanitary disposal project is prohibited.

105.1(6) Land application of yard waste shall be in conformance with 567—Chapter 121.

[**ARC 2692C**, IAB 8/31/16, effective 10/5/16]

567—105.2(455B,455D) Exemptions. The following projects are exempt from this chapter. This exemption is not a defense to a nuisance action brought pursuant to Iowa Code chapter 657.

105.2(1) Yard waste or household organic waste composted and used on the same premises where it originated.

105.2(2) Composting facilities involving agricultural waste, excluding dead animals, and clean wood waste which is necessary as bulking agent and which is free of coatings and preservatives. Use of any other materials as bulking agent shall require prior approval by the department. If agricultural waste is mixed with other wastes including dead animals for the purpose of composting, then this chapter shall apply unless the other wastes have been preapproved by the department as necessary as bulking agent.

105.2(3) Yard waste, household organic waste, and agricultural waste generated, composted together in any combination and used on the same premises where they originated.

567—105.3(455B,455D) General requirements for all composting facilities not exempt pursuant to 567—105.2(455B,455D). This rule applies to all composting facilities not exempt under 567—105.2(455B,455D). Facilities exempt from permitting that do not operate in accordance with this chapter may as a result be required to obtain a solid waste composting permit. Composting facilities shall also operate in accordance with all applicable city and county ordinance and permitting requirements.

105.3(1) The composting facility shall be 500 feet from any existing inhabited residence, not including the residence of the person owning/operating the compost facility, at the time the permit application was received by the department. Composting must be done outside of wetlands, at least 200 feet from public wells, 100 feet from private wells, 50 feet from property lines, and 100 feet from flowing or intermittent streams, lakes, or ponds. Composting done inside the 100-year flood plain shall be in accordance with all local and department regulations including 567—71.5(455B). Sediment ponds, engineered wetlands or other constructed waterways for the purpose of pollution control are excluded from this requirement.

105.3(2) Composting shall be performed in a manner that minimizes the formation of compost leachate by the facility.

105.3(3) Measures shall be taken to prevent water from running onto the facility from adjacent land and to prevent compost leachate and runoff from leaving the composting facility. Runoff from the composting facility must be properly managed.

105.3(4) Facilities shall be designed, constructed, and maintained so as to minimize ponding of water or liquids. Any ponding that does occur shall be corrected through routine facility maintenance within 48 hours after the termination of the event causing the ponding.

105.3(5) Composting must be done on an all-weather surface of compacted soil, compacted granular aggregates, asphalt, concrete or similar relatively impermeable material that will permit accessibility during periods of inclement weather and prevent contamination of surface water and groundwater.

105.3(6) Solid waste which cannot be composted or which is removed during processing shall be properly disposed of. Infectious waste shall not be accepted for composting at any composting facility unless approved by the department in writing.

105.3(7) Solid waste materials shall be managed through the entire process in accordance with best management practices to minimize conditions such as odors, dust, noise, litter and vectors which may create nuisance conditions or a public health hazard.

105.3(8) Storage of cured or finished compost shall be limited to 18 months. The 18-month period may be extended with prior written approval from the department.

105.3(9) If compost is offered for sale as a soil conditioner or fertilizer, the compost must be registered by the department of agriculture and land stewardship under Iowa Code chapter 200, Fertilizers and Soil Conditioners. Sale shall be in compliance with all applicable federal and state laws and local ordinances and regulations.

105.3(10) Compost shall not be applied to land, sold or given away unless the concentration of human-made inert materials such as glass, metal, and plastic is less than 1.5 percent by dry weight.

Compost shall not be applied to land, sold or given away unless the size of any human-made inert materials is less than 13 mm (0.512 inches).

567—105.4(455B,455D) Specific requirements for yard waste composting facilities. Yard waste composting facility operators are encouraged to be trained, tested, and certified by a department-approved certification program upon approval of such a program by the department.

105.4(1) Before the composting facility commences operation, the department and the field office of the department serving the composting facility's location shall be notified in writing of the following:

a. The location of the composting facility.

b. Legal description of the facility.

c. Landowner's name, telephone number, and mailing address.

d. Responsible party's name, telephone number, and mailing address.

e. Annual capacity of the facility.

f. Method of composting to be employed.

g. Source of the yard waste and any necessary bulking agent. This description must include a description of service area defined in terms of municipalities wherein sources of the material are located.

105.4(2) The facility shall have a permanent sign posted at the entrance specifying:

a. Name of operation.

b. Operating hours.

c. Materials which are accepted or the statement "All materials must have prior approval."

d. Telephone number of 24-hour emergency contact person.

105.4(3) The area of the composting facility must be large enough for the volume of yard waste composted.

105.4(4) Yard waste must be taken out of containers before composting, unless the containers are compostable.

105.4(5) Aerobic conditions shall be maintained in accordance with best management practices.

105.4(6) An annual report for the previous fiscal year beginning July 1 and ending June 30 shall be submitted to the department by July 31 of each year. The report shall be submitted using Form 542-3276C, provided by the department, and all applicable sections of the form must be completed.

These records shall be maintained by the facility for a period of three years for inspection and evaluation by the department.

567—105.5(455B,455D) Small composting facilities receiving off-premises materials. Small composting facilities are exempt from obtaining a solid waste composting permit provided the facility complies with 567—105.3(455B,455D) and 567—105.5(455B,455D).

105.5(1) *Acceptable materials and amounts.* Yard waste and food residuals may be received from off premises at a total rate of two tons or less per week for composting either singly, in combination, or with agricultural waste. Any clean wood waste free of coating and preservatives may be used as a bulking agent. The two tons per week combined weight limit does not apply to bulking agent. However, the amount of bulking agent received must be appropriate for the amount of compostable materials received. Facilities composting over two tons of food residuals and yard waste per week in any combination from off premises must obtain a permit (Form 50A (542-1542A)) and adhere to the solid waste composting requirements stipulated in 567—105.7(455B,455D) through 567—105.14(455B,455D). If only agricultural wastes are collected and composted, this rule does not apply. If only yard wastes are collected and composted, this rule does not apply.

105.5(2) *Notification.* Before the composting facility commences operation, the department and the field office of the department serving the composting facility's location shall be notified in writing of the following:

a. The location of the composting facility.

b. Legal description of the facility.

c. Landowner's name, telephone number, and mailing address.

d. Responsible party's name, telephone number, and mailing address.

e. Annual capacity of the facility.

f. Method of composting to be employed.

g. Source of the feedstock and any necessary bulking agent. This description must include a description of service area defined in terms of municipalities wherein sources of the material are located.

105.5(3) *Signage.* The facility shall have a permanent sign posted at the entrance specifying:

a. Name of operation.

b. Operating hours.

c. Materials which are accepted or the statement "All materials must have prior approval."

d. Telephone number of 24-hour emergency contact person.

105.5(4) *Reporting.* An annual report for the previous fiscal year beginning July 1 and ending June 30 shall be submitted to the department by July 31 of each year. The report shall be submitted using Form 542-3276C, provided by the department, and all applicable sections of the form must be completed.

These records shall be maintained by the facility for a period of three years for evaluation by the department.

567—105.6(455B,455D) Specific requirements for composting of dead farm animals. Operators of dead farm animal composting facilities are encouraged to be trained, tested, and certified by a department-approved certification program upon approval of such a program by the department. A facility that composts dead farm animals is exempt from permitting if the following operating requirements are met and the facility is in compliance with 567—105.3(455B,455D). Businesses or individuals that are neither the owner nor operator of any of the sites where dead farm animals are generated and that want to compost dead farm animals must obtain a permit in accordance with 567—105.8(455B,455D).

105.6(1) Before commencing operation, the operator is encouraged to notify the department field office with jurisdiction over the facility. The department may provide general assistance, such as locating bulking agents and providing advice in regard to siting considerations such as pad location, sizing and design, to facilities notifying the department and requesting assistance.

105.6(2) Farm animals known or suspected to have died from an infectious disease that can be spread by scavengers or insects or that died from a reportable disease shall be disposed of in accordance with the requirements of the Iowa department of agriculture and land stewardship and the department.

105.6(3) Transportation vehicles shall be constructed to prevent the release of mortality contaminated materials under normal operating conditions. The most direct haul route that avoids biosecurity risks shall be utilized.

105.6(4) The composting facility shall be designed to accommodate at least the average annual death loss for all sites using the composting facility. Facility design shall also take into account space requirements for managing raw materials (e.g., additional bedding and bulking agents needed for mortality composting) and finished compost.

105.6(5) Animal mortalities from a catastrophic event, such as a fire or electrical outage, shall not be composted until the department field office is contacted and arrangements are approved for the appropriate treatment or disposal of the animals. The facility shall contact the department field office with jurisdiction over the facility as soon as possible after such a catastrophic event occurs to receive approval of the disposal option.

105.6(6) Dead farm animals shall be incorporated into the composting process within 24 hours of death. An adequate base layer (from 12 to 24 inches thick, depending on the size and number of dead farm animals) with 6 to 12 inches of bulking agent between carcasses and an additional 12 inches of cover material shall be maintained around carcasses at all times to control mortality leachate and odors and to prevent access by scavenging domestic and wild animals.

105.6(7) Dead farm animals shall not be removed from composting until all soft tissue is fully decomposed.

105.6(8) Compost (including bones that have not fully decomposed) shall be applied to cropland in a manner that minimizes the runoff into a water of the state. Application of the compost to lands other than cropland shall require prior approval by the department.

567—105.7(455B,455D) Permit requirements for solid waste composting facilities.

105.7(1) *Permit required.* Solid waste composting facilities shall not be constructed or operated without a permit from the department. As part of the sanitary disposal project permit issuance procedures, these facilities must meet comprehensive planning requirements. Since these facilities serve as alternatives to landfilling, comprehensive planning requirements are minimal and are satisfied through the information provided in the permit application submittal and by compliance with the reporting requirements set forth in 567—105.12(455B,455D). If a solid waste composting facility is formally part of a planning area's integrated waste management system, the operator must participate in that area's planning activities and the facility must be included in all plan submittal documents. The issuance of a permit by the department in no way relieves the applicant of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules or other requirements applicable to the construction and operation of a solid waste composting facility.

105.7(2) *Construction and operation.* All solid waste composting facilities shall be constructed and operated according to the plans and specifications as approved by the department and the conditions of the permit. The approved plans and specifications shall constitute a term of the permit.

105.7(3) *Transfer of title and permit.* If title to a solid waste composting facility is transferred, then the department shall transfer the permit within 60 days if the department finds that the following requirements have been met:

a. The title transferee has applied in writing to the department within 30 days of the transfer of title to request a transfer of the permit.

b. The permitted facility is in compliance with the rules and conditions of the permit.

105.7(4) *Permit conditions.* Any permit may be issued subject to conditions specified in writing by the department that are necessary to ensure that the sanitary disposal project can be constructed and operated in compliance with Iowa Code chapters 455B and 455D and these rules.

105.7(5) *Effect of revocation.* If a permit held by any public or private agency for a solid waste composting facility is revoked by the director, then no new permit shall be issued to that agency for that sanitary disposal project for a period of one year from the date of revocation. This subrule shall not prohibit the issuance of a permit for the sanitary disposal project to another public or private agency.

105.7(6) *Inspection prior to commencing operation.* The department shall be notified 30 days prior to scheduled completion of a solid waste composting facility and when the construction has been completed. The department shall then complete an inspection of the facility to determine if the sanitary disposal project has been constructed in accordance with the plans and specifications and permit requirements. No solid waste shall be accepted by the facility until it has been inspected and approved by the department.

105.7(7) *Duration and renewal of permits.* Solid waste composting facility permits shall be issued for a period of three years, and are renewable for similar terms, unless otherwise specified pursuant to 105.7(5).

105.7(8) *Request for and approval of permit renewal.* Requests for permit renewals shall be in writing and must be filed at least 90 days before the expiration of the current permit and submitted on a Form 50A to the department. The department may request that additional information be submitted for review in order to make a permit renewal decision. Comprehensive plan update requirements are satisfied through the information provided in the permit renewal application submittal and by compliance with the reporting requirements set forth in 567—105.12(455B,455D). If a solid waste composting facility is formally part of a planning area's integrated waste management system, the operator must participate in that area's plan update submittals. The department shall renew the permit if, after a review and inspection of the facility and its compliance history, the department finds that the facility is in compliance with its current permit and these rules. If the facility is found not to be in compliance with its current permit and these rules, then the sanitary disposal project shall be brought into compliance, or placed on a compliance schedule approved by the department, before the permit is renewed pursuant to 105.7(5).

105.7(9) *Facility expansion.* Prior to the facility's expanding the amount or types of materials accepted, the facility shall make a request in writing and obtain approval from the department for an amendment to the permit.

105.7(10) *Process change.* Prior to a change in the facility's process, the facility shall make a request in writing and obtain approval from the department for an amendment to the permit.

567—105.8(455B,455D) Permit application requirements for solid waste composting facilities.

105.8(1) A permit application for a new facility shall include a completed Form 50A (542-1542A) and a map or aerial photograph. This map or aerial photograph shall identify:

a. The boundaries of the facility.

b. Wells, streams, creeks, rivers, ponds, sinkholes, and drainage wells.

c. North or other principal compass points.

d. Zoning and land use within one-half mile of the closest portion of the facility.

e. Haul routes to and from the facility with load limits or other restrictions.

f. Homes and buildings within one-half mile of the closest portion of the facility.

g. Section lines or other legal boundaries.

h. Any nearby runway used or planned to be used by turbojet or piston-type aircraft at FAA-certified airports.

105.8(2) Design requirements. Design documents must be prepared by an Iowa-licensed professional engineer (Iowa Code chapter 542B) and must include the following:

a. Equipment to be installed, litter control devices, pollution control devices, fire control devices, landscaping, gates, personnel and maintenance facilities, sewer and water lines, and process water, and dimensions, details, and capacities of the proposed receiving, processing, production, curing, and storage areas.

b. Design calculations justifying the size of the composting areas. The areas for composting must be adequate for the volume of solid waste being composted in accordance with best management practices.

c. Descriptions, specifications, and capacities of proposed equipment to be used in composting.

d. Flow diagram of all operating steps.

e. Composition of the operating surface. Receiving, processing, production, and curing must take place on a constructed, impervious base that can support the load of the equipment used under all weather conditions. The permeability coefficient of the base must be less than 1×10^{-7} cm/sec (0.00028 feet/day). Storage areas for cured/finished compost must permit accessibility during periods of inclement weather.

f. Dimensions, details, and capacities of storm water run-on and runoff management systems of the composting facility. The facility may need a storm water permit.

g. Proof of the applicant's ownership of the site and legal entitlement to use the site as a composting facility.

105.8(3) The operating plan shall provide the following:

a. Method of composting.

b. Duration of composting with a time frame for receiving, processing, production, curing, and storage.

c. Description of storage of raw materials including quantity and types.

d. Description of the types, amounts, and sources of wastes to be received and processed daily. This description must include a description of service area defined in terms of municipalities wherein sources of the material are located.

e. Description of the aeration method and the aeration frequency to be used to maintain aerobic conditions in accordance with best management practices.

f. Description of the methods to minimize and manage odors, dust, vectors, noise and litter.

g. Description of the specific procedures to be followed in case of equipment breakdown, maintenance downtime, and fire in equipment, composting material or buildings to include methods to be used to remove or dispose of accumulated waste and burned or damaged material.

h. Plans for using or marketing the finished compost.

i. Method(s) of disposing of collected storm water.

j. Method(s) of maintaining storm water management systems to maintain design volume and to locate and repair leaks in the system.

k. Description of the monitoring, sampling, and analysis procedures and schedule for testing the composting process and product including sampling frequency, sample size and number, and sample locations. A facility-specific time-temperature monitoring plan for pathogen kill shall be included in the operating plan.

567—105.9(455B,455D) Specific operating requirements for permitted solid waste composting facilities. In addition to the following, all permitted solid waste composting facilities shall comply with 567—105.3(455B,455D).

105.9(1) Access.

a. Access to the facility shall be restricted with a lockable gate at the entrance to the facility.

b. Access to the facility shall be allowed only when an employee, agent or representative of the facility is on duty.

c. Emergency access to the facility shall be provided. Fire lanes shall be maintained to provide access for firefighting equipment as required by the local fire department.

105.9(2) The facility shall have a permanent sign posted at the entrance specifying:

a. Name of operation.

b. Operating hours.

c. Materials which are accepted or the statement "All materials must have prior approval."

d. Telephone number of 24-hour emergency contact person.

105.9(3) All materials received must be incorporated into the composting process within 24 hours of receipt unless storage of these materials is specified in the plan and approved by the department.

105.9(4) Sample collection, preservation, and analysis must be done in a manner which ensures valid and representative results. Facilities should follow the most recent version of the Test Methods for the Examination of Composting and Compost guidelines or other testing procedures as approved by the department. Unless otherwise proposed in the operating plan and authorized in the permit, the permit holder shall test at a minimum:

a. Twice weekly temperature readings of compost piles, batches, and windrows. Compost must be held at a temperature above 55 degrees Celsius (131 degrees Fahrenheit) for an appropriate amount of time, in accordance with best management practices, in order to achieve pathogen reduction.

b. Weekly moisture levels of compost piles, batches, and windrows.

c. Testing of the finished product. Compost shall not be applied to land, sold or given away for household use unless the following requirements are met. If the following requirements are not met, compost must be applied according to 567—Chapter 121.

(1) The density of fecal coliform shall be less than 1000 most probable number (MPN) per gram of total solids (dry weight basis) or the density of Salmonella sp. bacteria in compost shall be less than three MPN per four grams of total solids (dry weight basis).

(2) The concentrations of human-made inert materials comply with 105.3(10), and the concentrations of all metals are less than the following:

Metal	Concentration mg/kg dry weight
Arsenic (As)	41
Cadmium (Cd)	39
Copper (Cu)	1500
Lead (Pb)	300
Mercury (Hg)	17
Nickel (Ni)	420
Selenium (Se)	36
Zinc (Zn)	2800

567—105.10(455B,455D) Operator certification for permitted solid waste composting facilities. All permitted solid waste composting facilities shall meet the following requirement. The person responsible for daily operation of the facility shall be certified by a department-approved program upon approval of such a program by the department. The certification must be renewed every three years.

567—105.11(455B,455D) Record-keeping requirements for solid waste composting facilities. All permitted solid waste composting facilities shall meet the following requirements. The following records shall be maintained by the facility for a period of three years and at the facility at all times and shall be submitted to the department upon request:

1. Analytical results described in 105.9(4). These results shall be recorded on a department-approved reporting form.
2. Types and weight of compostable materials and bulking agent, in tons, accepted at the facility annually.
3. Weight of compost, in tons, removed from the facility annually.
4. A copy of the plan, the permit, annual reports, and the current storm water pollution prevention plan.

567—105.12(455B,455D) Reporting requirements for solid waste composting facilities. An annual report for the previous fiscal year beginning July 1 and ending June 30 shall be submitted to the department by July 31 of each year by all permitted solid waste composting facilities. The report shall be submitted using Form 542-3276C, provided by the department, and all applicable sections of the form must be completed.

567—105.13(455B,455D) Closure requirements for solid waste composting facilities. All permitted solid waste composting facilities shall meet the following requirements. For each composting facility, a closure plan shall be submitted to the department containing a description of the steps necessary to close the facility. A permit shall not be issued unless the closure plan is approved.

105.13(1) An updated closure plan, including a schedule for closure, shall be submitted to the department at least 60 calendar days prior to the proposed termination date for the facility.

105.13(2) Unless an alternative schedule is approved by the department, within six months of the facility's ceasing operation, all waste and unfinished and finished compost shall be removed from the premises.

105.13(3) Facilities beneficially reusing material in order to comply with 105.13(2) are required to submit in written form all agreements for this reuse. This beneficial reuse shall include names of parties involved, amount of material utilized, and cost per ton. The closure plan will not be approved until these agreements are submitted to and approved by the department. The department shall also be notified of any changes in the agreements.

105.13(4) Upon closure, all permitted solid waste composting facilities shall perform the following activities:

a. Properly dispose of all organic material, solid waste and litter at the premises.

b. Lock all doors, gates, entrances, and exits.

c. Report the completion of these activities to the local political jurisdiction, the department, and the department field office serving the composting facility.

567—105.14(455B,455D) Composting facility financial assurance. Permitted solid waste composting facilities receiving more than 5,000 tons of feedstock annually, bulking agent excluded, must obtain and submit a financial assurance instrument to the department for waste materials received and stockpiled by the facility in accordance with this rule. The financial assurance instrument shall provide monetary funds to properly dispose of any preprocessed and postprocessed stockpiled materials that may remain at a facility due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

105.14(1) *No permit without financial assurance.* The department shall not issue or renew a permit to an owner or operator of a solid waste composting facility until a financial assurance instrument has been submitted to and approved by the department.

105.14(2) *Proof of compliance.* Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted to the department within 30 days of the close of the permit holder's first fiscal year that begins after June 19, 2002, or at the time of application for a permit for a new solid waste composting facility. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

105.14(3) *Use of one financial assurance instrument for multiple permitted activities.* Solid waste composting facilities required to maintain financial assurance pursuant to any other provisions of 567—Chapters 100 to 123 may satisfy the requirements of this rule by the use of one financial assurance instrument if the permit holder ensures that the instrument provides financial assurance for an amount at least equal to the current cost estimates for closure of all sanitary disposal project activities covered.

105.14(4) *Financial assurance amounts required.* The estimate submitted to the department must be certified by an Iowa-licensed professional engineer and must account for at least the following factors determined by the department to be minimal necessary costs for closure:

a. Transportation costs, which include the cost to load the material, and total tip fees to properly dispose of the maximum tonnage of received materials that could be managed and stockpiled by the compost facility. Also included shall be the costs of properly removing any wastewater held at the facility, or

b. Cost of a beneficial reuse option, approved pursuant to subrule 105.13(3), for the total amount of material that could be managed and stockpiled by the composting facility. If the total amount of material will not be beneficially reused, the remainder of the cost shall be calculated according to paragraph 105.14(4)*"a."* Also included shall be the costs of properly removing any wastewater held at the facility.

c. The costs for maintaining financial assurance pursuant to any other provisions of 567—Chapters 100 to 123, if any, in accordance with subrule 105.14(3).

105.14(5) *Acceptable financial assurance instruments.* The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with subrule 105.14(4) and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. Financial assurance may be provided by cash in the form of a secured trust fund or local government dedicated fund, surety bond, letter of credit, or corporate or local government guarantee as follows:

a. *Secured trust fund.* The owner or operator of a solid waste composting facility or entity serving as a guarantor may demonstrate financial assurance for closure by establishing a secured trust fund that conforms to the requirements of this paragraph.

(1) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The fund shall be restricted for the sole purpose of funding closure activities at the facility, and a copy of the trust agreement must be submitted to the department and placed in the facility's official files.

(2) A secured trust fund shall name the department of natural resources as the entity authorized to draw funds from the trust, subject to the provision of proper notification to the trust officer of failure by the permittee to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) Moneys in the fund shall not be assigned for the benefit of creditors with the exception of the state.

(4) Moneys in the fund shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

(5) The owner or operator or another person authorized to conduct closure activities may request reimbursement from the trustee for closure expenditures as they are incurred. Requests for reimbursement shall be granted by the trustee only if sufficient funds are remaining in the trust fund to

cover the remaining costs of closure and if documentation of the justification for reimbursement has been submitted to the department for prior approval.

(6) If the balance of the trust fund exceeds the current cost estimate for closure at any time, the owner or operator may request withdrawal of the excess funds from the trustee so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

b. Local government dedicated fund. The owner or operator of a publicly owned solid waste composting facility or a local government serving as a guarantor may demonstrate financial assurance for closure by establishing a dedicated fund that conforms to the requirements of this paragraph.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, resolution or order as a restricted fund to pay for closure costs arising from the operation of the solid waste composting facility.

(2) A copy of the document establishing the dedicated fund must be submitted to the department and placed in the facility's official files.

(3) If the balance of the dedicated fund exceeds the current cost estimate for closure at any time, the owner or operator may withdraw excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

c. Surety bond. A surety bond must be written by a company authorized by the commissioner of insurance to do business in the state. The surety bond shall comply with the following:

(1) The bond shall be in a form approved by the commissioner of insurance and shall be payable to the department of natural resources.

(2) The bond shall be specific to a particular facility for the purpose of properly disposing of any solid waste that may remain on site due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) The owner or operator shall provide the department with a statement from the surety with each permit application renewal, noting that the bond is paid and current for the permit period for which the owner or operator has applied for renewal.

d. Letter of credit. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(1) The owner or operator must submit to the department a copy of the letter of credit and place a copy in the facility's official files.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 90 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a secured trust fund that meets the requirements of paragraph 105.14(5)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the secured trust fund established by the owner or operator. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

e. Corporate guarantee. An owner or operator may meet the requirements of this rule by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 105.14(5)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following three conditions:

1. A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or

2. A ratio of less than 1.5 comparing total liabilities to net worth; or

3. A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities.

(3) The tangible net worth of the guarantor must be greater than the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(4) The guarantor must have assets amounting to at least the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(5) Record-keeping and reporting requirements. The guarantor must submit the following records to the department and place a copy in the facility's official files:

1. A copy of the written guarantee between the owner or operator and the guarantor.

2. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a guarantee including, but not limited to, cost estimates required by subrule 105.14(4); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
- Provides evidence demonstrating that the guarantor meets the conditions of subparagraphs 105.14(5)*"e"*(2), (3) and (4).

3. A copy of the independent certified public accountant's unqualified opinion of the guarantor's financial statements for the latest completed fiscal year. In order for the guarantor to be eligible to use the guarantee, the guarantor's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this instrument. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate guarantee, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

f. Local government guarantee. An owner or operator may demonstrate financial assurance for closure by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 105.14(5)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following requirements:

1. If the guarantor has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the guarantor must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or

2. The guarantor must satisfy each of the following financial ratios based on the guarantor's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

(3) The guarantor must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

(4) A guarantor is not eligible to assure its obligations if:

1. The guarantor is currently in default on any outstanding general obligation bonds; or

2. The guarantor has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or

3. The guarantor operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or

4. The guarantor receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement. A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism; or

5. The closure costs to be assured are greater than 43 percent of the guarantor's total annual revenue.

(5) The local government guarantor must include disclosure of the closure costs assured through the guarantee in its next annual audit report prior to the initial receipt of waste at the facility or prior to cancellation of an alternative financial assurance instrument, whichever is later. For the first year the guarantee is used to assure costs at a particular facility, the reference may instead be placed in the guarantor's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(6) The local government owner or operator must submit to the department the following items:

1. A copy of the written guarantee between the owner or operator and the local government serving as guarantor for the closure costs at the facility.

2. A copy of the guarantor's most recent annual financial audit report indicating compliance with the financial ratios required by numbered paragraph 105.14(5)*"f"*(2)"2," if applicable, and the requirements of subparagraphs 105.14(5)*"f"*(3) and (4).

3. A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by the guarantor, as described in subrule 105.14(4); and that provides evidence and certifies that the local government meets the conditions of subparagraphs 105.14(5)*"f"*(2), (3), (4) and (5).

105.14(6) *Financial assurance cancellation and permit suspension.*

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance prior to cancellation, as specified in this rule, or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider or until the department gives written notification to the owner, operator, and financial assurance provider that the covered site has been properly closed. The financial assurance provider shall give at least 90 days' notice in writing to the owner or operator and the department in the event of any intent to cancel the instrument.

c. Within 60 days of receipt of a written notice of cancellation of financial assurance by the financial assurance provider, the owner or operator must provide the department an alternative financial assurance instrument. If a means of continued financial assurance is not provided within that 60 days, the department shall suspend the permit.

d. The owner or operator shall perform proper closure within 30 days of the permit suspension. For the purpose of this rule, "proper closure" means completion of all items pursuant to rule 567—105.13(455B,455D) and subrule 105.14(4).

e. If the owner or operator does not properly close the site within the 30-day period allowed, the department shall file a claim with the financial assurance instrument provider to collect the amount of funds necessary to properly close the site.

f. An owner or operator who elects to terminate a permitted activity, whose renewal application has been denied, or whose permit has been suspended or revoked for cause must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 60 days from the date of termination of the permit.

g. The director may also request payment from any financial assurance provider for the purpose of completing closure when the following circumstances exist:

(1) The owner or operator is more than 15 days late in providing a schedule for closure or for meeting any date in the schedule for closure.

(2) The owner or operator declares an economic inability to comply with this rule, either by sending written notification to the director or through an action such as, but not limited to, filing for bankruptcy.

567—105.15(455B,455D) Variances. A request for a variance must be submitted in writing to the department pursuant to 561—Chapter 10.

These rules are intended to implement Iowa Code sections 455B.304 and 455D.9.

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CHAPTER 106
CITIZEN CONVENIENCE CENTERS AND TRANSFER STATIONS

567—106.1(455B) Compliance. All existing citizen convenience centers and transfer stations shall be inspected and reviewed by the department to ensure compliance with these rules. These rules do not apply to medical waste transfer stations.

106.1(1) If a citizen convenience center or transfer station existing before July 17, 2002, is not in compliance, the department shall notify that facility in writing of the specific deficiencies. The facility shall then submit to the department in writing a compliance schedule for that facility within 30 days of notification by the department. The compliance schedule shall not exceed two years from the date of written notification by the department.

106.1(2) If an existing facility does not achieve compliance within two years from the date of written notification by the department, the facility shall close pursuant to 567—106.7(455B) if it is a citizen convenience center or 567—106.17(455B) if it is a transfer station.

567—106.2(455B,455D) Definitions. In addition to the definitions set out in Iowa Code section 455B.301, which shall be considered incorporated by reference in these rules, the following definitions shall apply:

"Citizen convenience center" means a permanent, fixed-location facility that has the primary purpose of receiving solid waste from citizens and small businesses that do not utilize solid waste collection vehicles or satellite solid waste collection vehicles. A citizen convenience center is a sanitary disposal project and may hold solid waste for a short period of time before collection. A citizen convenience center is not a transfer station or final disposal facility.

"Hot load" means solid waste that is smoking, smoldering, emitting flames or hot gases or otherwise indicating that the solid waste is in the process of combustion or close to igniting.

"Incidental solid waste transfer" means the truck-to-truck transfer of solid waste from a satellite solid waste collection vehicle to a solid waste collection vehicle, if that solid waste could be collected only by a satellite solid waste collection vehicle due to vehicle access restrictions.

"Satellite solid waste collection vehicle" means a small, specialized solid waste collection vehicle that has been specifically designed to service locations that have vehicle access restrictions that would otherwise render solid waste collection technically prohibitive.

"Solid waste collection vehicle" means a vehicle that has the primary purpose of collecting solid waste from a variety of locations, including at curbside and from dumpsters, compactors, and roll-off boxes.

"Solid waste transport vehicle" means a vehicle that serves the purpose of transporting solid waste received by a transfer station.

"Surge pit" means a pit inside a transfer station building that receives solid waste from the tipping floor or directly from solid waste collection vehicles. Surge pits provide more space for temporary storage during peak operating hours and allow for additional compaction of the solid waste before it is loaded into solid waste transport vehicles.

"Transfer station" means a permanent, fixed-location, enclosed transportation terminal that has the primary purpose of receiving solid waste from solid waste collection vehicles and loading that solid waste into solid waste transport vehicles. Truck-to-truck transfer of solid waste that is not incidental solid waste transfer is not allowed outside a transfer station building. A transfer station is a sanitary disposal project and may hold or store solid waste before transport for a short period of time. A transfer station is not a final disposal facility.

"Truck-to-truck transfer" means the direct transfer of solid waste from one vehicle to a second vehicle with no intermediary handling. Truck-to-truck transfer of solid waste that is not incidental solid waste transfer is not allowed outside a transfer station building.

"Vector" means a carrier organism that is capable of transmitting a pathogen from one organism to another. Vectors include, but are not limited to, birds, rats and other rodents, and insects.

"Washwater" means a water-based liquid that has either originated from solid waste unloaded inside the enclosed portion of a transfer station or that has come into contact with enclosed transfer station areas that have come into contact with solid waste.

567—106.3(455B) Citizen convenience center and transfer station permits.

106.3(1) *Permit required.* A citizen convenience center or a transfer station is a sanitary disposal project and shall not be constructed or operated without a permit from the department. In order to be issued a permit, a citizen convenience center or transfer station must satisfy the comprehensive planning requirements set forth in 567—Chapter 101. The issuance of a permit by the department in no way relieves the applicant of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules or other requirements applicable to the construction and operation of a citizen convenience center or transfer station.

106.3(2) *Citizen convenience center permit exemption.* If a citizen convenience center is located at a permitted recycling or composting facility or sanitary disposal project, it shall not require its own permit; instead, the citizen convenience center shall be amended into the host facility's permit.

106.3(3) *Construction and operation.* A citizen convenience center or transfer station shall be constructed and operated according to the plans and specifications approved by the department and the conditions of the permit. The approved plans and specifications shall constitute a condition of the permit.

106.3(4) *Transfer of title and permit.* If title to a citizen convenience center or transfer station is transferred, then the department shall transfer the permit within 60 days if the department has found that the following requirements have been met:

a. The title transferee has applied in writing to the department to request a transfer of the permit within 30 days of the transfer of title.

b. The permitted facility is in compliance with Iowa Code chapters 455B and 455D, these rules and the conditions of the permit.

106.3(5) *Permit conditions.* Any permit may be issued subject to conditions specified in writing by the department that are necessary to ensure that the sanitary disposal project is constructed and operated in compliance with Iowa Code chapters 455B and 455D and these rules.

106.3(6) *Effect of revocation.* If a permit for a citizen convenience center or transfer station held by any public or private agency is revoked by the director, then no new permit shall be issued to that agency for that sanitary disposal project for a period of one year from the date of revocation. Such revocation shall not prohibit the issuance of a permit for the sanitary disposal project to another public or private agency.

106.3(7) *Inspection prior to commencing new operation.* The department shall be notified when the construction of a new citizen convenience center or a transfer station has been completed. The department shall then complete an inspection of the facility to determine if the sanitary disposal project has been constructed in accordance with the plans and specifications and permit requirements. No solid waste shall be accepted by the facility until it has been inspected and approved by the department.

106.3(8) *Duration and renewal of permits.* A citizen convenience center or transfer station permit shall be issued for a period of three years and is renewable, unless otherwise specified by conditions set forth in subrule 106.3(5).

106.3(9) *Request and approval of permit renewal.* A request for permit renewal shall be in writing and must be filed at least 90 days before the expiration of the current permit by submitting Form 50 (542-1542) to the department. The department may request that additional information be submitted for review in order to make a permit renewal decision. The department shall renew the permit if, after a review and inspection of the facility and its compliance history, the department finds that the facility is in compliance with Iowa Code chapters 455B and 455D, these rules and the conditions of the permit, and is making a good-faith effort to maintain compliance. If the facility is found not to be in compliance with Iowa Code chapters 455B and 455D, these rules, and the conditions of the permit or if a good-faith effort to maintain compliance is not being made, the sanitary disposal project shall be brought into compliance

or placed on a compliance schedule approved by the department before the permit is renewed. The permit may be renewed with new conditions pursuant to subrule 106.3(5).

106.3(10) *Request for permit modification.* A request for permit modification shall be submitted in writing to the department with supporting documentation and materials. The department may request that additional information be submitted for review in order to make a permit modification decision. The department may also request that information pursuant to rule 106.4(455B) for citizen convenience centers or rule 106.8(455B) for transfer stations be resubmitted, in part or in whole, in order to make a permit modification decision. The modified permit may be approved with new conditions pursuant to subrule 106.3(5).

106.3(11) *Emergency solid waste transfer permit.* If a primary sanitary disposal project in a service area becomes inoperable, the department may issue an emergency solid waste transfer permit for a period of time no longer than necessary for a sanitary disposal project that provides replacement capacity to be constructed and become operational. The department may also issue an emergency solid waste transfer permit for a period of time no longer than necessary for a sanitary disposal project to return to permitted capacity if more solid waste is produced by an extraordinary event than can be managed by a sanitary disposal project. The conditions of an emergency solid waste transfer permit shall be determined by the department and may be used as an alternative to the requirements of this chapter. The department shall issue an emergency solid waste transfer permit only if the department has determined that the following conditions apply:

a. It is not technically feasible to direct haul with solid waste collection vehicles and manage the solid waste at another sanitary disposal project or combination thereof in the service area or surrounding service areas.

b. Solid waste must be transferred from the area in order to protect human health and the environment.

567—106.4(455B) Citizen convenience center permit application requirements.

106.4(1) A citizen convenience center permit applicant shall submit the following permit application information to the department:

a. The name, address, and telephone number of:

(1) Owner of site where project will be located.

(2) Permit applicant.

(3) Official responsible for the operation of the project.

(4) Professional engineer (P.E.) licensed in the state of Iowa and retained for the design of the facility, if any.

(5) Agency to be served by the project, if any.

(6) Responsible official of agency to be served, if any.

b. A legal description of the site.

c. A map or aerial photograph locating the boundaries of the site and identifying:

(1) North and other principal compass points.

(2) Zoning and land use within 250 feet.

(3) Homes and buildings within 250 feet.

(4) Section lines or other legal boundaries.

d. Proof of the applicant's ownership of the site and legal entitlement to use the site as a citizen convenience center.

e. Days and hours of operation of the site.

f. The service area of the facility and political jurisdictions included in that area.

g. Type, source, and expected weight of solid waste to be handled per day, week, and year.

h. A description of the disposal process to be used.

i. A site design illustrating the facility, which may include engineering plans and specifications completed by the engineer listed in 106.4(1)*"a"*(4).

j. A plan of operations detailing how the site will comply with rule 106.5(455B) and with rule 106.6(455B,455D), if applicable.

k. A closure plan detailing how the site will comply with rules 106.7(455B) and 106.18(455B).

l. An emergency response and remedial action plan (ERRAP) pursuant to rule 106.19(455B).

106.4(2) If the department finds the permit application information to be incomplete, it shall notify the applicant in writing of that fact and of the specific deficiencies and return the application materials to the applicant within 30 days of such notification. The applicant may reapply without prejudice.

567—106.5(455B) Citizen convenience center operations.

106.5(1) Solid waste shall be accepted only from citizens and small businesses residing in the service area designated in 106.4(1)*"f."* Solid waste shall not be accepted from solid waste collection vehicles.

106.5(2) All solid waste received shall be loaded into dumpsters, compactors, or roll-off boxes and collected by solid waste collection vehicles. Solid waste shall not be loaded into solid waste transport vehicles.

106.5(3) Dumpsters, compactors, and roll-off boxes shall not be allowed to overflow, and solid waste shall be collected as often as necessary to prevent the attraction or harborage of vectors and to prevent a nuisance or public health hazard.

106.5(4) Litter shall be collected as often as necessary to prevent a nuisance or public health hazard.

567—106.6(455B,455D) Citizen convenience center reporting requirements. A citizen convenience center that directly disposes of solid waste outside Iowa shall report the following information, on a form provided by the department, to the department and local solid waste authority on a quarterly basis:

106.6(1) Tons of solid waste disposed of.

106.6(2) Comprehensive planning areas from which the solid waste originated, and the tons of solid waste disposed from each county and comprehensive planning area.

106.6(3) Destinations of all outgoing solid waste.

567—106.7(455B) Citizen convenience center closure requirements. The facility shall submit to the local political jurisdiction, the department, and department field office with jurisdiction over the citizen convenience center written notice of intent to permanently close the facility at least 180 days before closure. Closure shall be in conformance with the closure plan pursuant to 106.4(1)*"k"* and shall not be official until the department field office has given written certification of the completion of the closure plan and the following activities:

106.7(1) Proper disposal of all solid waste and litter at the site.

106.7(2) Removal of all dumpsters, compactors, roll-off boxes, and other solid waste receptacles.

106.7(3) Reporting of the completion of these activities to the local political jurisdiction, the department, and the department field office with jurisdiction over the citizen convenience center.

567—106.8(455B) Transfer station permit application requirements.

106.8(1) A transfer station permit applicant shall submit the following permit application information to the department:

a. The name, address, and telephone number of:

(1) Owner of site where project will be located.

(2) Permit applicant.

(3) Official responsible for the operation of the project.

(4) Professional engineer (P.E.) licensed in the state of Iowa and retained for the design of the facility.

(5) Agency to be served by the project, if any.

(6) Responsible official of agency to be served, if any.

b. A legal description of the site.

c. A map or aerial photograph locating the boundaries of the site and identifying:

(1) North and other principal compass points.

(2) Zoning and land use within 750 feet.

(3) Homes and buildings within 750 feet.

(4) Haul routes to and from the site with load limits or other restrictions.

(5) Section lines or other legal boundaries.

d. Proof of the applicant's ownership of the site and legal entitlement to use the site as a transfer station.

e. Days and hours of operation of the site.

f. The service area of the facility and political jurisdictions included in that area.

g. Type, source, and expected weight of solid waste to be handled per day, week, and year.

h. A description of the waste transfer and disposal process to be used.

i. An organizational chart.

j. An engineering design including applicable approvals from responsible government agencies and public entities, and triplicate engineering plans and specifications completed by the engineer listed in 106.8(1)*"a"*(4), detailing how the site will comply with rules 106.9(455B), 106.10(455B), 106.12(455B), and 106.15(455B).

k. A plan of operations detailing how the site will comply with rules 106.11(455B) through 106.16(455B).

l. A closure plan detailing how the site will comply with rules 106.17(455B) and 106.18(455B).

m. An emergency response and remedial action plan (ERRAP) pursuant to rule 106.19(455B).

106.8(2) If the department finds the permit application information to be incomplete, it shall notify the applicant in writing of that fact and of the specific deficiencies and return the application materials to the applicant within 30 days of such notification. The applicant may reapply without prejudice.

567—106.9(455B) Transfer station siting and location requirements. A transfer station shall meet the following requirements:

106.9(1) A transfer station shall not be located within a 100-year floodplain unless the design includes structures to prevent floodwater inundation from a 100-year flood of any area that comes into contact with solid waste or washwater.

106.9(2) A transfer station shall not be located within 500 feet of an educational or health care facility or permanent residence unless screening is utilized to minimize noise and visibility of operations. Such screening shall utilize natural components to the maximum extent possible. This requirement shall not apply if construction of the educational or health care facility or permanent residence began after the transfer station permit application was received by the department.

567—106.10(455B) Transfer station design standards.

106.10(1) *Transfer station building.* A transfer station shall include a building inside which all solid waste is unloaded from solid waste collection vehicles and loaded into solid waste transport vehicles. Truck-to-truck transfer of solid waste that is not incidental solid waste transfer is not allowed outside a transfer station building. A rear-loading solid waste transport vehicle that does not have any other open access and securely abuts the transfer station building so that minimal amounts of solid waste escape during loading shall qualify as being inside the building. The transfer station building shall meet the following requirements:

a. All surfaces that come into contact with solid waste shall be enclosed by walls and a roof satisfactory to:

(1) Minimize dust and litter exiting the building.

(2) Keep precipitation out of the building.

(3) Prevent the attraction or harboring of vectors.

b. All surfaces that come in contact with solid waste or washwater shall be impervious to liquids.

c. The transfer station building shall have a drainage system that maintains a separation between stormwater and washwater.

d. The transfer station building shall have a washwater collection system that directs washwater to a storage tank for later disposal, a sanitary sewer system, or equivalent as approved by the department. Storage tanks shall have high-level indicators or gauges.

e. Each area where unloaded solid waste is stored during nonoperating hours shall be clearly marked and include a fire detection system.

f. If solid waste is to be managed or stored in a surge pit, then effective odor control mechanisms such as, but not limited to, mist systems and air filters shall be required.

g. If solid waste is to be managed or stored in a surge pit, then a sprinkler system shall be installed over that area.

h. Each area where salvaged materials are stored shall be clearly marked.

i. The transfer station building shall have adequate indoor and outdoor lighting that minimizes the difference in lighting when entering or exiting the building.

j. The transfer station building shall have doors at each entrance and exit.

106.10(2) *Other transfer station design requirements.* A transfer station shall:

a. Provide a secure perimeter fence, with lockable gate(s).

b. Use a scale certified by the Iowa department of agriculture and land stewardship.

c. Provide adequate queuing distance for vehicles entering and exiting the property such that lines of vehicles will not extend onto public streets during peak hours, unless approved by the appropriate local government authority.

d. Provide signs or pavement markings indicating safe and proper on-site traffic patterns.

e. Post a sign at the primary entrance to the facility specifying:

(1) Name and permit number of facility.

(2) Operating hours.

(3) Materials that are accepted or the statement "All materials must have prior approval."

(4) Telephone number of emergency contact person(s).

567—106.11(455B) Transfer station operating requirements. A transfer station shall perform its operations in a manner that complies with the following requirements:

106.11(1) Site access shall be controlled and limited to a time when a transfer station operator who has met the following training requirements is on duty:

a. Has read, understands, and is able to implement the plan of operations pursuant to 106.8(1)*"k."*

b. Has read, understands, and is able to implement the emergency response and remedial action plan pursuant to 106.8(1)*"m."*

c. Is able to visually recognize universal symbols and markings, and indications of unacceptable materials pursuant to subrule 106.11(4).

d. Is certified by a training program approved by the department such as, but not limited to, the Solid Waste Association of North America's Managing Transfer Station Systems Training and Certification Course, if the facility is permitted for 20,000 tons or more per year of solid waste.

106.11(2) Solid waste shall be accepted only from generators within the service area designated in 106.8(1)*"f."*

106.11(3) All unloading, handling, processing, screening, open storage, loading, and similar activities or processes involving solid waste shall be performed inside the transfer station building. Truck-to-truck transfer of solid waste that is not incidental solid waste transfer is not allowed outside a transfer station building. A rear-loading solid waste transport vehicle that does not have any other open access and securely abuts the transfer station building so that minimal amounts of solid waste escape during loading shall qualify as being inside the building. Salvaged materials that do not attract or harbor vectors may be stored outside the building in clearly marked designated areas.

106.11(4) All solid waste accepted by the transfer station shall, at a minimum, be visually inspected by personnel capable of identifying hot loads and hazardous, infectious, radioactive, and other wastes not acceptable for disposal in a sanitary landfill.

106.11(5) Transfer station operators shall segregate and manage unacceptable wastes and hot loads in accordance with applicable laws, and in a manner as safe and responsible as practical.

106.11(6) Transfer station operators shall be allowed to salvage materials. Scavenging shall not be allowed.

106.11(7) The operation of the facility shall be carried out in a manner that attempts to minimize litter, dust, odor, noise, vibration, and the attraction or harborage of vectors.

106.11(8) The transfer station building shall be maintained at a level of cleanliness necessary to prevent a nuisance or public health hazard.

106.11(9) On-site litter shall be maintained at a level of cleanliness necessary to prevent a nuisance or public health hazard. Off-site litter shall be collected daily.

106.11(10) The exterior of all buildings shall be maintained in a reasonable aesthetic condition, and that prevents the attraction or harborage of vectors, so as not to create a nuisance or public health hazard.

106.11(11) Washwater management systems shall not be allowed to overflow and shall be inspected monthly and maintained in proper operating condition.

106.11(12) Any breach of a surface that prevents washwater from entering the ground and groundwater shall be repaired within 24 hours to make that surface impervious to liquids. If such repairs cannot be made within 24 hours, the facility shall not allow solid waste or washwater to come into contact with the breached area until repairs are complete. If the facility cannot prevent solid waste or washwater from coming into contact with the breached area, the department may require the facility to shut down until repairs are completed.

106.11(13) Adequate provisions shall be made for the routine operational maintenance of the facility.

567—106.12(455B) Temporary solid waste storage at transfer stations.

106.12(1) *Areas permitted for storage.* Solid waste shall be stored at the transfer station in the following manner:

a. Inside a transfer station building in a clearly marked designated area; or

b. Inside a transfer station building in a surge pit; or

c. Inside a secure solid waste transport vehicle, protected from precipitation and vectors.

106.12(2) *Storage time requirements.* Solid waste shall be stored no longer than the following periods of time, unless shorter storage times are required by the department or local government authority to prevent a nuisance or public health hazard:

a. Inside a transfer station building without a surge pit or similar operational structure for not more than 48 hours, excluding Sundays and national holidays.

b. Inside a transfer station building in a surge pit for not more than seven days, including Sundays and national holidays.

c. Inside a solid waste transport vehicle designated to travel only via roadway for not more than 48 hours, excluding Sundays and national holidays.

d. Inside a solid waste transport vehicle designated to travel via rail or navigable waterway, including intermodal container systems, for not more than seven days, including Sundays and national holidays.

567—106.13(455B,455D) Transfer station record-keeping requirements.

106.13(1) A transfer station shall maintain a copy of the following documents:

a. Current permit(s), on site.

b. Plan of operation, on site.

c. Emergency response and remedial action plan, on site.

d. Proof of financial assurance, on file.

106.13(2) A transfer station shall maintain records of the following information for a period of three calendar years:

a. Tons of all solid waste disposed of quarterly.

b. Destination of all outgoing solid waste.

c. Washwater management system inspection log.

d. Hot loads and hazardous, infectious, radioactive, or other unacceptable wastes found.

e. Training received by transfer station operator(s) pursuant to 106.11(1).

567—106.14(455B,455D) Transfer station reporting requirements.

106.14(1) A transfer station shall report the following information, on a form provided by the department, to the department and local solid waste authority on a quarterly basis:

a. Tons of solid waste disposed of.

b. Comprehensive planning areas from which the solid waste originated, and the tons of solid waste disposed from each county and comprehensive planning area.

c. Destinations of all outgoing solid waste.

106.14(2) A transfer station shall be inspected annually by an Iowa-licensed professional engineer (P.E.). The inspection shall, at a minimum, cover the design standards pursuant to rule 106.10(455B). The inspection report shall reflect the facility's compliance with respect to the department-approved design and construction. The annual report shall be submitted to the department and department field office with jurisdiction over the facility by the first workday in November each year.

567—106.15(455B) Solid waste transport vehicle construction and maintenance requirements.

106.15(1) The portion of a solid waste transport vehicle that contains solid waste shall be designed to prevent the accidental discharge of its contents, the attraction or harborage of vectors, and infiltration of precipitation. This design shall include a suitable cover that is not easily torn, shredded, broken, or otherwise breached under normal use.

106.15(2) Any solid waste transport vehicle that fails to meet the requirements of this rule shall be repaired before it is utilized in the transport or storage of solid waste.

106.15(3) All solid waste transport vehicles shall be cleaned at intervals frequent enough to prevent a nuisance or vector attraction.

106.15(4) Wastewater generated from the cleaning of the areas of the solid waste transport vehicles that hold solid waste shall be considered washwater and shall be managed accordingly.

567—106.16(455B) Solid waste transport vehicle operation requirements.

106.16(1) A solid waste transport vehicle's openings shall be securely closed before transport and during solid waste storage so as to prevent the loss of solid waste.

106.16(2) A solid waste transport vehicle shall be loaded with solid waste inside a transfer station building and in a manner that minimizes the spilling of materials. Truck-to-truck transfer of solid waste that is not incidental solid waste transfer is not allowed outside a transfer station building. A rear-loading solid waste transport vehicle that does not have any other open access and securely abuts the transfer station building so that minimal amounts of solid waste escape during loading shall qualify as being inside the building. Solid waste spilled from a solid waste transport vehicle during loading shall be collected as often as necessary to minimize litter, dust, or other fugitive debris.

106.16(3) If solid waste is spilled from a solid waste transport vehicle during transport that is not on transfer station property, the spilled solid waste shall be collected as soon as possible. The transfer station shall immediately report the spill to the department and the department field office with jurisdiction over the transfer station and spill location.

567—106.17(455B) Transfer station closure requirements. The facility shall submit to the local political jurisdiction, the department, and department field office with jurisdiction over the transfer station written notice of intent to permanently close the facility at least 180 days before closure. Closure shall be in conformance with the closure plan pursuant to 106.8(1)*"l"* and shall not be official until the department field office has given written certification of the completion of the closure plan and the following activities:

106.17(1) Proper disposal of all solid waste and litter at the site.

106.17(2) Cleaning the transfer station building, including the rinsing of all surfaces that have come in contact with solid waste or washwater.

106.17(3) Cleaning of all solid waste transport vehicles that will remain on site, including the rinsing of all surfaces that have come in contact with solid waste.

106.17(4) Removal and proper management of all washwater in the washwater management system.

106.17(5) Locking all doors, gates, entrances, and exits.

106.17(6) Reporting of the completion of these activities to the local political jurisdiction, the department, and the department field office with jurisdiction over the transfer station.

567—106.18(455B) Citizen convenience center and transfer station financial assurance. Permitted solid waste citizen convenience centers and transfer stations must obtain and submit a financial assurance instrument to the department for solid waste storage in accordance with this rule. The financial assurance instrument shall provide monetary funds to properly dispose of any solid waste that may remain at a facility due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

106.18(1) *No permit without financial assurance.* The department shall not issue or renew a permit to an owner or operator of a citizen convenience center or transfer station until a financial assurance instrument has been submitted to and approved by the department.

106.18(2) *Proof of compliance.* Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted to the department within 30 days of the close of the permit holder's first fiscal year that begins after July 17, 2002, or at the time of application for a permit for a new citizen convenience center or transfer station. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

106.18(3) *Use of one financial assurance instrument for multiple permitted activities.* Citizen convenience centers and transfer stations required to maintain financial assurance pursuant to any other provisions of 567—Chapters 100 to 123 may satisfy the requirements of this rule by the use of one financial assurance instrument if the permit holder ensures that the instrument provides financial assurance for an amount at least equal to the current cost estimates for closure of all sanitary disposal project activities covered.

106.18(4) *Financial assurance amounts required.* The estimate submitted to the department must be certified by an Iowa-licensed professional engineer and must account for at least the following factors determined by the department to be minimal necessary costs for closure pursuant to rule 106.7(455B) for citizen convenience centers and rule 106.17(455B) for transfer stations, as applicable:

a. Third-party labor and transportation costs and total tip fees to properly dispose of all solid waste and litter at the facility equal to twice the maximum storage capacity of the facility. If materials are temporarily stored on site in transportation vehicles or waste receptacles, then this estimate shall include disposal costs for the maximum number of transportation vehicles and waste receptacles that can be on site at any one time.

b. The cost of hiring a third party to properly clean and decontaminate all equipment, storage facilities, holding areas and drainage collection systems. This estimate shall include the cost of properly disposing of a one-week volume of washwater from the facility. If the facility utilizes washwater storage tanks, then this estimate shall assume that the storage tanks are full and add that volume to the one-week volume.

c. The costs for maintaining financial assurance pursuant to any other provisions of 567—Chapters 100 to 123, if any, in accordance with subrule 106.18(3).

106.18(5) *Acceptable financial assurance instruments.* The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with subrule 106.18(4) and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. Financial assurance may be provided by cash in the form of a secured trust fund or local government dedicated fund, surety bond, letter of credit, or corporate or local government guarantee as follows:

a. *Secured trust fund.* The owner or operator of a citizen convenience center or transfer station or entity serving as a guarantor may demonstrate financial assurance for closure by establishing a secured trust fund that conforms to the requirements of this paragraph.

(1) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The fund shall be restricted for

the sole purpose of funding closure activities at the facility, and a copy of the trust agreement must be submitted to the department and placed in the facility's official files.

(2) A secured trust fund shall name the department of natural resources as the entity authorized to draw funds from the trust, subject to the provision of proper notification to the trust officer of failure by the permittee to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) Moneys in the fund shall not be assigned for the benefit of creditors with the exception of the state.

(4) Moneys in the fund shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

(5) The owner or operator or another person authorized to conduct closure activities may request reimbursement from the trustee for closure expenditures as they are incurred. Requests for reimbursement shall be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure and if documentation of the justification for reimbursement has been submitted to the department for prior approval.

(6) If the balance of the trust fund exceeds the current cost estimate for closure at any time, the owner or operator may request withdrawal of the excess funds from the trustee so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

b. Local government dedicated fund. The owner or operator of a publicly owned citizen convenience center or transfer station or a local government serving as a guarantor may demonstrate financial assurance for closure by establishing a dedicated fund that conforms to the requirements of this paragraph.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, resolution or order as a restricted fund to pay for closure costs arising from the operation of the facility.

(2) A copy of the document establishing the dedicated fund must be submitted to the department and placed in the facility's official files.

(3) If the balance of the dedicated fund exceeds the current cost estimate for closure at any time, the owner or operator may withdraw excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

c. Surety bond. A surety bond must be written by a company authorized by the commissioner of insurance to do business in the state. The surety bond shall comply with the following:

(1) The bond shall be in a form approved by the commissioner of insurance and shall be payable to the department of natural resources.

(2) The bond shall be specific to a particular facility for the purpose of properly disposing of any solid waste that may remain on site due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) The owner or operator shall provide the department with a statement from the surety with each permit application renewal, noting that the bond is paid and current for the permit period for which the owner or operator has applied for renewal.

d. Letter of credit. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(1) The owner or operator must submit to the department a copy of the letter of credit and place a copy in the facility's official files.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 90 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate

proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a secured trust fund that meets the requirements of paragraph 106.18(5)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the secured trust fund established by the owner or operator. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

e. Corporate guarantee. An owner or operator may meet the requirements of this rule by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 106.18(5)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following three conditions:

1. A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or

2. A ratio of less than 1.5 comparing total liabilities to net worth; or

3. A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities.

(3) The tangible net worth of the guarantor must be greater than the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(4) The guarantor must have assets amounting to at least the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(5) Record-keeping and reporting requirements. The guarantor must submit the following records to the department and place a copy in the facility's official files:

1. A copy of the written guarantee between the owner or operator and the guarantor.

2. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a guarantee including, but not limited to, cost estimates required by subrule 106.18(4); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
- Provides evidence demonstrating that the guarantor meets the conditions of subparagraphs 106.18(5)*"e"*(2), (3) and (4).

3. A copy of the independent certified public accountant's unqualified opinion of the guarantor's financial statements for the latest completed fiscal year. In order for the guarantor to be eligible to use the guarantee, the guarantor's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this instrument. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate guarantee, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

f. Local government guarantee. An owner or operator may demonstrate financial assurance for closure by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 106.18(5)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following requirements:

1. If the guarantor has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the guarantor must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or

2. The guarantor must satisfy each of the following financial ratios based on the guarantor's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

(3) The guarantor must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

(4) A guarantor is not eligible to assure its obligations if:

1. The guarantor is currently in default on any outstanding general obligation bonds; or

2. The guarantor has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or

3. The guarantor operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or

4. The guarantor receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement. A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism; or

5. The closure costs to be assured are greater than 43 percent of the guarantor's total annual revenue.

(5) The local government guarantor must include disclosure of the closure costs assured through the guarantee in its next annual audit report prior to the initial receipt of waste at the facility or prior to cancellation of an alternative financial assurance instrument, whichever is later. For the first year the guarantee is used to assure costs at a particular facility, the reference may instead be placed in the guarantor's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(6) The local government owner or operator must submit to the department the following items:

1. A copy of the written guarantee between the owner or operator and the local government serving as guarantor for the closure costs at the facility.

2. A copy of the guarantor's most recent annual financial audit report indicating compliance with the financial ratios required by numbered paragraph 106.18(5)*"f"*(2)"2," if applicable, and the requirements of subparagraphs 106.18(5)*"f"*(3) and (4).

3. A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by the guarantor, as described in subrule 106.18(4); and that provides evidence and

certifies that the local government meets the conditions of subparagraphs 106.18(5)*"f"*(2), (3), (4) and (5).

106.18(6) *Financial assurance cancellation and permit suspension.*

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance prior to cancellation, as specified in this rule, or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider or until the department gives written notification to the owner, operator, and financial assurance provider that the covered site has been properly closed. The financial assurance provider shall give at least 90 days' notice in writing to the owner or operator and the department in the event of any intent to cancel the instrument.

c. Within 60 days of receipt of a written notice of cancellation of financial assurance by the financial assurance provider, the owner or operator must provide the department an alternative financial assurance instrument. If a means of continued financial assurance is not provided within that 60 days, the department shall suspend the permit.

d. The owner or operator shall perform proper closure within 30 days of the permit suspension. For the purpose of this rule, "proper closure" means completion of all items pursuant to rule 106.7(455B) or 106.17(455B), as applicable, and subrule 106.18(4).

e. If the owner or operator does not properly close the site within the 30-day period allowed, the department shall file a claim with the financial assurance instrument provider to collect the amount of funds necessary to properly close the site.

f. An owner or operator who elects to terminate a permitted activity, whose renewal application has been denied, or whose permit has been suspended or revoked for cause must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 60 days from the date of termination of the permit.

g. The director may also request payment from any financial assurance provider for the purpose of completing closure when the following circumstances exist:

(1) The owner or operator is more than 15 days late in providing a schedule for closure or for meeting any date in the schedule for closure.

(2) The owner or operator declares an economic inability to comply with this rule, either by sending written notification to the director or through an action such as, but not limited to, filing for bankruptcy.

567—106.19(455B) Emergency response and remedial action plans. A citizen convenience center or transfer station shall develop, submit to the department for approval, and maintain on site a detailed emergency response and remedial action plan (ERRAP).

106.19(1) *Submittal requirements.*

a. The owner or operator of facilities that have been permitted prior to the effective date of these rules shall submit a complete detailed ERRAP that meets the requirements set forth in this rule no later than December 31, 2001.

b. Applications for a new permit after the effective date of this rule shall incorporate a complete detailed ERRAP that meets the requirements set forth in these rules.

c. An updated ERRAP that meets the requirements of this rule shall be submitted at the time of each permit renewal or reissuance application that is due after December 31, 2001.

d. An updated ERRAP shall be included with any request for permit modification to incorporate a facility expansion or significant changes in facility operation that require modification of the currently approved ERRAP.

e. Three sets of ERRAP documents shall be submitted for department approval.

106.19(2) *Content.* The content of ERRAP documents shall be concise and readily usable as a reference manual by facility managers and operators during emergency conditions. The ERRAP document content shall address at least the following primary issues in detail, unless project conditions render the specific issue as not applicable. To facilitate department review, the rationale for exclusion of

any issues that are not determined to be applicable must be provided either in the body of the plan or as a supplement. Additional ERRAP requirements unique to the facility shall be addressed, as applicable.

a. Facility information.
(1) Permitted agency.
(2) DNR permit number.
(3) Facility description.
(4) Responsible official and contact information.
(5) Site and environs map.
b. Regulatory requirements.
(1) Iowa Code section 455B.306(6)*"d"* criteria citation.
(2) Reference to provisions of the permit.
c. Emergency conditions—response activities—remedial action.
(1) Failure of utilities.
1. Short-term (48 hours or less).
2. Long-term (over 48 hours).
(2) Weather-related events.
1. Tornado.
2. Windstorms.
3. Intense rainstorms and erosion.
4. Lightning strikes.
5. Flooding.
6. Event and postevent conditions.
(3) Fire and explosions.
1. Waste materials.
2. Buildings and site.
3. Equipment.
4. Fuels.
5. Utilities.
6. Facilities.
7. Working area.
8. Hot loads.
9. Waste gases.
10. Evacuation.
(4) Regulated waste spills and releases.
1. Waste materials.
2. Washwater.
3. Waste gases.
4. Waste stockpiles or storage facilities.
5. Waste transport systems.
6. Litter and airborne particulate.
7. Site drainage systems.
8. Off-site releases.
(5) Hazardous material spills and releases.
1. Load-check control points.
2. Mixed waste deliveries.
3. Fuels.
4. Waste gases.
5. Site drainage systems.
6. Off-site releases.
(6) Mass movement of land and waste.
1. Earthquakes.
2. Slope failure.

3. Waste shifts.
(7) Emergency and release notifications and reporting.
1. Federal agencies.
2. State agencies.
3. County and city agencies.
4. News media.
5. Public and private facilities with special populations within five miles.
6. Emergency response agencies and contact information.
7. Reporting requirements and forms.
(8) Emergency waste management procedures.
1. Communications.
2. Temporary discontinuation of services—short- and long-term.
3. Facilities access and rerouting.
4. Waste acceptance.
5. Wastes in process.
(9) Primary emergency equipment inventory.
1. Major equipment.
2. Fire hydrants and water sources.
3. Off-site equipment resources.
(10) Emergency aid.
1. Responder contacts.
2. Medical services.
3. Contracts and agreements.
(11) ERRAP training requirements.
1. Training providers.
2. Employee orientation.
3. Annual training updates.
4. Training completion and record keeping.
(12) Reference tables, figures and maps.

These rules are intended to implement Iowa Code section 455B.304.

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CHAPTER 107
BEVERAGE CONTAINER DEPOSITS

[Prior to 7/1/83, DEQ Ch 34]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—107.1(455C) Scope. This chapter is intended to implement the provisions of Iowa Code chapter 455C. The Act requires that every alcoholic liquor container, beer, mineral water, soda water or carbonated soft drink container sold in Iowa for consumption off the premises of the dealer be subject to a deposit of 5 cents or more. Such container must have indicated on it that the container is subject to a minimum refund of 5 cents or must be exempt from the requirement of having the refund value indicated on it. An empty container on which an Iowa deposit was made may be returned to any dealer in the state who sells the kind, brand and size of container or may be returned to a redemption center. The dealer or redemption center must accept the empty container and refund the deposit.

Iowa Code section 455C.2(2) provides in part: "A dealer, dealer agent, or person operating a redemption center may compact empty metal beverage containers with the approval of the distributor required to accept the containers." So far as metal beverage containers are concerned, such right of approval by the distributor would be meaningless if the dealer were required to accept and redeem crushed metal beverage containers from consumers. Since there appears to be no reason to treat distributors of nonrefillable glass beverage containers differently from distributors of metal beverage containers, there is presumably a corresponding right for the distributors of nonrefillable glass beverage containers to approve the destruction of the containers.

This chapter contains rules specifying the minimum size of type to be used for indicating the minimum refund value on beverage containers, rules relating to approval of redemption centers for beverage containers and rules relating to exemptions from labeling the refund value on beverage containers. This chapter also contains interpretive rules that clarify or interpret the statute or apply the statute to specific factual situations.

[**ARC 1956C**, IAB 4/15/15, effective 5/20/15]

567—107.2(455C) Definitions. As used in this chapter:

"Act" means Iowa Code chapter 455C.

"Approved redemption center" means a redemption center approved by the department pursuant to 107.4(1).

"Beverage" means alcoholic liquor or intoxicating liquor as defined in Iowa Code section 123.3(5), beer as defined in Iowa Code section 123.3(7), high alcoholic content beer as defined in Iowa Code section 123.3(19), wine as defined in Iowa Code section 123.3(47), and mineral water, soda water or similar carbonated soft drinks in liquid form intended for human consumption.

"Beverage container" means any sealed glass, plastic, or metal bottle, can, jar or carton containing a beverage.

"Carbonated" means charged under pressure with carbon dioxide.

"Commission" means the environmental protection commission of the department of natural resources.

"Consumer" means any person who purchases a beverage in a beverage container for use or consumption.

"Dealer" means any person who engages in the sale of beverages in beverage containers to a consumer.

"Dealer agent" means a person who solicits or picks up empty beverage containers from a dealer for the purpose of returning the empty beverage containers to a distributor or manufacturer.

"Department" means the department of natural resources.

"Director" means the director of the department of natural resources.

"Distributor" means any person who engages in the sale of beverages in beverage containers to a dealer in this state, including any manufacturer who engages in such sales.

"Emboss" means to raise the surface in relief.

"Exempt beverage container" means a beverage container that is not marked with the words "Iowa Refund 5¢" because it is a refillable glass beverage container having a brand name permanently marked on it and having a refund value of 5 or more cents or because it is a refillable metal or plastic beverage container that has been exempted, in accordance with the procedure of 107.3(7), from the requirement of having the refund value marked on the container. An exempt beverage container is exempt from having the words "Iowa Refund 5¢" indicated on the container, but is not necessarily exempt from the minimum deposit.

"Exempt dealer" means a dealer named in a department order that approves a redemption center pursuant to 107.4(1).

"High-contrasting color" in reference to labeling requirements means a clear differentiation in hue, value, and intensity with the background on which the redemption message appears, surrounding artwork, and other nearby printed information.

"Incise" means to scratch the surface to produce legible letters or characters at a precise width and depth.

"Indelibly" means that the refund value is permanently affixed on the beverage container and cannot be smeared or removed during regular use from the point of being offered for sale until the point of redemption.

"Manufacturer" means any person who bottles, cans, or otherwise fills beverage containers for sale to distributors or dealers.

"Mineral water" means water naturally or artificially infused with mineral salts or gases. Mineral water may be carbonated or uncarbonated.

"Redemption center" means any establishment other than a dealer's premises at which consumers may return empty beverage containers and receive payment of the refund value of the containers, or means the premises of a dealer if the dealer voluntarily chooses to accept, and refund the deposit on, empty beverage containers (other than alcoholic liquor containers) that are not of the kind, size and brand sold by the dealer. A redemption center is either an approved redemption center or an unapproved redemption center.

"Redemption center for a dealer" means a redemption center that provides beverage container sorting and handling services for a dealer and that has been certified by the department pursuant to 107.4(3).

"Registered redemption center" means a redemption center registered with the department pursuant to 107.4(4).

"Soda water" means water that has been carbonated.

"Soft drink" means any nonalcoholic liquid other than mineral water or soda water intended for human consumption.

"Unapproved redemption center" means a redemption center that is not an approved redemption center or a registered redemption center.

This rule is intended to implement Iowa Code sections 455C.1 and 455C.9.

[**ARC 1956C**, IAB 4/15/15, effective 5/20/15]

567—107.3(455C) Labeling requirements.

107.3(1) All beer, wine, alcoholic liquor, mineral water, soda water and similar carbonated soft drink containers (other than exempt containers) sold or offered for sale in Iowa by a dealer shall have the words "Iowa Refund 5¢" or "IA 5¢" clearly, indelibly and legibly indicated on the container. If the refund value is more than 5 cents, the greater value may be indicated, e.g., "Iowa Refund 10¢" or "IA 10¢." Any abbreviation of the words "Iowa Refund" other than as provided in this subrule shall be submitted to and approved by the department.

107.3(2) The minimum size of the words "Iowa Refund 5¢" or "IA 5¢" and all approved abbreviations shall be a minimum of 9-point type (approximately .125 inch or 3 millimeters) if the words are embossed or incised and 18-point type (approximately .25 inch or 6 millimeters) if the words are otherwise affixed to the container. A stamp or label may have the words "Iowa Refund 5¢" or "IA 5¢" in less than 18-point type if the label is submitted to the department and the department determines

that the high-contrasting color or the characteristics of the stamp or label make the stamp or label as easy to discern as a stamp or label with 18-point type.

107.3(3) The words "Iowa Refund 5¢" or "IA 5¢" shall be indicated by embossing (raised letters), by incising, by printing in high-contrasting color, by a stamp or label of high-contrasting color, or other method approved by the department securely and permanently affixed to the container.

107.3(4) Rescinded IAB 4/17/02, effective 5/22/02.

107.3(5) The words "Iowa Refund 5¢" or "IA 5¢" shall be on the top of a metal beverage container. The words "Iowa Refund 5¢" or "IA 5¢" shall be on the conical portion of a glass or plastic beverage container so that the words are visible from above or shall be on the product label. The placement of refund information solely on the bottom of the beverage container is prohibited.

107.3(6) An example of the label or labeled container may, but need not, be submitted to the department for informal approval.

107.3(7) An application for exemption from the requirement of having the words "Iowa Refund 5¢" or "IA 5¢" indicated on the container shall be on Form LQ 37 or on 8½″ × 11″ paper and shall contain:

a. The name, address and telephone number of the applicant;

b. The refund value of the container; and

c. A statement of why the container can be readily and permanently identified by consumers as subject to a deposit.

107.3(8) An example of the container for which the exemption is being requested shall be sent to the department along with the application required in 107.3(7).

107.3(9) The department may exempt the container if the department determines that the container is subject to a deposit of 5 or more cents and that consumers can readily and permanently identify the container as one subject to a deposit.

567—107.4(455C) Redemption centers. The Act provides for both approved and unapproved redemption centers. Both approved and unapproved redemption centers redeem empty beverage containers and pay the refund value to consumers. Additionally, the Act recognizes "a redemption center for a dealer." Unapproved redemption centers in existence on May 22, 2002, and served by distributors on a voluntary basis may formalize the status quo by registering with the department pursuant to 107.4(4).

107.4(1) Approved redemption centers.

a. Any person may file with the department an application for approval of a redemption center.

b. An application for approval of a redemption center shall be submitted on Form LQ38 or on 8½″ × 11″ paper and shall contain the following information:

(1) Name, address and telephone number of the redemption center;

(2) Name, address and telephone number of the person or persons responsible for the establishment and operation of the redemption center;

(3) Indication that the redemption center will accept all kinds, sizes, and brand names of beverage containers sold by the dealers served by the redemption center;

(4) Names and addresses of the dealers to be served by the redemption center and the written consent of those dealers to be served by the redemption center;

(5) Distance, in blocks or other appropriate measure, from the redemption center to each dealer to be served by the redemption center;

(6) Names and addresses of the distributors whose beverage containers will be redeemed;

(7) Hours during which the redemption center is to be open;

(8) Whether metal, glass or plastic beverage containers will be crushed or broken and, if so, the written consent of the distributor or manufacturer to the crushing or breaking;

(9) Reasons why the redemption center and the dealers to be served by it believe that the redemption center will provide a convenient service to consumers.

c. A redemption center shall be approved as a redemption center for a dealer if the department determines that the redemption center will provide a convenient service to the dealer's customers.

The department order that approves the redemption center shall name the dealers to be served by the redemption center.

d. An approved redemption center may file with the department a supplemental application to serve additional dealers. The supplemental application shall be in the form and contain the information required by paragraph *"b."* If the department finds that the redemption center will provide a convenient service to the customers of those additional dealers which the redemption center proposes to serve, the department shall supplement its order approving the redemption center to name the additional dealers.

e. A dealer named in the department order that approves a redemption center or named in a supplemental order shall be an exempt dealer.

f. The department may at any time rescind the order approving a redemption center or terminate the exemption of a dealer if the department determines, after notice and hearing, that the redemption center is in violation of the Act or this chapter or that the redemption center is no longer meeting the above criteria or is no longer providing a convenient service to a dealer's customers.

g. A dealer may withdraw its consent to be served by a redemption center which is approved as a redemption center for the dealer by filing with the department written notice of withdrawal of consent. A dealer which has withdrawn its consent is no longer an exempt dealer, and the approval of its redemption center as a redemption center for the dealer is thereby terminated.

h. An approved redemption center shall accept from consumers and shall pay the refund value for all beverage containers that bear an Iowa refund value and are of the kinds, sizes and brand names sold by the dealers for which it is an approved redemption center.

i. An approved redemption center shall be in operation and open to the public for redemption of beverage containers at least 20 hours per week, 4 hours of which shall be between the hours of 6 p.m. and 10 p.m. or on Saturday or Sunday, or a combination thereof.

j. When an approved redemption center is closing permanently, it shall give to the department notice that includes the redemption center's final date of operation. As of the final date of operation, the redemption center's approval as a redemption center shall be terminated and a dealer it was approved to serve shall no longer be an exempt dealer.

107.4(2) Unapproved redemption centers. Nothing in the Act or this chapter prevents a person from establishing a redemption center that has not been approved by, certified by, or registered with the department. Before commencing operations, unapproved redemption centers shall provide the following to the department:

a. Name, address and telephone number of the redemption center;

b. Name, address and telephone number of the person or persons responsible for the establishment and operation of the redemption center; and

c. Operating hours of the redemption center.

When the redemption center is closing permanently, it shall give to the department notice that includes the redemption center's final date of operation.

107.4(3) Redemption center for a dealer.

a. A redemption center that proposes to provide beverage container sorting or handling services for a dealer but that is not an approved redemption center for the dealer may file with the department an application for certification as a redemption center for the dealer.

b. An application for certification as a redemption center for a dealer shall be on a form provided by the department on 8½″ × 11″ paper and shall contain the following information:

(1) Name, address and telephone number of the redemption center;

(2) Name, address and telephone number of the person or persons responsible for the establishment or operation of the redemption center;

(3) Names and addresses of the dealers for whom the redemption center is to provide beverage container sorting or handling services, the services to be provided to each dealer and the written consents of those dealers to be served by the redemption center;

(4) Names and addresses of the distributors for which the redemption center will provide beverage container sorting or handling services;

(5) Whether metal, glass or plastic beverage containers will be crushed or broken and, if so, the written consent of the distributor or manufacturer to the crushing or breaking.

c. A redemption center which meets the above criteria shall be certified as a redemption center for that dealer.

d. A dealer for which the redemption center is certified is not an exempt dealer.

e. The department may at any time terminate the certification of a redemption center as a redemption center for that dealer if the department determines, after notice and hearing, that the redemption center is in violation of the Act or this chapter or no longer meets the above criteria.

f. A dealer may withdraw its consent to be served by a redemption center for that dealer by filing with the department written notice of withdrawal of consent, and the certification of the redemption center as a redemption center for that dealer is thereby terminated.

g. When a redemption center for a dealer is no longer serving a dealer for which it is certified, the redemption center shall notify the department. When a redemption center is no longer serving any dealers for which it is certified, its certification as a redemption center for a dealer is terminated.

107.4(4) Registered redemption centers.

a. A redemption center which was in operation and open to the public for redemption of beverage containers on May 22, 2002, may on or before 90 days from December 17, 2002, file an application for registration with the department. The department shall not accept an application for registration of a redemption center after 90 days from December 17, 2002.

b. An application for registration of a redemption center shall be on a form provided by the department or on an 8½″ × 11″ paper and shall contain the following information:

(1) Name, physical address, and telephone number of the redemption center;

(2) Name, address and telephone number of the person or persons responsible for the operation of the redemption center;

(3) Kinds, sizes and brand names of the beverage containers that are accepted by the redemption center;

(4) Hours the redemption center is open;

(5) Names and addresses of the distributors that are picking up beverage containers from the redemption center;

(6) Whether metal, glass or plastic beverage containers will be crushed or broken and, if so, the written consent of the distributor or manufacturer to the crushing or breaking;

(7) Proof that the redemption center was in operation and open to the public for redemption of beverage containers on May 22, 2002.

c. A redemption center shall be accepted for registration if the department is satisfied the redemption center was in operation and open to the public for redemption of beverage containers on May 22, 2002, at the location specified in its application. The registration shall be specific to the location in business on May 22, 2002, and may not be expanded to encompass additional locations, but a registered redemption center, with the approval of the department, may relocate to a new location within five miles of its original location so long as the existing location is closed.

d. The department may at any time terminate the registration of a redemption center if the department determines, after notice and hearing, that the redemption center is in violation of the Act or this chapter.

e. A registered redemption center shall accept from consumers and shall pay the refund value for all beverage containers bearing an Iowa refund value which are of the kinds, sizes and brand names listed in its application for registration.

f. A registered redemption center shall be in operation and open to the public for redemption of beverage containers at least 20 hours per week.

g. When a registered redemption center is closing permanently, it shall give notice to the department, including the final date of operation, and its registration as a registered redemption center is terminated as of that date.

107.4(5) An exempted dealer must prominently post on the premises of the dealer a sign provided at no cost by the department. The sign will include the location and hours of the redemption center.

107.4(6) An approved redemption center must notify the department and any exempted dealers with which it has agreements 30 days prior to the redemption center's closing.

567—107.5(455C) Redeemed containers—use. Distributors are requested to inform the department of the intended ultimate use or disposal of redeemed beverage containers. The commission requires the reuse or recycling of empty beverage containers, and the department will assist distributors in finding and examining alternatives to burial of empty containers in sanitary landfills.

567—107.6(455C) Rules relating to alcoholic liquor containers and wine containers purchased from state-owned liquor stores. Rescinded IAB 4/17/02, effective 5/22/02.

567—107.7(455C) Redeemed containers must be reasonably clean. Consumers shall take care to return containers in a reasonably clean and intact condition. In order to be redeemed, an empty beverage container shall be dry and free of foreign materials other than the dried residue of the beverage.

567—107.8(455C) Interpretive rules.

107.8(1) Beverage containers "sold" on interstate carriers. It is common practice for interstate carriers to provide or sell soft drinks, beer, wine, or alcoholic liquor to passengers for consumption on the conveyance. Such containers are not a litter problem and their return would be impractical. Since statutes should be construed to avoid a strained or impractical result, the commission believes that control of the beverage containers "sold" on interstate carriers is beyond the objectives sought to be obtained by the Act and that these containers are not subject to the deposit and labeling requirements of the Act.

107.8(2) Beverage containers must be reasonably intact. In order to be redeemed, an empty beverage container must be returned reasonably intact. For a refillable beverage container, the container must hold liquid, be able to be resealed and be in its original shape. A nonrefillable glass container may be chipped, but it may not have the bottom broken out or the neck broken off. A nonrefillable metal container may be dented or partially crushed, but may not be crushed flat. A returned beverage container should be able to stand on its own base.

107.8(3) Vending machines.

a. When a beverage container is dispensed from a vending machine in exchange for money, there is presumed to be a sale of a beverage in a beverage container to a consumer. Therefore some person must be the "dealer" who is responsible for collecting the deposit at the time of sale and for refunding the deposit when the empty beverage container is returned. Because of the variety of contractual relationships surrounding operation of a vending machine, the person who is the "dealer" might be the owner of the vending machine, the lessee of the vending machine, the owner of the premises on which the vending machine is located, or the person who stocks the vending machine. It is incumbent upon the parties involved in the operation of a vending machine to determine the person who is the "dealer" and to indicate prominently on the vending machine the name, location and normal operating hours of the dealer (or an approved redemption center) if the dealer does not have personnel on its premises.

b. If the vending machine is located on premises where personnel of the dealer are not normally working, there is no obligation to provide personnel to redeem beverage containers at the site of the vending machine. However, the "dealer" must provide for redemption of beverage containers at the dealer's usual working place.

107.8(4) Transfer tanks, premix tanks and beer kegs. Because transfer tanks, premix tanks and beer kegs (half-kegs, quarter kegs or pony kegs) are refillable, are returned to distributors and are not a litter problem, the commission believes that control of these containers is beyond the objectives sought to be obtained by the Act and that these containers are not subject to the deposit and labeling requirements of the Act.

107.8(5) Return limits. Dealers may limit the number of containers returned by an individual to 120 containers in a 24-hour period. Redemption centers may limit the number of containers returned by an individual to 500 containers in a 24-hour period.

107.8(6) Hours of returns for dealers. A dealer, unless exempted pursuant to 107.4(4), must accept returns, at a minimum, from 7 a.m. to 10 p.m. unless the dealer's operating hours are shorter, in which case returns shall be limited to the dealer's hours of operation. If a dealer chooses to limit the hours of returns, the dealer must post a sign stating the hours during which beverage containers are accepted for return.

107.8(7) A dealer shall provide to the department upon request the name, telephone number and address of the distributor of any or all beverages sold by the dealer.

567—107.9(455C) Pickup and acceptance of redeemed containers.

107.9(1) *Pickup from dealers.* A distributor shall accept and pick up from a dealer served by the distributor, other than an exempt dealer, all empty beverage containers that bear an Iowa refund value and are of the kinds, sizes and brand names sold by the distributor. The distributor shall pick up the empty beverage containers at least weekly, or when the distributor delivers the beverage product to the dealer if deliveries are less frequent than weekly, unless otherwise agreed to by both the distributor and the dealer.

107.9(2) *Pickup from approved redemption centers and redemption centers certified as a redemption center for a dealer.* A distributor shall pick up from an approved redemption center for a dealer served by the distributor and from a redemption center certified as a redemption center for a dealer served by the distributor all empty beverage containers that bear an Iowa refund value and are of the kinds, sizes and brand names sold by the distributor. The distributor shall pick up the empty beverage containers at least weekly, or when the distributor delivers the beverage product to the dealer for which the redemption center is certified as a redemption center if deliveries are less frequent, unless otherwise agreed to by both the distributor and the approved redemption center or the certified redemption center for a dealer, as the case may be.

107.9(3) *Pickup from registered redemption centers.* A distributor shall pick up from a registered redemption center at the physical address specified in the redemption center's application, or at a new location approved by the department pursuant to 107.4(4), all empty beverage containers that bear an Iowa refund value and are of the kinds, sizes and brand names sold by the distributor. The distributor shall pick up the empty beverage containers according to the following schedule:

a. At least as frequently as the distributor picks up empty beverage containers from a dealer served by the distributor and located within three road miles of the registered redemption center, but not less frequently than once every ten calendar days;

b. At least once every ten calendar days for a registered redemption center located more than three road miles from the closest dealer served by the distributor; or

c. As agreed to by both the distributor and the registered redemption center.

107.9(4) *Acceptance of redeemed containers from redemption centers.* A distributor shall accept delivery of empty beverage containers from and pay the refund value and handling fee to a redemption center located within the distributor's geographic service area provided that the containers bear an Iowa refund value and are of the kinds, sizes and brand names sold by the distributor.

107.9(5) *Acceptance of redeemed containers from dealer agents.* A distributor shall accept delivery of empty beverage containers from and pay the refund value and handling fee to a dealer agent provided that the containers were picked up by the dealer agent within the distributor's geographic service area and that they bear an Iowa refund value and are of the kinds, sizes and brand names sold by the distributor.

107.9(6) *Notification of frequency.* A distributor shall notify each dealer served by the distributor of the intended frequency of pickup. A distributor shall notify each redemption center from which the distributor is required to pick up containers of the intended frequency of pickup.

107.9(7) *Partial pickup.* A distributor which picks up containers more often than the required frequency shall not be required to pick up all available containers from a dealer or redemption center at each pickup provided that all available containers are picked up from the dealer or redemption center within the required frequency.

567—107.10(455C) Dealer agent lists. A dealer agent shall provide to a distributor upon request a list of the dealers that the dealer agent is serving.

567—107.11(455C) Refund value stated on containers—exceptions. Exceptions in Iowa Code section 455C.5(2) are limited to once in a 24-hour period.

567—107.12(455C) Education. Dealers who are not exempt dealers pursuant to 107.4(4) and redemption centers shall maintain and prominently display at the point of redemption easily readable signage using language developed by the department in cooperation with dealers and redemption centers. The signage shall provide information regarding prohibited practices, consumers' responsibilities when returning containers, and the ability of dealers to limit the number of containers returned in accordance with 107.8(5). The department shall provide language for the signs on the department's Web site.

567—107.13(455C) Refusing payment when a distributor discontinues a specific beverage product. A distributor, dealer or redemption center may refuse to pay the refund value and the handling fee in the following situations:

107.13(1) A distributor may refuse to pay the refund value if the distributor has given notice, in writing, to dealers to whom the distributor sold similar beverage containers and to the redemption centers served by the distributor and if at least four months have elapsed since the mailing of such notice. The notice shall state that the particular kind, size and brand of container offered for refund has been discontinued. This notice will be mailed not more than 30 days before the final delivery of the product.

107.13(2) A dealer or redemption center may refuse to pay the refund value of beverages discontinued by the distributor, in accordance with subrule 107.13(1), no sooner than three months after the distributor has mailed the notice required by subrule 107.13(1). In no event shall a dealer or redemption center refuse to pay the refund value of discontinued beverages unless such dealer or redemption center shall have posted for at least 30 days a conspicuous notice advising consumers of the final date of acceptance.

567—107.14(455C) Payment of refund value.

107.14(1) *Payment to dealers.* A distributor shall issue to a dealer payment of the refund value and handling fee within one week following pickup or when the dealer pays the distributor for the beverages, if payment is less frequent than weekly.

107.14(2) *Payment to approved redemption centers and redemption centers certified as a redemption center for a dealer.* A distributor shall issue to an approved redemption center and to a redemption center for a dealer payment of the refund value and handling fee within one week following pickup unless otherwise agreed to by both the distributor and the redemption center.

107.14(3) *Payment to registered redemption centers.* A distributor shall issue to a registered redemption center payment of the refund value and handling fee within one week following pickup or when the dealer which is served by the distributor and which is closest to the registered redemption center pays the distributor for the beverages supplied by the distributor, if payment is less frequent than weekly. Payment to a registered redemption center shall be issued by a distributor at least every 14 calendar days unless otherwise agreed to by both the distributor and the registered redemption center.

107.14(4) *Payment to redemption centers and dealer agents delivering containers to distributors.* A distributor shall issue to a redemption center or dealer agent payment of the refund value and handling fee within one week of delivery and acceptance of empty beverage containers, unless otherwise agreed to by both the redemption center and the distributor or by both the dealer agent and the distributor, as the case may be.

567—107.15(455C) Sales tax on deposits. The department of revenue has determined that the payment of the deposit by a consumer is not a sale subject to the payment of additional sales tax.

567—107.16(82GA,HF2700) Independent redemption center grant program. Rescinded **ARC 1956C**, IAB 4/15/15, effective 5/20/15.

These rules are intended to implement Iowa Code chapter 455C.

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[1] The Administrative Rules Review Committee at their January 4, 1979, meeting delayed [DEQ 34.8(1)] 107.8(1) under provisions of 67 GA, SF 244, §19.

[2] Effective date of amendments to 567—107.1(455C) to 567—107.15(455C) adopted as ARC 1538B delayed 70 days by the Administrative Rules Review Committee at its meeting held May 15, 2002. At its meeting held July 9, 2002, the Committee delayed the effective date until adjournment of the 2003 Session of the General Assembly. At its meeting held August 13, 2002, the Committee lifted the delay, with the exception of 107.4(3)*"d,"* 107.4(4), 107.9(2), 107.9(3) and the second paragraph of 107.14, which were placed under Session Delay and remained delayed until December 17, 2002, when amendments published January 8, 2003, became effective.

CHAPTER 108
BENEFICIAL USE DETERMINATIONS: SOLID BY-PRODUCTS AS RESOURCES AND ALTERNATIVE COVER MATERIAL

[Prior to 7/1/83, DEQ Ch 39]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—108.1(455B,455D) Purpose. The purpose of this chapter is to establish rules for determining when a solid by-product is a resource and not a solid waste. Solid by-products determined by the department not to be a solid waste through a beneficial use determination may not be subject to all sanitary disposal project (SDP) permitting requirements. Furthermore, the purpose of this chapter is to encourage the utilization of solid by-products as resources when such utilization improves, or at a minimum does not adversely affect, human health and the environment.

567—108.2(455B,455D) Applicability and compliance.

108.2(1) These rules apply to industrial, commercial, and institutional generators and users or proposed users of solid by-products and to sanitary landfills utilizing or desiring to utilize alternative cover material. These rules apply to solid by-products that before receiving a beneficial use determination by the department were being disposed of as solid waste. These rules do not apply to solid by-products that have already been disposed of as solid waste by the generator.

108.2(2) These rules do not pertain to the land application of solid waste. For rules pertaining to the land application of solid waste, see 567—Chapter 121. However, for solid by-products that are land-applied pursuant to 567—Chapter 121, a variance from some or all of the requirements of 567—Chapter 121 may be gained through receipt of a beneficial use determination from the department.

108.2(3) These rules do not pertain to solid waste processing operations pursuant to 567—Chapter 104. However, for solid by-products that are processed pursuant to 567—Chapter 104, a variance from some or all of the requirements of 567—Chapter 104 may be gained through receipt of a beneficial use determination from the department.

108.2(4) These rules do not pertain to solid waste composting pursuant to 567—Chapter 105. However, for solid by-products that are composted pursuant to 567—Chapter 105, a variance from some or all of the requirements of 567—Chapter 105 may be gained through receipt of a beneficial use determination from the department.

108.2(5) Beneficial use determinations granted by the department before April 23, 2003, shall remain in effect unless specifically addressed by these rules or by written notification pursuant to 567—108.11(455B,455D).

108.2(6) The issuance of a beneficial use determination by the department relieves the generator and user(s) of all Iowa solid waste requirements specifically noted in the written determination. Requirements that may be relieved by a beneficial use determination may include rules, SDP permits, and permit conditions and variances. Solid by-products that have not received a beneficial use determination by the department are subject to all of Iowa's regulations pertaining to solid waste. The issuance of a beneficial use determination by the department in no way relieves the generator or user of the responsibility of complying with all other local, state, and federal statutes, ordinances, and rules or other applicable requirements.

567—108.3(455B,455D) Definitions. For the purposes of this chapter, the following terms shall have the meaning indicated in this chapter. The definitions set out in Iowa Code section 455B.301 shall be considered to be incorporated verbatim in these rules.

"Alternative cover material" means a substitute material or mix of materials that can be utilized in lieu of soil as cover material at a sanitary landfill.

"Beneficial use" means a specific utilization of a solid by-product as a resource, that constitutes reuse rather than disposal, does not adversely affect human health or the environment, and is approved by the department.

"Beneficial use determination" means a written formal decision or rule issued by the department as approval for a solid by-product to be utilized in a specific manner as a beneficial use.

"Coal combustion by-product" means any solid by-product produced by the burning of coal, by itself or in conjunction with natural gas or other fossil fuel, which is suitable for disposal as solid waste in a sanitary landfill. Examples include boiler slag, bottom ash, fly ash, and flue gas desulfurization by-products from pollution control equipment. Coal combustion by-products are also referred to as coal combustion residue.

"Cover material" means soil placed as daily, intermediate, or final cover at a sanitary landfill.

"Fill material" means material that is used to raise the elevation of, take up space in, or build up the level of the land. For the purposes of this chapter, fill material is not considered subbase for hard-surface road construction.

"Foundry sand" means a solid by-product from the foundry industry that is derived from molding, core-making, and casting cleaning processes that primarily contain sand, olivine, or clay and that is suitable for disposal as solid waste in a sanitary landfill.

"High water table" is the position of the water table which occurs in the spring in years of normal or above-normal precipitation.

"Resource" means a solid by-product that can provide greater benefit to the environment or human welfare in its beneficial use as a safe and effective substitute for a raw material, fuel or energy source, or natural resource, rather than being disposed of as a solid waste in a sanitary landfill.

"Solid by-product" means a secondary material or residual, produced or created by an industrial, commercial or institutional process or activity, that has been source separated by the generating entity and that would otherwise be disposed of as solid waste. Solid by-products are composed of materials suitable for disposal as solid waste in a sanitary landfill.

"Subbase for hard-surface road construction" means material that is used in subsurface applications for the construction of roads, including their shoulders, and parking lots that have hard surfaces such as concrete or asphalt. For the purposes of this chapter, subbase for hard-surface road construction is not considered fill material.

"Suitable for disposal as solid waste in a sanitary landfill" means that the material is in compliance with all state and federal rules and regulations pertaining to what may be disposed of in an Iowa sanitary landfill. Such materials are at a minimum nonhazardous and nonradioactive, are solid or semisolid, and do not contain free liquids pursuant to the Paint Filter Liquids Test (Reference: 40 CFR 258.28).

"Vector" means a carrier organism that is capable of transmitting a pathogen from one organism to another. Vectors include, but are not limited to, birds, rats and other rodents, and insects.

"Water table" means the water surface below the ground at which the unsaturated zone ends and the saturated zone begins.

567—108.4(455B,455D) Universally approved beneficial use determinations. The following solid by-products may be utilized as resources in the specific manners listed provided that such utilization is in compliance with 567—108.6(455B,455D) and 567—108.7(455B,455D). Unless a user is otherwise notified by the department pursuant to 567—108.11(455B,455D), such utilization does not require further approval from the department.

108.4(1) *Alumina.* Alumina may be used as a raw material in the manufacture of cement or concrete products. Alumina includes refractory brick for the purpose of this subrule.

108.4(2) *Asphalt shingles.* Asphalt shingles that are certified, consistent with federal regulations (Reference: Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy), as not containing more than 1 percent asbestos may be used as follows:

a. Raw material in the manufacture of asphalt products.

b. Subbase for hard-surface road construction.

c. Road surfacing granular material.

d. Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

108.4(3) *Cement kiln dust.* Cement kiln dust may be used as follows:

a. Raw material in the manufacture of absorbents.

b. Raw material in the manufacture of cement or concrete products.

c. Subbase for hard-surface road construction.

d. A soil amendment pursuant to 567—Chapter 121 and the rules of the Iowa department of agriculture and land stewardship or a compost amendment.

e. A stabilizer for manure and waste sludge.

f. A soil stabilizer for construction purposes.

g. Fill material pursuant to 108.6(1).

108.4(4) *Coal combustion by-products.*

a. Coal combustion fly ash and flue gas desulfurization by-products may be used as follows:

(1) Raw material in manufactured gypsum, wallboard, plaster, or similar product.

(2) Raw material in manufactured calcium chloride.

(3) Raw material in the manufacture of absorbents.

(4) Fill material pursuant to 108.6(1).

(5) Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

b. Coal combustion fly ash or bottom ash or boiler slag may be used as follows:

(1) Raw material in the manufacture of cement or concrete products.

(2) Raw material to be used in mineral recovery.

(3) Raw material in the manufacture of asphalt products.

(4) Raw material in plastic products.

(5) Subbase for hard-surface road construction.

(6) Soil stabilization for construction purposes.

(7) Fill material pursuant to 108.6(1).

(8) Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

c. Coal combustion bottom ash may also be used as follows:

(1) Traction agent for surfaces used by vehicles.

(2) Sandblasting abrasive.

108.4(5) *Compost.* Cured or finished compost, as defined in 567—Chapter 105, is not solid waste and may be used for any purpose recognized by the U.S. Composting Council or the department.

108.4(6) *Foundry sand.* Foundry sand may be used as follows:

a. Raw material in the manufacture of asphalt products.

b. Raw material in the manufacture of cement or concrete products.

c. Leachate control drainage material at a sanitary landfill.

d. Subbase for hard-surface road construction.

e. Fill material pursuant to 108.6(1).

f. Emergency flood control use for sandbags.

g. Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

108.4(7) *Glass.* Uncontaminated, unleaded glass may be used as follows:

a. Raw material in the manufacture of asphalt products.

b. Fill material pursuant to 108.6(1).

c. Sandblasting or other abrasive.

d. Leachate control drainage material at a sanitary landfill.

e. Filter media.

f. Subbase for hard-surface road construction.

g. Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

108.4(8) *Gypsum and gypsum wallboard.*

a. All gypsum and gypsum wallboard may be used as follows:

(1) Raw material in the manufacture of absorbents.

(2) Raw material in the manufacture of other gypsum products, wallboard, plaster, or similar products.

(3) Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

b. Gypsum and gypsum wallboard that have not been treated to be water-resistant or flame-retardant may be used as a calcium additive for agricultural use or soil amendment pursuant to 567—Chapter 121 or a compost amendment.

108.4(9) *Lime.* Lime produced as a by-product of public water supplies may be used as follows:

a. A soil amendment pursuant to 567—Chapter 121 and the rules of the Iowa department of agriculture and land stewardship or a compost amendment.

b. Raw material in the manufacture of calcium carbonate or similar substance.

108.4(10) *Lime kiln dust.* Lime kiln dust may be used as follows:

a. Raw material in the manufacture of absorbents.

b. Raw material in the manufacture of cement or concrete products.

c. Subbase for hard-surface road construction.

d. A soil amendment pursuant to 567—Chapter 121 and the rules of the Iowa department of agriculture and land stewardship or a compost amendment.

e. A stabilizer for manure and waste sludge.

f. A soil stabilizer for construction purposes.

g. Fill material pursuant to 108.6(1).

108.4(11) *Paper mill sludge.* Uncontaminated, dewatered paper mill sludge may be used as follows:

a. A fuel or energy source.

b. Bulking agent or carbon source for composting.

c. Animal bedding.

d. Raw material in the manufacture of absorbents.

e. Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

108.4(12) *Rubble.* Uncontaminated rubble such as concrete, brick, asphalt pavement, soil and rock may be used for fill, landscaping, excavation or grading or as a substitute for conventional aggregate. Asphalt, however, shall not be used for any of the aforementioned uses if the use will cause the asphalt to be placed in a waterway or wetland or any waters of the state or within the high water table.

108.4(13) *Sandblasting abrasives.* Sandblasting abrasives that do not contain lead-based paint may be used as follows:

a. Raw material in the manufacture of cement or concrete products.

b. Raw material in the manufacture of asphalt products.

c. Subbase for hard-surface road construction.

d. Raw material in the manufacture of abrasive products.

e. Fill material pursuant to 108.6(1).

f. Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

108.4(14) *Soil, including petroleum-contaminated soil.*

a. Uncontaminated soil may be used for fill, landscaping, excavation or grading, or other suitable purpose.

b. Petroleum-contaminated soils that have been decontaminated to the satisfaction of the department pursuant to 567—Chapter 120 may be used as follows:

(1) Fill material at the original excavation site pursuant to 108.6(1).

(2) Alternative cover material at a sanitary landfill pursuant to 567—108.8(455B,455D).

108.4(15) *Tires.* This chapter does not pertain to tires other than those used as alternative cover material pursuant to 567—108.8(455B,455D). Refer to 567—Chapter 117 for rules regarding the beneficial use of tires.

108.4(16) *Wastewater filter sand.* Wastewater filter sand may be used as follows:

a. Fill material pursuant to 108.6(1).

b. Subbase for hard-surface road construction.

108.4(17) *Wood.* Uncontaminated, untreated or raw wood may be used as follows:

a. A fuel or energy source.

b. Bulking agent for composting.

c. Mulch.

d. Animal bedding.

e. Raw material in the manufacture of paper products, particle board, or similar materials.

108.4(18) *Wood ash.* Ash from the combustion of uncontaminated, untreated or raw wood may be used as follows:

a. A soil amendment pursuant to 567—Chapter 121.

b. A carbon source for composting.

c. Raw material in the manufacture of cement or concrete products.

d. Fill material pursuant to 108.6(1).

567—108.5(455B,455D) Application requirements for beneficial use determinations other than alternative cover material. Unless the beneficial use is approved pursuant to 567—108.4(455B,455D), the applicant shall submit the following application information to the department. The department may request that additional information be submitted in order to make a beneficial use determination. The department may also require specific conditions on a beneficial use determination and issue a temporary beneficial use determination on a trial basis.

The generator of a solid by-product may apply to the department in writing for a beneficial use determination. If the department finds the application information to be incomplete, then it shall notify the applicant in writing of that fact and of the specific deficiencies and return the application materials to the applicant within 30 days of such notification. The applicant may reapply without prejudice.

108.5(1) The name, address, and telephone number of:

a. Owner of the site where the project will be located.

b. Applicant for the beneficial use determination.

c. Official responsible for the operation of the project.

d. Professional engineer (P.E.) licensed by the state of Iowa and retained for the project, if any. The department may, at its sole discretion, require the applicant to retain a professional engineer for the project or specific parts thereof.

e. Agency to be served by the project, if any.

f. Responsible official of agency to be served.

108.5(2) A description of the solid by-product under review and its proposed use.

108.5(3) The chemical and physical characteristics of the solid by-product under review and of each type of proposed product.

108.5(4) A demonstration that there is a known or reasonably probable market for the intended use of the solid by-product under review by providing one or more of the following:

a. A contract to purchase or utilize the solid by-product for the use proposed.

b. A description of how the solid by-product will be used.

c. A demonstration that the solid by-product complies with industry standards and specifications for that product.

d. Other documentation that a market for the solid by-product exists.

108.5(5) A demonstration that the proposed use of the solid by-product will not adversely affect human health or the environment. The demonstration may include, but is not limited to, a toxicity characteristics leaching procedure (TCLP, EPA Method 1311) analysis and total metals testing of a representative sample of the solid by-product.

108.5(6) A solid by-product management plan pursuant to 108.6(2).

567—108.6(455B,455D) Requirements for beneficial uses other than alternative cover material.

108.6(1) *Solid by-products beneficially used as fill material.* All beneficial uses, including those listed in 567—108.4(455B,455D) other than rubble and soil, shall meet the following requirements, unless a variance is granted in writing by the department for a specific location, if the beneficial use entails the solid by-product's being used as fill material:

a. Leachate characteristics of the solid by-product shall be measured by the synthetic precipitation leaching procedure (SPLP, EPA Method 1312) and shall be less than or equal to ten times the maximum contaminant levels (MCL) for drinking water. Foundry sand and coal combustion by-products may limit the SPLP analytes to total metals for drinking water.

b. Total metals testing results, which shall include thallium, shall be consistent with the department's statewide standards for soil pursuant to 567—Chapter 137. Arsenic levels shall be consistent with the statewide standards for soil or the naturally occurring (i.e., background) arsenic levels of the soil, whichever are greater.

c. The solid by-product shall produce a fill that has a pH:

(1) Greater than or equal to 5 and less than or equal to 8 if the fill may be used as growing media either now or in the future.

(2) Greater than or equal to 5 and less than 12 if the fill is specifically intended not to be used as growing media either now or in the future. In this category of fill, materials with a pH equal to or greater than 10 but less than 12 shall be used only in areas where direct physical contact by humans for long periods of time is not expected to occur.

(3) For deep fills where only the surface may serve as growing media either now or in the future, then at a minimum the top three feet shall have a pH greater than or equal to 5 and less than or equal to 8. Fill material below the top three feet shall have a pH greater than or equal to 5 and less than or equal to 12.

d. The by-product shall not be placed in a waterway or wetland or any waters of the state or extend below or within five feet of the high water table.

e. The by-product shall not be placed within the 100-year flood plain unless in accordance with all local and department regulations including rule 567—71.5(455B).

f. The by-product shall not be placed closer than 200 feet to a sinkhole or to a well that is being used or could be used for human or livestock water consumption.

g. The by-product shall not be putrescible.

108.6(2) *Solid by-product management plans.* All recipients of beneficial use determinations granted pursuant to 567—108.5(455B,455D) and coal combustion by-product and foundry sand beneficial uses listed in 567—108.4(455B,455D) shall develop and maintain a solid by-product management plan that satisfies the following requirements:

a. Lists the source(s) of the solid by-product.

b. Lists procedures for periodic testing of the solid by-product to ensure that the chemical and physical composition has not changed significantly.

c. Provides a description of storage procedures including:

(1) Storage location(s).

(2) Maximum anticipated inventory, including dimensions of any stockpiles.

(3) Run-on and run-off controls, which may include a storm water National Pollutant Discharge Elimination System (NPDES) permit.

(4) Management practices to minimize uncontrolled dispersion of the solid by-product.

(5) Maximum storage time, not to exceed six months unless authorized in writing by the department.

567—108.7(455B,455D) Record-keeping and reporting requirements for beneficial use projects other than alternative cover material.

108.7(1) Any entity that engages in the beneficial use of a solid by-product, other than for alternative cover material, and that satisfies at least one of the following criteria shall comply with record-keeping and reporting requirements set forth in this rule:

a. The entity has been granted a beneficial use determination pursuant to 567—108.5(455B,455D).

b. The solid by-product is not rubble or soil and is being beneficially used as fill material.

c. The solid by-product is a coal combustion by-product or foundry sand.

108.7(2) Record keeping. Generators shall maintain all records related to the solid by-product management plan for a minimum duration of five years.

108.7(3) Reporting. Reports shall be filed with the department's central office and the field office with jurisdiction over the generator as follows:

a. Unless otherwise directed by the department, generators shall submit to the department a copy of the solid by-product management plan whenever that plan is revised or within 60 days of the end of the calendar year, whichever is earlier.

b. Generators whose solid by-products are being beneficially used as fill material shall submit to the department within 60 days of the end of the calendar year the following information for each beneficial use project or activity:

(1) The location of the project.
(2) The tons of solid by-product utilized for the project.

567—108.8(455B,455D) Universally approved beneficial use determinations for alternative cover material. Unless the landfill is otherwise notified pursuant to 567—108.11(455B,455D), the following alternative cover materials may be beneficially used as daily cover material at sanitary landfills in the manner and volume specified by sanitary landfill rules. However, sanitary landfills shall amend their sanitary landfill permits by notifying the department, and the department field office with jurisdiction over the facility, of their intent to utilize solid by-products pursuant to this rule at least 30 days prior to actual utilization of the by-products as alternative cover material.

108.8(1) *Asphalt shingles.* Asphalt shingles that are certified, consistent with federal regulations (Reference: Appendix E, Subpart E, 40 CFR Part 763, Section 1, Polarized Light Microscopy), as not containing more than 1 percent asbestos and are ground to an average size of 3 inches or less in any dimension may be mixed with soil in a 50/50 volume.

108.8(2) *Coal combustion by-products.* Coal combustion by-products may be mixed with soil in a 50/50 volume.

108.8(3) *Compost.* One hundred percent cured or finished compost, and compost rejects, may be used.

108.8(4) *Diatomaceous earth.* Diatomaceous earth may be mixed with soil in a 50/50 volume.

108.8(5) *Foundry sand.* Foundry sand may be mixed with soil in a 50/50 volume.

108.8(6) *Glass.* Glass that has been ground to an average size of ½ inch or less in any dimension may be mixed with soil in a 10 percent glass and 90 percent soil by volume mixture.

108.8(7) *Gypsum and gypsum wallboard.* Gypsum and gypsum wallboard that have been ground to an average size of 3 inches or less in any dimension may be mixed with soil in a 50/50 volume.

108.8(8) *Paper mill sludge.* Uncontaminated, dewatered paper mill sludge may be mixed with soil in a 50/50 volume.

108.8(9) *Sandblasting abrasive.* Sandblasting abrasive and residuals may be mixed with soil in a 50/50 volume.

108.8(10) *Soil, including petroleum-contaminated soil.* Petroleum-contaminated soils that have been decontaminated to the satisfaction of the department pursuant to 567—Chapter 120 may be utilized.

108.8(11) *Tire chips.* Tire chips that are an average size of 3 inches or less in any dimension may be mixed with soil in a 50/50 volume.

567—108.9(455B,455D) Beneficial use determination application requirements for alternative cover material. Unless the alternative cover material beneficial use is approved pursuant to 567—108.8(455B,455D), the applicant shall submit the following application information to the department to amend the sanitary landfill permit. The department may request that additional information be submitted in order to make a beneficial use determination. The department may also require specific beneficial use determination conditions and issue a temporary beneficial use determination on a trial basis.

If the department finds the application information to be incomplete, then it shall notify the applicant in writing of that fact and of the specific deficiencies and return the application materials to the applicant within 30 days of such notification. The applicant may reapply without prejudice.

108.9(1) The name, address, and telephone number of:

a. Owner of the site where the project will be located.

b. Applicant for the beneficial use determination.

c. Official responsible for the operation of the project.

d. Professional engineer (P.E.) licensed by the state of Iowa and retained for the project, if any. The department may, at its sole discretion, require the applicant to retain a professional engineer for the project or specific parts thereof.

e. Agency to be served by the project, if any.

f. Responsible official of agency to be served.

108.9(2) A description of the proposed alternative cover material and whether it is to be used as daily, intermediate, or final cover.

108.9(3) The chemical and physical characteristics of the alternative cover material.

108.9(4) The proposed volume ratio of the alternative cover material(s) to soil or other alternative cover material(s).

108.9(5) A demonstration that there is a known or reasonably probable suitability of the alternative cover material as cover material by providing previous case studies of the alternative cover material being utilized as cover material's or the following information:

a. Information on the ability of the alternative cover material to reduce or maintain current odor levels.

b. Information on the ability of the alternative cover material to reduce or deter vectors.

c. Information on the ability of the alternative cover material to reduce or maintain the current risk of fire.

d. Information on the ability of the alternative cover material to control litter and dust.

e. Information on the ability of the alternative cover material to impede the infiltration of liquids and precipitation.

f. Information on the ability of the alternative cover material to control landfill gas migration.

g. Information on the ability of the alternative cover material to provide a safe and effective working surface.

h. Information on the ability of the alternative cover material to provide effective growing media.

i. Other documentation that the alternative cover material is suitable for cover material.

108.9(6) A demonstration that the proposed use of the alternative cover material will not adversely affect human health or the environment. The demonstration may include, but is not limited to, a toxicity characteristics leaching procedure (TCLP, EPA Method 1311) analysis of a representative sample of the alternative cover material.

567—108.10(455B,455D) Beneficial use of alternative cover material and state goal progress. Alternative cover material placed at no more than the thickness required by sanitary landfill rules shall be exempt from landfill tonnage measurements used for state goal progress and waste diversion calculations.

567—108.11(455B,455D) Revocation of beneficial use determinations. The department may revoke any beneficial use determination given pursuant to this chapter if it finds one or more of the following:

1. The matters serving as the basis for the department's determination were incomplete or incorrect or are no longer valid.

2. The department finds that there has been a violation of any law, rule, permit or other authorization in its jurisdiction.

3. The department has reasonable cause to suspect a significant risk to or adverse affect on human health or the environment.

These rules are intended to implement Iowa Code sections 455B.304 and 455D.4.

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CHAPTER 109
SPECIAL WASTE AUTHORIZATIONS

567—109.1(455B,455D) Purpose. The purpose of this chapter is to implement Iowa Code section 455B.304 and chapter 455D by providing rules for the disposal of special waste. The intent of these rules is to provide safe and proper management for disposal of special waste.

567—109.2(455B,455D) Special waste authorization required. No special wastes shall be delivered to or accepted by a municipal solid waste landfill unless disposal is authorized by a special waste authorization (SWA) issued by the department. Wastes for which an SWA has been issued shall be disposed of in accordance with the instructions, conditions, and limitations contained in the SWA. An SWA in effect on May 22, 2002, shall remain in effect until the SWA expires or until it is amended. Any amendment requests shall be handled under these rules.

567—109.3(455B,455D) Definitions.

"General special waste" means special wastes that are commonly accepted by landfills and have specific handling requirements for disposal that are explicitly listed in rule 567—109.11(455B,455D). General special wastes are required to be included in the landfill's special waste acceptance criteria (SWAC), but do not require a special waste authorization (SWA). The following wastes are approved as general special wastes: asbestos-containing material; petroleum-contaminated soil; and stabilized grit, bar screenings and grease skimmings.

"Industrial process waste" means waste that is generated as a result of manufacturing activities, product processing or commercial activities. It does not include office waste, cafeteria waste, or other types of waste that are not the direct result of production processes.

"Municipal solid waste landfill" or *"MSWLF"* means a discrete area of land or an excavation that receives household waste, and that is not a land application site, surface impoundment, injection well, or waste pile, as those terms are defined under 40 CFR Part 257.2. An MSWLF may also receive other types of the federal Resource Conservation and Recovery Act (RCRA) Subtitle D wastes, such as commercial solid waste, nonhazardous dry sludge, and industrial solid waste. An MSWLF may be publicly or privately owned. An MSWLF may be a new MSWLF site, an existing MSWLF site, or a lateral expansion.

"Pollution control waste" means any solid waste residue extracted by, or resulting from, the operation of pollution control processes.

"Solid waste" is defined in Iowa Code section 455B.301.

"Special handling" means a specific procedure required for handling certain waste to protect the health and safety of employees, the public and the environment.

"Special waste" means any industrial process waste, pollution control waste, or toxic waste which presents a threat to human health or the environment or a waste with inherent properties which make the disposal of the waste in a sanitary landfill difficult to manage. Special waste does not include domestic, office, commercial, medical, or industrial waste that does not require special handling or limitations on its disposal. Special waste does not include hazardous wastes which are regulated under the federal Resource Conservation and Recovery Act (RCRA), hazardous waste as defined in Iowa Code section 455B.411, subsection 3, or hazardous wastes included in the list compiled in accordance with Iowa Code section 455B.464.

"Toxic waste" means material containing poisons, biocides, acids, caustics, pathological wastes, and similar harmful wastes which may require special handling and disposal procedures to protect the environment and the persons involved in the storage, transport, and disposal of the waste.

567—109.4(455B,455D) Types of special wastes. Rescinded IAB 6/11/03, effective 7/16/03.

567—109.5(455B,455D) Applications.

109.5(1) Generators of special waste shall make application for an SWA by submitting the form "Request for Special Waste Authorization" accompanied by supporting data as required by the

department. Two copies shall be submitted to the department, and the department will forward one of the copies to the disposal site after the department review process is completed. The application shall include the following information when applicable:

a. Appropriate chemical analysis of the waste,

b. Physical form of the waste,

c. Weight or volume of the waste,

d. Material safety data sheet (MSDS) for the waste or for the materials from which the waste is generated, if applicable,

e. Toxicity characteristic leaching procedure (TCLP) test results when appropriate, which show that none of the federal limits in 40 CFR Part 261 are exceeded, and

f. Any other information requested by the department.

109.5(2) Additional requirements.

a. The waste shall not contain free liquids as defined at 567—100.2(455B,455D). The point of compliance shall be the working face.

b. The waste shall not be a listed hazardous waste or meet the criteria for characteristic hazardous waste pursuant to the federal Resource Conservation and Recovery Act (RCRA).

c. Wastes with PCB concentrations equal to or greater than 50 ppm shall not be authorized for disposal at a landfill.

d. Polynuclear aromatic hydrocarbon (PAH) (SW 846 Method 8270) contaminated soil shall not be authorized for disposal at a landfill if the total PAH level exceeds 1600 ppm for the following compounds: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluornathene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene or if the total carcinogenic PAH level exceeds 200 ppm for the following compounds: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene or if the cyanide level exceeds 1,000 ppm.

e. Special waste authorizations may be issued for a period not to exceed three years.

567—109.6(455B,455D) Restrictions.

109.6(1) The department may revoke an SWA for cause at any time. Such cause may include, but is not limited to, evidence that indicates that the characteristics of the authorized quality of the waste vary from the authorized values, evidence that the continued disposal of the waste as authorized may pose a threat to the public health or the environment, or failure to comply with any condition in the SWA or the landfill's SWAC.

109.6(2) The holder of an SWA must apply for a renewal at least 30 days prior to the expiration of the SWA.

109.6(3) The issuance of an SWA does not obligate any waste disposal facility to accept the waste nor does it preclude the facility from imposing conditions or restrictions other than those listed in the SWA.

109.6(4) The issuance of an SWA does not exempt the party disposing of the waste from any local, state, or federal laws or regulations.

567—109.7(455B,455D) Landfill responsibilities.

109.7(1) Any public or private municipal solid waste landfill that refuses any particular solid waste type for management or disposal must identify another waste management facility for that waste within the planning area. In the case of special waste, if no other waste management facility for that waste type exists within the planning area, the city or county, in cooperation with the waste generator, must establish or arrange access to one.

109.7(2) All municipal solid waste landfills shall submit special waste acceptance criteria to the department. The SWAC shall list the different kinds of special waste that each landfill (facility specific) will accept and the instructions for disposal for each of those wastes. The SWAC shall be submitted within 90 days after May 22, 2002. The SWAC shall be submitted on forms provided by the department.

109.7(3) Landfills are required to ensure that special wastes delivered to the facility conform to the SWAC on file with the department.

109.7(4) Each municipal solid waste landfill shall provide to the department, on a_quarterly basis, a report of SWA activity including each SWA number and the quantities of waste disposed of during the reporting period. This information shall be submitted as part of the Quarterly Solid Waste Fee Schedule and Retained Fees Report, Form 542-3276.

567—109.8(455B,455D) Special waste generator responsibilities. Special waste generator responsibilities shall include, but are not limited to, the following:

109.8(1) Prior to submission of an SWA application, the generator shall adhere to the solid waste management hierarchy. Alternatives include volume reduction at the source; recycling and reuse, including composting and land application; and other approved techniques of solid waste management including, but not limited to, combustion with energy recovery and combustion for waste disposal. The generator shall include, as part of the SWA application, a description of the review of the alternatives to landfilling for each waste for which an SWA is requested. The description should detail to what extent the waste could be recycled, reduced or reused so that landfilling is not necessary.

109.8(2) The generator shall follow the guidelines for submission of an SWA application as given in 109.5(455B,455D).

109.8(3) The generator shall ensure that special waste coming into the landfill shall arrive as a separate load and not be commingled with any other waste.

109.8(4) The generator shall submit analytical results supporting an SWA at a frequency to be determined by the landfill.

109.8(5) After receiving an SWA, the generator must contact the designated landfill for instructions on delivering the waste and instructions for adhering to the landfill's SWAC.

109.8(6) The generator shall notify the department and landfill, prior to disposal, of any change in the characteristics of the special wastes being disposed.

109.8(7) Generators shall notify the landfill in writing when a one-time disposal under an SWA has been completed. This requirement is for one-time disposals only.

567—109.9(455B,455D) Infectious waste. Infectious waste which is generated and treated at a medical clinic, doctor's office, nursing care facility, health care facility, dentist's office or other similar facility may be placed with municipal solid waste and not handled in a special way if it is rendered nonpathological, does not contain free liquids, and sharps are shredded, blunted, granulated, incinerated or mechanically destroyed. The generator of the infectious waste must notify the waste hauler and the sanitary landfill that infectious waste is being placed with the regular municipal solid waste and, with the notice, certify that the infectious waste is properly treated in accordance with the requirements of this rule.

567—109.10(455B,455D) Other special wastes.

109.10(1) *Radioactive waste.* Radioactive materials shall not be disposed of by a sanitary disposal project. Luminous timepieces are exempt.

109.10(2) *Sewage sludge.*

a. Sewage sludge, including unstabilized septic tank pumpings, shall not be disposed of in a sanitary landfill if it meets the criteria for Class I or II sewage sludge in 567—Chapter 67, except for use in daily, interim, or final cover according to the approved plan for the landfill. Class III sewage sludge may be disposed of at a sanitary landfill as provided in 567—Chapter 112.

b. Sewage sludge may be handled at processing facilities as provided in 567—Chapter 104.

c. Sewage sludge may be utilized for land application in accordance with 567—Chapter 67.

109.10(3) *Waste tires.* Pursuant to Iowa Code section 455D.11(2), land disposal of waste tires, as defined in 567—Chapter 117, is prohibited as of July 1, 1991, unless each tire is processed by, at a minimum, shredding, cutting or chopping each tire into pieces that are no longer than 18 inches on any side.

567—109.11(455B,455D) Conditions and requirements for the disposal of general special wastes.

109.11(1) *Asbestos-containing material.* The sanitary landfill permit holder shall comply with the following conditions and requirements whenever asbestos-containing waste materials are accepted and disposed of in a sanitary landfill.

a. Asbestos-containing material (ACM) wastes with 1 percent or less asbestos are not regulated and can be disposed of at the working face, the same as any other waste.

b. ACM wastes that contain greater than 1 percent asbestos are regulated under federal asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP) and shall be managed in accordance with federal regulations defined in 40 CFR Part 61, Subpart M. Testing to determine asbestos content shall utilize the method specified in 40 CFR Part 763, Section 1, Appendix A of Subpart F.

c. Nonfriable ACM waste is defined as waste containing greater than 1 percent asbestos that when dry cannot be crumbled, pulverized, or reduced to powder by hand pressure. Nonfriable ACM waste includes asbestos-containing floor covering and asphalt roofing materials that show no evidence that they contain crumbled, pulverized or powdered ACM residues upon delivery to the landfill.

d. Friable ACM waste is defined as waste containing greater than 1 percent asbestos that when dry can be crumbled, pulverized or reduced to powder by hand pressure. Friable ACM waste includes acoustical, thermal and fireproofing insulation, as well as numerous building products with incorporated asbestos material. Waste transite siding shall be considered friable ACM waste.

e. ACM waste transporters should be encouraged by the landfill operator to notify the landfill at least 24 hours in advance when ACM waste will be arriving at the landfill. Upon arrival at the sanitary landfill, the transporter shall present to the landfill operator the ACM waste shipment records, which shall include a determination whether the ACM waste is friable or nonfriable, if known. The landfill operator must through visual inspection or testing verify whether the ACM waste is friable or nonfriable. If not verified as nonfriable, the waste must be handled as friable ACM waste.

f. Any federal NESHAP-regulated ACM waste shipments that show evidence of visible dust emissions or that are not properly containerized, wrapped, wetted, and covered shall be rejected upon arrival at the landfill.

g. ACM wastes with greater than 1 percent asbestos content that are nonfriable when received at the landfill may be disposed of at the working face. Care shall be taken when unloading and covering the waste so that it does not become friable at the working face.

h. ACM wastes with greater than 1 percent asbestos content, as determined by laboratory tests, which are confirmed as friable when received at the landfill shall be disposed of in an area separate from the regular working face. The wastes shall be covered carefully with a minimum of six inches of soil cover and compacted by no later than the end of the operating day. Care shall be taken at all times during disposal and covering to prevent rupture of asbestos-containing containers and wrapped waste systems. Covered ACM waste areas shall be protected from erosion at all times.

i. Upon delivery, friable ACM wastes must be wet and contained in labeled, leak-tight containers or wrapping which prevents asbestos from becoming airborne. Bulk demolition wastes with friable ACM need not be placed in leak-tight containers, but must remain wet at all times and be properly labeled and wrapped to prevent asbestos from becoming airborne during transport and disposal and covering at the landfill.

j. Extreme care shall be taken at all times when transporting, depositing, and covering federal NESHAP-regulated ACM waste to control the evolution of dust and airborne asbestos fibers and to not allow the rupture of asbestos containers and wraps.

k. After landfill acceptance, if any federal NESHAP-regulated ACM waste becomes dry prior to disposal, rewetting, or an approved alternative means of dust emissions control, is mandatory. When disposed of, the wet ACM waste must be properly covered before it can dry again.

l. In the event that any visible dust emissions from federal NESHAP-regulated ACM waste occur, protective safety equipment, consistent with federal NESHAP and OSHA regulations, shall be immediately utilized by landfill operating staff.

m. Daily records of the acceptance and disposal of all ACM wastes shall be maintained. Landfill records for each NESHAP-regulated ACM waste shipment shall include the following:

(1) The date of ACM waste receipt.

(2) The names, addresses, and telephone numbers of the originating waste generation site, facility owner, agent responsible for performing removal and the waste transporter.

(3) The description of ACM wastes, quantity in cubic yards, weight and the number and type of containers or systems received.

(4) The waste shipment record and any accompanying asbestos content laboratory test and friable status documentation.

(5) The operational log notation relative to the landfill operator's visual confirmation of waste type compared to waste shipment records and the friable or nonfriable status for each federal NESHAP-regulated ACM waste shipment.

(6) The operational log notation of any rejected ACM waste and the reasons for rejection by landfill staff.

(7) The site operational area, coordinates location and vertical elevation keyed to site mapping and the quantity of buried waste in cubic yards for each federal NESHAP-regulated waste shipment disposed of within the disposal site.

n. Records for all federal NESHAP-regulated ACM wastes accepted at the landfill in accordance with 40 CFR Part 61, including required federal and state asbestos NESHAP program operational and site closure reports, shall be maintained. All records, except for waste shipment records, shall be maintained through site closure. Waste shipment records shall be retained for at least two years.

o. A copy of an Affidavit Explanatory of Title which has been file stamped by the county recorder shall be submitted to the department within 60 days of site closure. The affidavit shall appear at part of the property deed record and shall indicate that:

(1) The landfill has been used for the disposal of ACM waste.

(2) The survey plot and all records of the location and quantity of regulated ACM wastes have been filed with federal and state NESHAP program officials. Such documentation must be filed with the department, along with the notification.

(3) The site is subject to the regulations under 40 CFR Part 61, Subpart M, and the site closure permit requirements issued by the department.

p. Strict adherence to federal NESHAP asbestos regulations under 40 CFR Part 61 is mandatory for all federal regulated ACM wastes. Questions on federal and state regulations should be addressed to the U.S. Environmental Protection Agency at (913)551-7391 or the department's air quality bureau at (515)281-8443. Questions regarding state asbestos abatement certification requirements should be addressed to the Iowa division of labor services at (515)281-6768.

109.11(2) *Petroleum-contaminated soil.* The sanitary landfill operator, the generator, and the hauler shall comply with the following conditions and requirements whenever petroleum-contaminated soil is disposed of in a sanitary landfill.

a. The waste cannot be a hazardous waste.

b. The waste cannot contain free liquids as determined by the paint filter liquids test.

c. Upon arrival at the landfill, the hauler shall identify the waste to the landfill attendant.

d. The landfill operator shall direct the hauler to the evaporation area. The soil borrow area or an area with intermediate cover may be used.

e. The contaminated soil may be spread up to a depth of 4 inches. The contaminated soil shall be allowed to aerate for at least 14 days and until the hydrocarbon level is less than 100 ppm. Fourteen days is a minimum. Longer times may be needed if weather conditions are unfavorable or if contamination levels are unusually high.

f. The soil shall be turned or disked at least three times per week.

g. Alternative procedures other than those procedures defined in 109.11(2)*"e"* and 109.11(2)*"f"* may be used if it can be demonstrated that soil treatment meeting the requirements of 109.11(2)*"h"* can be consistently achieved and if approved under permit amendment.

h. After the contaminant has evaporated and the total hydrocarbon content is less than 100 ppm, the soil may be used as daily cover material or incorporated into the working face. The soil may not be used for capping or lining.

i. Once every three months, petroleum-contaminated soil that has been treated at the evaporation area shall be sampled and analyzed for total hydrocarbon content. This sampling can be done at any time during the three-month period depending on the availability of treated soil.

109.11(3) *Stabilized grit, bar screenings, and grease skimmings.* The sanitary landfill operator, the generator, and the hauler shall comply with the following conditions and requirements whenever stabilized grit, bar screenings, or grease skimmings are disposed of in a sanitary landfill.

a. The waste cannot contain any free liquids as determined by the paint filter liquids test.

b. The generator shall stabilize the grit, bar screenings, and grease skimmings prior to their disposal at the landfill in order to destroy any pathogenic organisms. Stabilization can be done by addition of lime to raise the pH to at least 12 for two hours.

c. The generator shall prearrange a delivery schedule with the landfill operator.

d. Upon arrival at the landfill, the hauler shall identify the waste to the landfill attendant.

e. The landfill operator shall direct the hauler to the working face.

f. The waste shall be deposited at the working face, covered with regular refuse or soil and compacted.

These rules are intended to implement Iowa Code section 455B.304.

[Filed 3/27/02, Notice 12/12/01—published 4/17/02, effective 5/22/02]
[Filed 11/21/02, Notice 9/18/02—published 12/11/02, effective 1/15/03]
[Filed 5/22/03, Notice 3/19/03—published 6/11/03, effective 7/16/03]

CHAPTER 110
HYDROGEOLOGIC INVESTIGATION AND MONITORING REQUIREMENTS

Rescinded **ARC 1956C**, IAB 4/15/15, effective 5/20/15

CHAPTER 111
ANNUAL REPORTS OF SOLID WASTE ENVIRONMENTAL MANAGEMENT SYSTEMS

567—111.1(455J) Purpose. This chapter establishes methods and criteria for determining whether a planning area's or service area's environmental management system is in compliance with the provisions of Iowa Code section 455J.3.
[**ARC 0041C**, IAB 3/21/12, effective 4/25/12]

567—111.2(455J) Role of the department. Pursuant to Iowa Code subsection 455J.4(2), the department is responsible for the development and implementation of these rules.
[**ARC 0041C**, IAB 3/21/12, effective 4/25/12]

567—111.3(455J) Applicability. This chapter applies to those planning and service areas that have been designated as environmental management systems and that seek to continue to be so designated. This is a voluntary program, and planning and service areas may elect to leave the program at any time. Upon leaving the program, the planning or service area shall comply with the comprehensive planning requirements in 567—Chapter 101.
[**ARC 0041C**, IAB 3/21/12, effective 4/25/12]

567—111.4(455J) Definitions. For the purposes of this chapter, the following definitions apply:

"Annual report" means the required submittal to the department that documents an environmental management system's compliance with the requirements of Iowa Code section 455J.3.

"Aspect" means an element of a planning or service area's activities or operations that can interact with the environment.

"Audit" means a planned, objective and documented assessment, either done internally by the program participant or its designee or externally by an independent third party, to determine the performance of a planning or service area's system in relation to the designation requirements.

"Department" means the department of natural resources.

"Environmental management system" or *"EMS"* means the same as defined in Iowa Code section 455J.2(5).

"Environmental policy" means a statement by the planning or service area that includes:

1. The planning or service area's intentions and principles in relation to its overall environmental performance, which provides a framework for action and for setting environmental objectives and targets; and

2. The planning or service area's commitment to environmental compliance and continuous improvement.

"Fenceline" means the geographic area and the operations, facilities, and programs that the planning or service area has the ability to influence.

"Impact" means any change to the environment, whether adverse or beneficial, from an aspect of a planning or service area's activities or operations.

"Objective" means an overall and quantifiable environmental goal arising from the planning or service area's environmental policy.

"Plan component" means each of the six areas that are required to be addressed in an environmental management system, including: organics waste management, hazardous household materials collection, water quality improvement, greenhouse gas reduction, recycling services, and environmental education.

"Planning area" means the same as defined in rule 567—100.2(455B,455D).

"Service area" means that portion of a planning area that has been identified by the planning area to be a participant in the program. Only the service area is eligible for the program incentives described in Iowa Code section 455J.5.

"Target" means a detailed and quantifiable performance requirement that must be set and met in order to achieve the environmental objective. An objective may have several targets.
[**ARC 0041C**, IAB 3/21/12, effective 4/25/12; **ARC 2756C**, IAB 10/12/16, effective 11/16/16; **ARC 3736C**, IAB 4/11/18, effective 5/16/18]

567—111.5(455J) Submittal of annual reports. Annual reports shall be submitted to the department by September 1 of each year and include all the requirements in 567—111.6(455J). Annual reports shall address activities that occurred during the previous state fiscal year that ended June 30. The reports shall be submitted on a form provided by the department.
[**ARC 0041C**, IAB 3/21/12, effective 4/25/12]

567—111.6(455J) Contents of annual reports. The following elements shall be included in the annual report.

111.6(1) *Executive summary.* The executive summary shall include an overview of the environmental improvements and benefits achieved during the past year as related to the system's objectives and targets. This summary would be similar to what is presented for management review.

111.6(2) *Environmental policy statement.* The annual report shall include a copy of the planning or service area's environmental policy statement and the date it was last reviewed and, if appropriate, revised. A copy of the communication procedure or other documents describing how the environmental policy statement has been conveyed to staff, management, and other individuals having a formal role in the implementation of the EMS shall also be included.

111.6(3) *Aspects and impacts.* The annual report shall identify and evaluate the actual or potential significant aspects and impacts to the environment, whether adverse or beneficial, from the planning or service area's activities, services and facilities. A description of the significant impacts to the environment that have been determined and the methodology used for this determination shall be included. Any changes that occurred or may occur in the near future that are likely to affect the identified impacts in the coming year shall be described. Such changes may include, but are not limited to, the closure or opening of facilities, other changes to the EMS's fenceline, the initiation of major new programs, and the discontinuation of a major service.

111.6(4) *Legal and other requirements.* The annual report shall list the legal requirements for the planning or service area's operations and facilities included in its EMS fenceline, including but not limited to, relevant environmental laws, regulations and permits, and worker health and safety regulations. A process for tracking any changes in these requirements shall be described. A brief summary of the planning area's regulatory compliance performance for the previous year, including a listing of recurring or significant violations related to the identified legal requirements and how they were or are being resolved, shall be included.

111.6(5) *Objectives and targets.* The annual report shall describe the objective(s) relevant to each of the six plan components and the targets established for achieving the objective(s).

111.6(6) *Action plan.* The annual report shall provide a plan that describes the actions necessary to achieve the objectives and targets. The plan includes the identification of specific tasks, timelines for completion of each step in the plan, and a schedule for periodically reviewing and updating, as conditions dictate, the objectives and targets.

111.6(7) *Roles and responsibilities.* The annual report shall include identification and documentation of individuals and organizations responsible for specific tasks to carry out the objectives.

111.6(8) *Communication and training.* The annual report shall describe the processes that have been established for internal and external communication.

a. External communication includes reaching out to those groups and organizations that have been identified as having an interest, stake, or role in the planning or service area's ongoing EMS program. There shall also be procedures for receiving and responding to relevant communication from external interested parties.

b. Internal communication is directed to individuals, organizations and entities that have a role or responsibility within the action plan. Internal communication includes a process to ensure that all responsible parties are familiar with the EMS and have the training necessary to capably execute their roles. A description of the training provided to responsible parties shall be included.

111.6(9) *Monitoring and measurement.* The annual report shall describe the documented process for monitoring key activities and, at a minimum, measuring performance related to each objective and target.

111.6(10) *Audit/assessment.* The annual report shall provide documented procedures for assessing the performance of the component's action plan(s) in terms of achieving the stated objectives and targets and conformance with the overall EMS. The assessment shall draw conclusions from the performance measurements.

a. *Internal audit.* A copy of the result of the latest internal audit that includes the date(s) it was conducted and the identity of the auditor(s) shall be provided as part of the report. An internal audit shall be conducted each state fiscal year.

b. *External audit.* An external audit shall occur each state fiscal year. The date of the latest external audit or the date the audit will take place, along with the identity and pertinent qualifications of the independent, third-party auditor(s), shall be provided. The results of the external audit shall be incorporated into the report. The department has a prequalification process for external auditors.

111.6(11) *Reevaluation and modification.* Reevaluation and modification are activities that allow a planning or service area to improve and strengthen the EMS on an ongoing basis. The annual report shall describe areas where the EMS has met, exceeded, or failed to meet expectations. For each plan component, the report shall identify root causes of those outcomes and develop revised goals and activities appropriate to each.

[**ARC 0041C**, IAB 3/21/12, effective 4/25/12; **ARC 3736C**, IAB 4/11/18, effective 5/16/18]

567—111.7(455J) Evaluation criteria. Each annual report shall be reviewed by the department, and a determination as to whether a planning or service area's EMS is in compliance with Iowa Code section 455J.3 shall be made by January 1 of each year. Reports shall be reviewed for the following:

1. Completeness in terms of addressing all of the elements set forth in 567—111.6(455J).
2. Progress toward achieving the objectives and targets set forth in the EMS.
3. Clear demonstration of continuous improvement in terms of progress toward achieving the objectives and targets set forth in the EMS.

Upon achievement of these objectives and targets, a reevaluation and decision will be needed to verify whether a new target should be assigned to an objective or, if the objectives and targets were not achieved, what new initiatives should be incorporated into the EMS. Planning and service areas shall review procedures on a regular basis and revise as appropriate.

[**ARC 0041C**, IAB 3/21/12, effective 4/25/12; **ARC 3736C**, IAB 4/11/18, effective 5/16/18]

567—111.8(455J) Evaluation outcomes.

111.8(1) If the department determines that the annual report adequately demonstrates compliance with the requirements of Iowa Code section 455J.3, the planning or service area shall remain designated as an EMS and shall continue to be qualified for the incentives set forth in Iowa Code section 455J.5.

111.8(2) If the department determines that the annual report clearly demonstrates that the planning or service area's EMS is no longer in compliance with Iowa Code section 455J.3, the department may recommend to the environmental protection commission the revocation of the EMS designation. If the commission concurs with the department's recommendation, the planning or service area shall adhere to the comprehensive planning requirements in 567—Chapter 101.

111.8(3) Failure by a planning or service area to submit an annual report by September 1 in any year will result in revocation of the EMS designation, following which the planning or service area shall adhere to the comprehensive planning requirements in 567—Chapter 101.

[**ARC 0041C**, IAB 3/21/12, effective 4/25/12; **ARC 3736C**, IAB 4/11/18, effective 5/16/18]

These rules are intended to implement Iowa Code section 455J.4.

[Filed ARC 0041C (Notice ARC 9919B, IAB 12/14/11), IAB 3/21/12, effective 4/25/12]
[Filed ARC 2756C (Notice ARC 2630C, IAB 7/20/16), IAB 10/12/16, effective 11/16/16]
[Filed ARC 3736C (Notice ARC 3569C, IAB 1/17/18), IAB 4/11/18, effective 5/16/18]

CHAPTER 112
SANITARY LANDFILLS: BIOSOLIDS MONOFILLS

[Prior to 12/11/02, see 567—Chs 102, 103, 110]

Rescinded **ARC 1956C**, IAB 4/15/15, effective 5/20/15

CHAPTER 113
SANITARY LANDFILLS FOR MUNICIPAL SOLID WASTE: GROUNDWATER PROTECTION SYSTEMS FOR THE DISPOSAL OF NONHAZARDOUS WASTES

[Prior to 12/11/02, see 567—Chs 102, 103, 110]

567—113.1(455B) Purpose. The purpose of this chapter is to protect human health and the environment through the implementation of minimum national standards pursuant to the Resource Conservation and Recovery Act ("RCRA" or "the Act") for all municipal solid waste landfill (MSWLF) units and under the Clean Water Act for MSWLFs that are used to dispose of sewage sludge.

This chapter details the permitting, siting, design, operating, monitoring, corrective action, reporting, record-keeping, closure, and postclosure requirements for all sanitary landfills accepting municipal solid waste (MSW).

Groundwater is a precious natural resource. The vast majority of citizens in Iowa depend on groundwater as a drinking water source. Agriculture, industry and commerce also depend heavily on groundwater. It is essential to the health, welfare, and economic prosperity of all citizens in Iowa that groundwater is protected and that the prevention of groundwater contamination is of paramount importance. Therefore, the intent of this chapter is to prevent groundwater contamination from MSWLF units to the maximum extent practical, and if necessary to restore the groundwater to a potable state, regardless of present condition, use, or characteristics.

567—113.2(455B) Applicability and compliance.

113.2(1) All sanitary landfills accepting municipal solid waste must comply with the provisions of this chapter.

113.2(2) These rules do not encompass the beneficial use of by-products as alternative cover material. For rules pertaining to the beneficial use of by-products as alternative cover material, see 567—Chapter 108.

113.2(3) These rules do not encompass the management and disposal of special wastes. For rules pertaining to the management and disposal of special wastes, see 567—Chapter 109.

113.2(4) This chapter does not apply to MSWLF units that did not receive waste after October 9, 1994. The closure permit issued or the rules in effect at the time of closure shall govern postclosure activities for such MSWLF units.

113.2(5) This chapter does not apply to MSWLF units that stop receiving waste before October 1, 2007, and are not contiguous with MSWLF units that will continue to accept waste after October 1, 2007. For the purpose of this subrule, contiguous MSWLF units are those that adjoin, abut or have a common boundary or edge with one another or that utilize the same groundwater monitoring network system. The permit issued and the rules in effect at the time waste acceptance ceased shall govern postclosure activities for such MSWLF units except as follows:

a. Financial assurance in accordance with rule 567—113.14(455B) shall be required.

b. Owners or operators of MSWLF units described in this subrule that fail to complete cover installation within one year after October 1, 2007, will be subject to all the requirements of this chapter, unless otherwise specified.

c. Surface water sampling in accordance with subrule 113.10(3) shall be required.

d. MSWLF units subject to this rule shall perform groundwater sampling for the following parameters:

(1) Routine semiannual water sampling parameters:

1. Chloride.
2. Specific conductance (field measurement).
3. pH (field measurement).
4. Ammonia nitrogen.
5. Iron, dissolved.
6. Chemical oxygen demand.

7. Any additional parameters deemed necessary by the department.

(2) Routine annual water sampling parameters:

1. Total organic halogen.

2. Phenols.

3. Any additional parameters deemed necessary by the department.

e. If the analytical results for a downgradient groundwater monitoring point do not fall within the control limits of two standard deviations above (or below for pH) the mean parameters, listed in subparagraphs 113.2(5)*"d"*(1) and (2), in a corresponding upgradient groundwater monitoring point and it cannot be demonstrated that a source other than an MSWLF unit caused the control limit exceedence, then the owner or operator shall comply with the groundwater assessment monitoring program requirements in subrule 113.10(6) and corrective action requirements in subrules 113.10(7), 113.10(8) and 113.10(9), if necessary.

113.2(6) MSWLF units containing sewage sludge and failing to satisfy the requirements of this chapter violate Sections 309 and 405(e) of the Clean Water Act.

113.2(7) Consideration of other laws. The issuance of an MSWLF permit by the department in no way relieves the permit holder of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules and other applicable requirements.

113.2(8) Closure of existing MSWLF units. **[See Objection at end of chapter]**

a. Existing MSWLF units that cannot make the demonstration specified in paragraph 113.6(2)*"a,"* pertaining to airports, in 113.6(2)*"b,"* pertaining to floodplains, or in 113.6(2)*"f,"* pertaining to unstable areas, must close in accordance with rule 567—113.12(455B) and conduct postclosure activities in accordance with rule 567—113.13(455B).

b. Existing MSWLF units that do not have an approved leachate collection system and a composite liner or a leachate collection system and an alternative liner modeled at an approved point of compliance shall cease accepting waste by October 1, 2007.

c. Rescinded IAB 12/31/08, effective 2/4/09.

d. Those portions of existing MSWLF units demonstrating placement of final cover in conformance with previously approved plans and specifications or regulations in effect at the time of such closure shall not be required to apply additional cover solely to achieve compliance with rule 567—113.12(455B).

113.2(9) Existing MSWLF units that continue accepting waste after October 1, 2007, shall submit an implementation plan to the department by January 31, 2008, that identifies how the MSWLF shall achieve compliance with these rules. The plan shall include a compliance schedule which shall not extend beyond January 31, 2011. This subrule shall not preclude compliance with subrule 113.2(8).

113.2(10) Compliance with amendments to these rules.

a. Owners or operators of existing MSWLF units that have an approved leachate collection system and a composite liner or a leachate collection system and an alternative liner modeled at an approved point of compliance shall not be required to redesign or reconstruct the MSWLF units due to amendments to these rules subsequent to such approval unless the department finds that such facilities are causing pollution or that continued use of such facilities results in a vertical expansion on top of or against the side slopes of a previously filled noncompliant MSWLF unit. Prior to waste placement in the vertical expansion area, revised design plans shall be submitted to include construction of a separatory liner and leachate collection system that comply with all the requirements of subrule 113.7(5) to be placed between the area of vertical expansion and the underlying noncompliant MSWLF unit. The department, in conjunction with the MSWLF owner or operator, shall determine the maximum amount of time necessary for continued waste placement on top of or against the previously filled noncompliant MSWLF unit to achieve an adequate slope in order to maintain drainage of leachate to the leachate collection system after expected settlement. **[See Objection at end of chapter]**

b. Except as authorized by subrule 113.2(9) and paragraph 113.2(10)*"a,"* if any new requirement conflicts with a provision of or an operating procedure prescribed in the engineering plans or the MSWLF permit, the facility shall conform to the new rule.

113.2(11) Equivalency review procedure.

a. In approving a permit application under this chapter, the department may authorize, in writing, alternatives to the design requirements in this chapter only if, and only to the extent that, specific rules in this chapter expressly state that alternatives may be authorized under this chapter.

b. An owner or operator requesting an alternative design under this chapter shall submit a request to the department prepared by an Iowa-licensed professional engineer. The request shall:

(1) Identify the specific rule for which an equivalency alternative is being sought.

(2) Demonstrate, through supporting technical documentation, justification and quality control procedures, that the requested alternative to the design requirements in the rules of this chapter will, for the life of operations at the facility, achieve the performance standards in that rule.

c. No equivalency alternative will be approved unless the application affirmatively demonstrates that the following conditions are met:

(1) The request is complete and accurate and the requirements of this subrule have been met.

(2) The proposed alternative will, for the life of operations at the facility, achieve the performance standards in the rule for which the alternative to the design requirements in that rule is sought.

(3) The proposed alternative will provide protection equivalent to the design requirements in this chapter for the air, water or other natural resources of the state of Iowa, and will not harm or endanger the public health, safety or welfare.

[Editorial change: IAC Supplement 2/25/09]

567—113.3(455B) Definitions. Unless otherwise noted, the definitions set forth in Iowa Code section 455B.301 and 567—Chapter 100, which are incorporated by reference; the definitions that appear in specific rules within this chapter; and the following definitions shall apply to this chapter: **[See Objection at end of chapter]**

"Active life" means the period of operation beginning with the initial receipt of solid waste and ending at completion of closure activities in accordance with rule 567—113.12(455B).

"Active portion" means that part of a facility or unit that has received or is receiving wastes and that has not been closed in accordance with rule 567—113.12(455B).

"Aquifer" has the same meaning as in 567—Chapter 100.

"Commercial solid waste" means all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes.

"Existing MSWLF unit" means any municipal solid waste landfill unit that has received solid waste as of the most recent permit renewal.

"Facility" means all contiguous land and structures, other appurtenances, and improvements on the land used for the disposal of solid waste. The facility is formally defined in the permit issued by the department. Buffer lands around a facility are not required to be included in the permitted boundary of a facility.

"High water table" has the same meaning as in 567—Chapter 100.

"Household waste" means any solid waste (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas).

"Industrial solid waste" means solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under Subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer and agricultural chemicals; food and related products and by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing and foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. "Industrial solid waste" does not include mining waste or oil and gas waste.

"Lateral expansion" means a horizontal expansion of the waste boundaries of an existing MSWLF unit.

"Municipal solid waste landfill (MSWLF) unit" means a discrete area of land or an excavation that receives household waste, and that is not a land application site, surface impoundment, injection well, or

waste pile, as those terms are defined under 40 CFR Part 257.2. An MSWLF unit also may receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, construction and demolition debris, and industrial solid waste. An MSWLF unit may be publicly or privately owned. An MSWLF unit may be a new MSWLF unit, an existing MSWLF unit, or a lateral expansion. A construction and demolition landfill that receives residential lead-based paint waste and does not receive any other household waste is not an MSWLF unit.

"New MSWLF unit" means any municipal solid waste landfill unit that has not received waste prior to the most recent permit renewal.

"Open burning" has the same meaning as in 567—Chapter 100.

"Operator" has the same meaning as in 567—Chapter 100.

"Owner" means the person(s) who owns a facility or part of a facility.

"Point of compliance" or *"POC"* means the point at which the MSWLF owner or operator demonstrates compliance with the liner performance standard, if applicable, and with the groundwater protection standard. The point of compliance is a vertical surface located hydraulically downgradient of the waste management area that extends down into the uppermost aquifer underlying the regulated MSWLF unit(s) and where groundwater monitoring shall be conducted.

"Residential lead-based paint waste" means waste containing lead-based paint that is generated as a result of activities such as abatement, rehabilitation, renovation and remodeling in homes and other residences. "Residential lead-based paint waste" includes, but is not limited to, lead-based paint debris, chips, dust, and sludges.

"Runoff" means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

"Run-on" means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

"Saturated zone" means that part of the earth's crust in which all voids are filled with water.

"Sewage sludge" has the same meaning as in 567—Chapter 67.

"Sludge" means any solid, semisolid, or liquid waste generated from a commercial or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility, or any other such waste having similar characteristics and effects exclusive of the treated effluent from a wastewater treatment plant.

"Statistically significant increase" or *"SSI"* means a statistical difference large enough to account for data variability and not thought to be due to chance alone.

"Uppermost aquifer" means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

"Vertical expansion" means additional waste placement on top of or against the side slopes of a previously filled MSWLF unit, whether active, closed, or inactive.

"Waste management unit boundary" means a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer.

[Editorial change: IAC Supplement 2/25/09]

567—113.4(455B) Permits.

113.4(1) *Permit required.* An MSWLF unit shall not be constructed or operated without a permit from the department.

113.4(2) *Construction and operation.* An MSWLF unit shall be constructed and operated according to this chapter, any plans and specifications approved by the department, and the conditions of the permit. Any approved plans and specifications shall constitute a condition of the permit.

113.4(3) *Transfer of title and permit.* If title to an MSWLF unit is transferred, then the department shall transfer the permit within 60 days if the department has found that the following requirements have been met:

a. The title transferee has applied in writing to the department to request a transfer of the permit within 30 days of the transfer of the title.

b. The permitted facility is in compliance with Iowa Code chapters 455B and 455D, this chapter and the conditions of the permit.

c. The transferee possesses the equipment and personnel to operate the project in conformance with Iowa Code chapter 455B and these rules and the terms of the permit.

113.4(4) *Permit conditions.* Any permit may be issued subject to conditions specified in writing by the department that are necessary to ensure that the facility is constructed and operated in a safe and effective manner, and in compliance with Iowa Code chapters 455B and 455D, this chapter and the conditions of the permit.

113.4(5) *Effect of revocation.* If an MSWLF permit held by any public or private agency is revoked by the department, then no new permit shall be issued to that agency for that MSWLF for a period of one year from the date of revocation. Such revocation shall not prohibit the issuance of a permit for the facility to another public or private agency.

113.4(6) *Inspection of site and operation.* The department shall be notified when the construction of a new facility or MSWLF unit or significant components thereof have been completed so that the department may inspect the facility to determine if the project has been constructed in accordance with the design approved by the department. The department shall inspect and approve a new facility or MSWLF unit before MSW may be accepted. The department shall inspect a facility and its operations on a regular basis to determine if the facility is in compliance with this chapter.

113.4(7) *Duration and renewal of permits.*

a. *Operating permits.* An MSWLF permit shall be issued and may be renewed for a period no longer than five years, unless the MSWLF adopts research, development and demonstration (RD&D) provisions pursuant to subrule 113.4(10). An MSWLF permit with RD&D provisions pursuant to subrule 113.4(10) shall be issued and may be renewed for a period no longer than three years.

b. *Closure permits.* An MSWLF closure permit shall be issued only after a facility no longer accepts solid waste. A closure permit shall initially be issued for a period of 30 years. If the department extends the postclosure period beyond 30 years, then the duration of the subsequent closure permit will be determined on a site-specific basis. An MSWLF requires a closure permit until the department determines that postclosure operations are no longer necessary.

113.4(8) *Request for permit renewal.*

a. *Operating permits.* A request for an operating permit renewal shall be in writing and filed at least 90 days before the expiration of the current permit. If the applicant is found not to be in compliance with this chapter or the permit requirements, then the applicant shall achieve compliance or be placed on a compliance schedule approved by the department before the permit may be renewed.

b. *Closure permits.* A request for a closure permit renewal or termination shall be filed at least 180 days before the expiration of the current permit. If the department finds that an MSWLF has completed all required postclosure activities and no longer presents a significant risk to human health or the environment, then the department shall issue written notification that a closure permit is no longer required for the facility.

113.4(9) *Request for permit amendment.* Requests for permit amendments must be submitted in writing to the department with supporting documentation and justification.

113.4(10) *RD&D permits.* The department may issue an RD&D permit that overrides the applicable portions of this chapter, as listed below, without issuing a variance. A permit amendment from the department for leachate recirculation only does not require an RD&D permit.

a. The department may issue an RD&D permit for a new MSWLF unit, existing MSWLF unit, or lateral expansion, for which the owner or operator proposes to utilize innovative and new methods which vary from either or both of the following criteria, provided that the MSWLF unit has a leachate collection system designed and constructed to maintain less than a 30-cm (i.e., 12-inch) depth of leachate on the liner:

(1) The run-on control systems in subrule 113.7(8); and

(2) The liquids restrictions in subparagraph 113.8(1)*"b"*(3).

b. The department may issue a permit for a new MSWLF unit, existing MSWLF unit, or lateral expansion, for which the owner or operator proposes to utilize innovative and new methods which vary

from the final cover criteria of subrules 113.12(1) and 113.12(2), provided that the MSWLF unit owner or operator demonstrates that the infiltration of liquid through the alternative cover system will not cause contamination of groundwater or surface water, or cause leachate depth on the liner to exceed 30 cm (i.e., 12 inches).

c. Any permit issued under subrule 113.4(10) must include such terms and conditions at least as protective as the criteria for MSWLFs to ensure protection of human health and the environment. Such permits shall:

(1) Provide for the construction and operation of such facilities as necessary, for not longer than three years, unless renewed as provided in paragraph 113.4(10)*"e"*;

(2) Provide that the MSWLF unit must receive only those types and quantities of municipal solid waste and nonhazardous wastes which the department deems appropriate for the purposes of determining the efficacy and performance capabilities of the technology or process;

(3) Include such requirements as necessary to protect human health and the environment, including such requirements as necessary for testing and providing information to the department with respect to the operation of the facility;

(4) Require the owner or operator of an MSWLF unit permitted under subrule 113.4(10) to submit an annual report to the department showing whether and to what extent the site is progressing in attaining project goals. The report shall also include a summary of all monitoring and testing results, as well as any other operating information specified by the department in the permit; and

(5) Require compliance with all criteria in this chapter, except as permitted under subrule 113.4(10).

d. The department may order an immediate termination of all operations at the facility allowed under subrule 113.4(10) or other corrective measures at any time the department determines that the overall goals of the project are not being attained, including protection of human health or the environment.

e. Any permit issued under subrule 113.4(10) shall not exceed 3 years, and each renewal of a permit may not exceed 3 years.

(1) The total term for a permit for a project including renewals may not exceed 12 years; and

(2) During permit renewal, the applicant shall provide a detailed assessment of the project showing the status with respect to achieving project goals, a list of problems and the status with respect to problem resolutions, and any other requirements that the department determines necessary for permit renewal.

113.4(11) *Factors in permit issuance decisions.* The department may request that additional information be submitted for review to make a permit issuance decision. The department may review and inspect the facility, its agents and operators, and compliance history. The department may consider compliance with related requirements, such as financial assurance and comprehensive planning. The department may review whether or not a good-faith effort to maintain compliance and protect human health and the environment is being made, and whether a compliance schedule is being followed.

113.4(12) *Notice and public participation in the MSWLF permit issuance and postpermit actions process.*

a. For the purposes of this subrule, "postpermit actions" includes permit renewals and requests for major facility modifications as defined below:

(1) Change in an MSWLF facility boundary or an MSWLF unit.

(2) Application for an RD&D permit pursuant to subrule 113.4(10).

(3) Installation of a landfill gas collection system.

(4) Application for a closure permit for a MSWLF unit.

(5) Transfer of an MSWLF permit to a new owner.

(6) Variance from this chapter under rule 567—113.15(455B).

(7) Change in the postclosure land use of the property.

(8) Other significant permit actions that are determined by the department to require public notice and participation. Such actions may include requests to change any of the requirements set forth as special provisions in the permit.

b. Prior to the issuance of approval or denial for an MSWLF permit or postpermit action, public notice shall be circulated in a manner designed to inform interested and potentially interested persons of

the permit or postpermit action request. Procedures for the circulation of public notice shall include at least the following procedures:

(1) Upon receipt of the permit application or postpermit action request, the department shall make a determination of whether public notice is required in accordance with this subrule. If the determination is made that public notice is required, then the department shall prepare the public notice which shall be circulated by the owner or operator within the service area of the MSWLF by posting the public notice near the entrance to the MSWLF; and by publishing the public notice in periodicals or, if appropriate, in a newspaper(s) of general circulation.

(2) The public notice shall be mailed by the department to any person upon request and posted on the department's Web site.

c. The department shall provide a period of not less than 30 days following the date of the public notice during which time interested persons may submit their written views with respect to the MWSLF permit application or postpermit action request. All written comments submitted during the 30-day comment period shall be retained by the department and considered by the department in the formulation of the department's final determinations with respect to the permit application or postpermit action request. The period for comment may be extended at the discretion of the department.

d. The contents of the public notice shall include at least the following:

(1) The name, address, and telephone number of the department.

(2) The name and address of each applicant.

(3) A brief description of each applicant's activities or operations which result in the submittal of the permit application or postpermit action request.

(4) A statement that any person may submit written and signed comments, or may request a public hearing, or both, on the proposed permit or postpermit action request. A statement of procedures to request a public hearing pursuant to paragraph 113.4(12)*"e"* shall be included.

(5) Locations where copies of the permit application or postpermit action request may be reviewed, including the closest department field office, and the times at which the copies shall be available for public inspection.

e. The applicant, any interested agency, person or group of persons may request or petition for a public hearing with respect to an MSWLF permit application or postpermit action request. Any such request shall clearly state issues and topics to be addressed at the hearing. Any such request or petition for public hearing must be filed with the department within the 30-day period prescribed in paragraph 113.4(12)*"c"* and shall indicate the interest of the party filing such request and the reasons why a hearing is warranted. The department shall hold an informal and noncontested case hearing if there is a significant public interest (including the filing of requests or petitions for such hearing) in holding such a hearing. Frivolous or insubstantial requests for hearing may be denied by the department. Instances of doubt should be resolved in favor of holding the hearing. Any hearing requested pursuant to this subrule shall be held in the service area of the MSWLF, or other appropriate area at the discretion of the department.

f. If the department determines that a public hearing is warranted, then the department shall prepare the public notice of the hearing. Public notice of any hearing held shall be circulated at least as widely as was the notice of the permit application or postpermit action request.

g. The contents of public notice of any hearing held pursuant to paragraph 113.4(12)*"e"* shall include at least the following:

(1) The name, address, and telephone number of the department;

(2) The name and address of each applicant whose application will be considered at the hearing;

(3) A brief reference to the public notice issued for each permit application and postpermit action request;

(4) Information regarding the time and location for the hearing;

(5) The purpose of the hearing;

(6) A concise statement of the issues raised by the person requesting the hearing;

(7) Locations where copies of the permit application or postpermit action may be reviewed, including the closest department field office, and the times at which the copies shall be available for public inspection; and

(8) A brief description of the nature of the hearing, including the rules and procedures to be followed.

h. The department shall keep a record of the commenters and of the issues raised during the public participation process and shall prepare written responses to all comments received. At the time a final decision is made, the record and copies of the department's responses shall be made available to the public.

567—113.5(455B) Permit application requirements.

113.5(1) Unless otherwise authorized by the department, an MSWLF permit applicant shall submit, at a minimum, the following permit application information to the department:

a. The name, address and telephone number of:

(1) Owner of the site where the facility will be located.

(2) Permit applicant.

(3) Official responsible for the facility.

(4) Certified operator (i.e., "operator") responsible for operation of the facility.

(5) Professional engineer(s) (P.E.) licensed in the state of Iowa and retained for the design of the facility.

(6) Agency to be served by the facility, if any.

(7) Responsible official of agency to be served, if any.

b. An organizational chart.

c. A site exploration and characterization report for the facility that complies with the requirements of subrule 113.6(4).

d. Plans and specifications for the facility, and quality control and assurance (QC&A) plans, that comply with the requirements of subrule 113.7(6).

e. A development and operations (DOPs) plan for the facility, an emergency response and remedial action plan (ERRAP), and proof of MSWLF operator certification that comply with the requirements of rule 567—113.8(455B).

f. An environmental monitoring plan that complies with the requirements of rules 567—113.9(455B) and 567—113.10(455B).

g. The project goals and time lines, and other documentation as necessary to comply with subrule 113.4(10) and other requirements of the department if an RD&D permit is being requested or renewed.

h. Proof of financial assurance in compliance with rule 567—113.14(455B).

i. A closure and postclosure plan that complies with the requirements of rules 567—113.12(455B) and 567—113.13(455B).

113.5(2) Incomplete permit applications. If the department finds the permit application information to be incomplete, the department shall notify the applicant of that fact and of the specific deficiencies. If the applicant fails to correct the noted deficiencies within 30 days, the department may reject the application and return the application materials to the applicant. The applicant may reapply without prejudice.

567—113.6(455B) Siting and location requirements for MSWLFs. This rule applies to new MSWLF units and horizontal expansions of existing MSWLF units. Except for paragraphs 113.6(2)*"a,"*113.6(2)*"b"* and 113.6(2)*"f,"* this rule does not apply to permitted MSWLF units which have been approved prior to October 1, 2007. Information required to document compliance with the requirements of rule 567—113.6(455B) shall be consolidated and maintained in a site exploration and characterization report pursuant to subrule 113.6(4).

113.6(1) *Local siting approval.* The department will not consider a permit application for a new MSWLF unless local siting approval pursuant to Iowa Code section 455B.305A, if applicable, has been obtained.

113.6(2) *Location restrictions.* All MSWLFs shall comply with the following location restrictions.

a. *Airports.* For purposes of this chapter:

"Airport" means public-use airport open to the public without prior permission and without restrictions within the physical capacities of available facilities.

"Bird hazard" means an increase in the likelihood of bird-aircraft collisions that may cause damage to the aircraft or injury to its occupants.

(1) A prohibition on locating a new MSWLF near certain airports was enacted in Section 503 of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (Ford Act), Pub. L. 106-181 (49 U.S.C. 44718 note). Section 503 prohibits the "construction or establishment" of new MSWLFs after April 5, 2000, within six miles of certain smaller public airports. The Federal Aviation Administration (FAA) administers the Ford Act and has issued guidance in FAA Advisory Circular 150/5200-34A, dated January 26, 2006.

(2) Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions that are located within 10,000 feet (3,048 meters) of any airport runway end used by turbojet aircraft or within 5,000 feet (1,524 meters) of any airport runway end used by piston-type aircraft only must demonstrate to the FAA that the units are designed and operated so that the MSWLF unit does not pose a bird hazard to aircraft. The owner or operator must place the demonstration of this requirement in the operating record and submit to the department a copy of the demonstration approved by the FAA.

(3) Owners or operators proposing to site new MSWLF units and lateral expansions within a five-mile radius of any airport runway end used by turbojet or piston-type aircraft must notify the affected airport and the FAA. A copy of these notifications shall be submitted to the department.

b. Floodplains. For purposes of this chapter:

"Floodplain" means the lowland and relatively flat areas adjoining inland and coastal waters, including flood-prone areas of offshore islands that may be inundated by a 100-year flood.

"100-year flood" means a flood that has a 1 percent or greater chance of recurring in any given year or a flood of a magnitude equaled or exceeded once in 100 years on the average over a significantly long period.

"Washout" means the carrying away of solid waste by waters of the base flood.

Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in 100-year floodplains must demonstrate to the department that the unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health and the environment. The owner or operator must place the demonstration in the operating record and submit a copy of the demonstration to the department.

c. Wetlands. For purposes of this chapter:

"Wetlands" means those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

New MSWLF units and lateral expansions shall not be located in wetlands, unless the owner or operator can make the following demonstrations to the department:

(1) Where applicable under Section 404 of the Clean Water Act or applicable state wetlands laws, the presumption that a practicable alternative to the proposed landfill is available which does not involve wetlands is clearly rebutted;

(2) The construction and operation of the MSWLF unit will not:

1. Cause or contribute to violations of any applicable state water quality standard;

2. Violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act;

3. Jeopardize the continued existence of endangered or threatened species or result in the destruction or adverse modification of a critical habitat protected under the Endangered Species Act of 1973; and

4. Violate any requirement under the Marine Protection, Research, and Sanctuaries Act of 1972 for the protection of a marine sanctuary;

(3) The MSWLF unit will not cause or contribute to significant degradation of wetlands. The owner or operator must demonstrate the integrity of the MSWLF unit and its ability to protect ecological resources by addressing the following factors:

1. Erosion, stability, and migration potential of native wetland soils, muds and deposits used to support the MSWLF unit;

2. Erosion, stability, and migration potential of dredged and fill materials used to support the MSWLF unit;

3. The volume and chemical nature of the waste managed in the MSWLF unit;

4. Impacts on fish, wildlife, and other aquatic resources and their habitats from release of the solid waste;

5. The potential effects of catastrophic release of waste to wetlands and the resulting impacts on the environment; and

6. Any additional factors, as necessary, to demonstrate that ecological resources in the wetland are sufficiently protected;

(4) To the extent required under Section 404 of the Clean Water Act or applicable state wetlands laws, steps have been taken to attempt to achieve no net loss of wetlands (as defined by acreage and function) by first avoiding impacts to wetlands to the maximum extent practicable as required by subparagraph 113.6(2)*"c"*(1), then minimizing unavoidable impacts to the maximum extent practicable, and finally offsetting remaining unavoidable wetland impacts through all appropriate and practicable compensatory mitigation actions (e.g., restoration of existing degraded wetlands or creation of human-made wetlands); and

(5) Sufficient information is available to make a reasonable determination with respect to these demonstrations.

d. Fault areas. For the purposes of this chapter:

"Fault" means a fracture or a zone of fractures in any material along which strata on one side have been displaced with respect to that on the other side.

"Displacement" means the relative movement of any two sides of a fault measured in any direction.

"Holocene" means the most recent epoch of the Quaternary Period, extending from the end of the Pleistocene Epoch to the present.

New MSWLF units and lateral expansions shall not be located within 200 feet (60 meters) of a fault that has had displacement in Holocene time unless the owner or operator demonstrates to the department that an alternative setback distance of less than 200 feet (60 meters) will prevent damage to the structural integrity of the MSWLF unit and will be protective of human health and the environment.

e. Seismic impact zones. For the purposes of this chapter:

"Seismic impact zone" means an area with a 10 percent or greater probability that the maximum horizontal acceleration in lithified earth material, expressed as a percentage of the earth's gravitational pull (g), will exceed 0.10g in 250 years.

"Maximum horizontal acceleration in lithified earth material" means the maximum expected horizontal acceleration depicted on a seismic hazard map, with a 90 percent or greater probability that the acceleration will not be exceeded in 250 years, or the maximum expected horizontal acceleration based on a site-specific seismic risk assessment.

"Lithified earth material" means all rock, including all naturally occurring and naturally formed aggregates or masses of minerals or small particles of older rock that formed by crystallization of magma or by induration of loose sediments. "Lithified earth material" does not include human-made materials, such as fill, concrete, and asphalt, or unconsolidated earth materials, soil, or regolith lying at or near the earth's surface.

New MSWLF units and lateral expansions shall not be located in seismic impact zones, unless the owner or operator demonstrates to the department that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in lithified earth material for the site. The owner or operator must place the demonstration in the operating record and submit a copy of the demonstration to the department.

f. Unstable areas. For purposes of this chapter:

"Unstable area" means a location that is susceptible to natural or human-induced events or forces capable of impairing the integrity of some or all of the landfill structural components responsible for preventing releases from a landfill. Unstable areas may include poor foundation conditions, areas susceptible to mass movements, and karst terranes.

"Structural components" means liners, leachate collection systems, final covers, run-on systems, runoff systems, and any other component used in the construction and operation of the MSWLF that is necessary for protection of human health and the environment.

"Poor foundation conditions" means those areas where features exist which indicate that a natural or human-induced event may result in inadequate foundation support for the structural components of an MSWLF unit.

"Areas susceptible to mass movement" means those areas of influence (i.e., areas characterized as having an active or substantial possibility of mass movement) where the movement of earth material at, beneath, or adjacent to the MSWLF unit, because of natural or human-induced events, results in the downslope transport of soil and rock material by means of gravitational influence. Areas of mass movement include, but are not limited to, landslides, avalanches, debris slides and flows, soil fluction, block sliding, and rock fall.

"Karst terranes" means areas where karst topography, with its characteristic surface and subterranean features, is developed as the result of dissolution of limestone, dolomite, or other soluble rock. Characteristic physiographic features present in karst terranes include, but are not limited to, sinkholes, sinking streams, caves, large springs, and blind valleys.

Owners or operators of new MSWLF units, existing MSWLF units, and lateral expansions located in an unstable area must demonstrate to the department that engineering measures have been incorporated into the MSWLF unit's design to ensure that the integrity of the structural components of the MSWLF unit will not be disrupted. The owner or operator must place the demonstration in the operating record and submit a copy of the demonstration to the department. The owner or operator must consider the following factors, at a minimum, when determining whether an area is unstable:

(1) On-site or local soil conditions that may result in significant differential settling;

(2) On-site or local geologic or geomorphologic features; and

(3) On-site or local human-made features or human-induced events (both surface and subsurface).

g. Threatened or endangered flora and fauna.

(1) All MSWLF owners or operators shall contact the department's Iowa Natural Areas Inventory with a request to search its records to determine the presence of, or habitat for, any threatened or endangered species or communities of flora or fauna on the proposed site. In the event that the department's Iowa Natural Areas Inventory does not contain records of threatened or endangered species or communities but their presence is suspected, then the permit applicant shall conduct a site survey.

(2) Should any threatened or endangered species be identified pursuant to subparagraph 113.6(2)*"g"*(1), the permit applicant shall demonstrate to the department that the MSWLF unit will not cause or contribute to significant degradation of the threatened or endangered species or communities.

h. Cultural resources.

(1) All MSWLF owners and operators shall prepare a comprehensive listing of, and assessment of the impact on, any archaeologically, historically, or architecturally significant properties on the proposed site. To assess the impact, the permit applicant shall consult with the historic preservation bureau of the state historical society of Iowa.

(2) Should any significant cultural resources be identified pursuant to subparagraph 113.6(2)*"h"*(1), the permit applicant shall demonstrate to the department that the MSWLF unit will not cause or contribute to significant degradation of those cultural resources.

i. Separation from groundwater. The base of an MSWLF unit shall be situated so that the base of the waste within the proposed unit is at least 5 feet above the high water table unless a greater separation is required to ensure that there will be no significant adverse effect on groundwater or surface waters or a lesser separation is unlikely to have a significant adverse effect on groundwater or surface waters.

Artificial means of lowering the high water table are acceptable. The separation of the base of an MSWLF unit from the high water table shall be measured and maintained in a manner acceptable to the department.

j. *Wells and community water systems.* An MSWLF unit shall not be within 1,000 feet of any potable well or community water system in existence at the time of receipt of the original permit application or application to laterally expand the permitted MSWLF unit for the facility that is being used for human or livestock consumption. Groundwater monitoring wells are exempt from this requirement. The department may also exempt extraction wells utilized as part of a remediation system from this requirement. A new MSWLF unit shall not be within 1,000 feet of a downgradient agricultural drainage well.

k. *Property line setback.* An MSWLF unit shall be at least 50 feet from the adjacent property line.

l. *Housing and sensitive populations.* An MSWLF unit shall not be within 500 feet of an occupied residence, recreational area, child care facility, educational facility, or health care facility in existence at the time of receipt of the original permit application or application to laterally expand the permitted MSWLF unit, unless there is a written agreement between the MSWLF owner and such facility. The written agreement shall be filed with the county recorder for abstract of title purposes, and a copy submitted to the department.

113.6(3) *Soil and hydrogeologic investigations.* An MSWLF shall have a qualified groundwater scientist, as defined in paragraph 113.10(1)*"d,"* to conduct a soil and hydrogeologic investigation in accordance with this subrule. The purpose of this investigation is to obtain data to determine potential routes of contaminant migration via groundwater. Such information is vital for completion of the site exploration and characterization report, and the hydrologic monitoring system plan and design. This subrule sets forth the minimum requirements for soil and hydrogeologic investigations. The MSWLF shall comply with this subrule unless the department issues written approval due to specific site conditions.

a. *Number of borings.* A sufficient number of borings shall be made to accurately identify the stratigraphic and hydrogeologic conditions at the site.

b. *Depth of borings.* Unless otherwise approved by the department in writing, the following requirements shall apply to the depth of borings.

(1) All borings shall be a minimum of 25 feet deep and at least 10 feet below the water table.

(2) At a minimum, half of all borings shall extend 20 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock.

(3) At a minimum, one boring shall extend 10 feet into bedrock or 100 feet below the lowest ground surface elevation.

(4) All borings shall be of sufficient depth to correlate strata between borings.

c. *Boring method and soil samples.*

(1) Continuous samples shall be collected for all borings, unless otherwise approved by the department in writing.

(2) Boring logs shall be as detailed as possible in describing each stratum.

(3) Samples shall be clearly marked, preserved and transported in accordance with laboratory procedures.

(4) The permit applicant shall keep and preserve samples until at least 30 days after the permit is issued.

(5) Soil samples from each stratum shall be tested for falling-head permeability and grain size distribution.

d. *Conversion of or plugging borings.*

(1) Borings may be converted to piezometers or monitoring wells. However, the conversion of such borings does not guarantee that more piezometers or monitoring wells will not be required in the department-approved hydrologic monitoring system plan and design.

(2) Borings not converted to piezometers or monitoring wells shall be plugged and properly sealed so as not to create pathways for subsurface or surface pollution migration. Borings converted to piezometers or monitoring wells may still need to be partially plugged depending on the depth of the boring. Plugging shall be performed pursuant to paragraph 113.10(2)*"d."*

e. Soil and hydrogeologic investigation description and analysis. A soil and hydrogeologic investigation description and analysis shall be completed and maintained and, at a minimum, shall contain the following:

(1) The boring logs pursuant to subparagraph 113.6(3)*"c"*(2).

(2) A description of the properties of each soil and bedrock stratum as appropriate, including:

1. Soil texture and classification.
2. Particle size distribution.
3. Mineral composition, cementation, and soil structure.
4. Permeability, including horizontal and vertical permeability, and porosity.
5. Geologic structure, including strike, dip, folding, faulting and jointing.
6. Previous activities and infrastructure at the site that could affect geology and hydrogeology, such as but not limited to mining, quarry operations, borrow pits, waste disposal, storage tanks, pipelines, utilities and tile lines.
7. Lenses and other discontinuous units, voids, solution openings, layering, fractures, other heterogeneity, and the scale or frequency of the heterogeneity.
8. Correlation and continuity of strata between borings.

(3) Descriptions of the hydrogeologic units within the saturated zone, including:

1. Thickness.
2. Hydraulic properties, including as appropriate, conductivity, transmissivity, storativity, and effective porosity.
3. Concentrations of chemical constituents listed in Appendix I present in the groundwater of hydrogeologic units and the source of those constituents, if known.
4. Role and effect of each hydrogeologic unit as an aquifer, aquitard, or perched saturated zone.
5. The actual or potential use of the aquifers as water supplies.

(4) Plan view maps, and a series of cross sections with two oriented perpendicular and two oriented parallel to the predominant directions of groundwater flow through the MSWLF unit, showing:

1. The extent of soil and bedrock strata.
2. The position of the water table.
3. The position of the uppermost aquifer.
4. Measured values of hydraulic head.
5. Equipotential lines and inferred groundwater streamlines of the water table, and the uppermost aquifer if different from the water table.
6. Location of soil and bedrock borings.
7. Location of piezometers and monitoring points, if any.

(5) A description and evaluation of horizontal and vertical groundwater flow which specifically addresses the following and their significance to the movement of pollutants carried by groundwater:

1. Local, intermediate and regional groundwater systems.
2. Groundwater recharge and discharge areas within and immediately surrounding the facility, including interactions with perennial and intermittent surface waters and how the facility affects recharge rates.
3. Existing and proposed groundwater and surface water withdrawals.
4. The effects of heterogeneity, fractures or directional differences in permeability on groundwater movement.
5. Directions of groundwater movement, including vertical components of flow, specific discharge rates and average linear velocities within the hydrologic strata.
6. Seasonal or other temporal fluctuations in hydraulic head.
7. The effect of existing and proposed MSWLF units.

(6) An analysis of potential impacts on groundwater and surface water quality, and water users, in the event of a theoretical release at the most downgradient portion of each MSWLF unit. The analysis shall at a minimum utilize contaminants and indicator parameters with high mobility in groundwater (e.g., chlorides, organic solvents). This analysis shall include:

1. Assumptions and approximations utilized, and why they were utilized.

2. If a model is utilized, a thorough description of models used and each model's capabilities and limitations, including the reliability and accuracy of the models in actual field tests.

3. Projected paths and rates of movement of contaminants found in leachate.

(7) Recommendations for the location of the proposed MSWLF unit and conceptual design based on hydrogeologic information.

113.6(4) *Site exploration and characterization report.* An MSWLF shall maintain a site exploration and characterization report. At a minimum, the site exploration and characterization report shall detail compliance with the requirements of rule 567—113.6(455B) and shall contain the following components.

a. A title page and index.

b. A legal description of the site.

c. Proof of the applicant's ownership of the site and legal entitlement to use the site as an MSWLF. If the applicant does not own the site, then proof of legal entitlement to the site, such as, for example, a lease, must be submitted. Such legal entitlement must include the following:

(1) Provisions that allow continued disposal operations until closure of the facility.

(2) Provisions for the performance of facility closure operations.

(3) Provisions for postclosure care for at least a 30-year period after facility closure.

d. Proof of the applicant's local siting approval pursuant to Iowa Code section 455B.305A, if applicable.

e. Scaled maps or aerial photographs locating the boundaries of the facility and identifying:

(1) North and other principal compass points.

(2) Section lines and other legal boundaries.

(3) Zoning and land use within 0.5 miles.

(4) Haul routes to and from the facility, including load limits or other restrictions on those routes.

(5) Topography within 0.5 miles.

(6) Applicable setback distances and location requirements pursuant to rule 567—113.6(455B), including:

1. Airports within 6 miles of existing, new and planned MSWLF units.

2. Floodplains within or adjacent to the facility.

3. Wetlands within or adjacent to the facility.

4. Fault areas within 200 feet of existing, new and planned MSWLF units.

5. Seismic impact zones within or adjacent to the facility.

6. Unstable areas within or adjacent to the facility.

7. Location of threatened or endangered species within or adjacent to the facility.

8. Location of cultural resources within or adjacent to the facility.

9. Wells within 1,000 feet of upgradient existing, new and planned MSWLF units.

10. Community water systems within 1 mile of upgradient existing, new and planned MSWLF units.

11. Boundaries of the existing, new and planned MSWLF units and the facility property line.

12. Housing and sensitive populations within 500 feet of existing, new and planned MSWLF units.

f. The bird-aircraft hazard demonstration pursuant to paragraph 113.6(2)*"a,"* if applicable.

g. The floodplain demonstration pursuant to paragraph 113.6(2)*"b,"* if applicable.

h. The wetlands demonstration pursuant to paragraph 113.6(2)*"c,"* if applicable.

i. The fault area demonstration pursuant to paragraph 113.6(2)*"d,"* if applicable.

j. The seismic impact zone demonstration pursuant to paragraph 113.6(2)*"e,"* if applicable.

k. The unstable area demonstration pursuant to paragraph 113.6(2)*"f,"* if applicable.

l. The threatened or endangered flora and fauna demonstration pursuant to paragraph 113.6(2)*"g,"* if applicable.

m. The cultural resources demonstration pursuant to paragraph 113.6(2)*"h,"* if applicable.

n. Copies of written agreements with surrounding property owners pursuant to paragraph 113.6(2)*"l,"* if applicable.

o. The soil and hydrogeologic investigation description and analysis pursuant to paragraph 113.6(3)*"e."*

567—113.7(455B) MSWLF unit design and construction standards. All MSWLF units shall be designed and constructed in accordance with this rule.

113.7(1) *Predesign meeting with the department.* A potential applicant for a new MSWLF unit may schedule a predesign meeting with the department's landfill permitting staff prior to beginning work on the plans and specifications of a modified or new MSWLF. The purpose of this meeting is to help minimize the need for revisions upon submittal of the official designs and specifications.

113.7(2) *Plans and specifications.*

a. Unless otherwise requested by the department, one copy of plans, specifications and supporting documents shall be sent to the department for review. Upon written department approval, the documents shall be submitted in triplicate to the department for proper distribution.

b. All new MSWLF units shall be constructed in compliance with the rules and regulations in effect at the time of construction. Previous department approval of plans and specifications for MSWLF units not yet constructed shall be superseded by the promulgation of new rules and regulations, after which plans and specifications shall be resubmitted to the department for approval prior to construction and operation.

113.7(3) *General site design and construction requirements.* An MSWLF shall have the following:

a. All-weather access roads to the facility.

b. A perimeter fence with a lockable gate(s) to help prevent unauthorized access.

c. A sign at the entrance to the facility specifying:

(1) Name and permit number of the facility.

(2) Days and hours that the facility is open to the public or a statement that the facility is not open to the public.

(3) A general list of materials that are not accepted.

(4) Telephone number of the official responsible for operation of the facility and the emergency contact person(s).

d. All-weather access roads within the facility.

e. Signs or pavement markings clearly indicating safe and proper on-site traffic patterns.

f. Adequate queuing distance for vehicles entering and exiting the property.

g. A scale certified by the Iowa department of agriculture and land stewardship.

113.7(4) *MSWLF unit subgrade.* The subgrade for a new MSWLF unit shall be constructed as follows:

a. All trees, stumps, roots, boulders, debris, and other material capable of deteriorating in situ material strength or of creating a preferential pathway for contaminants shall be completely removed or sealed off prior to construction of the MSWLF unit.

b. The material beneath the MSWLF unit shall have sufficient strength to support the weight of the unit during all phases of construction and operation. The loads and loading rate shall not cause or contribute to failure of the liner and leachate collection system.

c. The total settlement or swell of the MSWLF unit's subgrade shall not cause or contribute to failure of the liner and leachate collection system.

d. If the in situ material of the MSWLF unit's subgrade cannot meet the requirements of paragraphs 113.7(4)*"b"* and 113.7(4)*"c,"* then such material shall be removed and replaced with material capable of compliance.

e. The subgrade of an MSWLF unit shall be constructed and graded to provide a smooth working surface on which to construct the liner.

f. The subgrade of an MSWLF unit shall not be constructed in or with frozen soil.

113.7(5) *MSWLF unit liners and leachate collection systems.* The liner and leachate collection system for a new MSWLF unit shall be constructed in accordance with the requirements of this subrule. All active portions must have a composite liner or an alternative liner approved by the department. An MSWLF unit must have a functioning leachate collection system during its active life.

a. Liner systems. An MSWLF unit shall have a liner system that complies with either the composite liner requirements of subparagraph 113.7(5)*"a"*(1) or an alternative liner system that

complies with the requirements of subparagraph 113.7(5)*"a"*(2). Liners utilizing compacted soil must place the compacted soil in lifts no thicker than 8 inches after compaction.

(1) Composite liner systems.

1. A composite liner consists of two components, an upper flexible membrane liner (FML) and a lower compacted soil liner.

2. The upper component must consist of a minimum 30-mil flexible membrane liner (FML). FML components consisting of high-density polyethylene (HDPE) shall be at least 60 mil thick. The FML component must be installed in direct and uniform contact with the lower compacted soil component.

3. The lower component must consist of at least a 2-foot layer of compacted soil with a hydraulic conductivity of no more than 1×10^{-7} centimeters per second (cm/sec). The compacted soil must be placed in lifts no thicker than 8 inches after compaction.

4. The composite liner must be adequately sloped toward the leachate collection pipes to provide drainage of leachate. Unless alternative design requirements to this performance standard are approved as part of the permit under subrule 113.2(11) (relating to equivalency review procedure), the leachate collection system shall have a slope greater than or equal to 2 percent and not exceeding 33 percent.

(2) Alternative liner systems.

1. The design must ensure that the concentration values listed in Table I of rule 567—113.7(455B) will not be exceeded in the uppermost aquifer at the relevant point of compliance, as specified pursuant to numbered paragraph 113.7(5)*"a"*(2)"2." Alternative liners utilizing compacted soil must place the compacted soil in lifts no thicker than 8 inches.

2. The relevant point of compliance specified by the department must be within 50 feet of the planned liner or waste boundary, unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored in accordance with subparagraph 113.10(2)*"a"*(2), and located on land owned by the owner of the MSWLF unit. The relevant point of compliance specified by the department shall be at least 50 feet from the property line of the facility.

3. When approving an alternative liner design, the department shall consider at least the following factors:

- The hydrogeologic characteristics of the facility and surrounding land.
- The climatic factors of the area.
- The volume and physical and chemical characteristics of the leachate.
- The sensitivities and limitations of the modeling demonstrating the applicable point of compliance.
- Practicable capability of the owner or operator.

4. The alternative liner must be adequately sloped toward the leachate collection pipes to provide drainage of leachate. Unless alternative design requirements to this performance standard are approved as part of the permit under subrule 113.2(11) (relating to equivalency review procedure), the leachate collection system shall have a slope greater than or equal to 2 percent and not exceeding 33 percent.

Table I

Chemical	MCL (mg/l)
Arsenic	0.01
Barium	1.0
Benzene	0.005
Cadmium	0.01
Carbon tetrachloride	0.005
Chromium (hexavalent)	0.05
2,4-Dichlorophenoxy acetic acid	0.1
1,4-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007

Endrin	0.0002
Fluoride	4.0
Lindane	0.004
Lead	0.05
Mercury	0.002
Methoxychlor	0.1
Nitrate	10.0
Selenium	0.01
Silver	0.05
Toxaphene	0.005
1,1,1-Trichloromethane	0.2
Trichloroethylene	0.005
2,4,5-Trichlorophenoxy acetic acid	0.01
Vinyl chloride	0.002

b. Leachate collection system. All MSWLF units shall have a leachate collection system that complies with the following requirements:

(1) The leachate collection system shall be designed and constructed to function for the entire active life of the facility and the postclosure period.

(2) The leachate collection system shall be of a structural strength capable of supporting waste and equipment loads throughout the active life of the facility and the postclosure period.

(3) The leachate collection system shall be designed and constructed to minimize leachate head over the liner at all times. An MSWLF unit shall have a leachate collection system that maintains less than a 30-centimeter (i.e., 12-inch) depth of leachate over the liner. The leachate collection system shall have a method for accurately measuring the leachate head on the liner at the system's lowest point(s) within the MSWLF unit (e.g., sumps). Furthermore, an additional measuring device shall be installed to measure leachate directly on the liner in the least conductive drainage material outside of the sump and collection trench. Leachate head measurements from cleanout lines or manholes are not acceptable for the second measurement. All such measurement devices shall be in place before waste is placed in the MSWLF unit.

(4) If the leachate collection system is not designed and constructed factoring in leachate recirculation or bioreactor operations, the department may prohibit such activities within the MSWLF unit.

(5) The collection pipes shall be of a length and cross-sectional area that allow for cleaning and inspection through the entire length of all collection pipes at least once every three years. The collection pipes shall not be designed or constructed with sharp bends that prevent cleaning or inspection along any section of the collection pipe or that may cause the collection pipe to be damaged during cleaning or inspection.

(6) Leachate collection system designs shall attempt to minimize the potential for clogging due to mass loading.

(7) Unless alternative design requirements are approved as part of the permit under subrule 113.2(11) (relating to equivalency review procedure), the following design requirements shall apply:

1. A geotextile cushion over the flexible membrane liner (FML), if the liner utilizes an FML and granular drainage media. A geotextile cushion is not required if the granular drainage media is well rounded and less than 3/8 inch in diameter. The geotextile's mass shall be determined based on the allowable pressure on the geomembrane.

2. Collection pipe(s) at least 4 inches in diameter at the base of the liner slope(s), surrounded by the high hydraulic-conductivity material listed in numbered paragraph 113.7(5)*"b"*(7)"3" below. The collection pipe shall have slots or holes large enough to minimize the potential for clogging from fines conveyed by incoming leachate.

3. One of the following high hydraulic-conductivity materials:

- High hydraulic-conductivity material (e.g., gravel) of uniform size and a fines content of no more than 5 percent by weight passing a #200 sieve. The high hydraulic-conductivity material shall be at least 12 inches in depth and have a hydraulic conductivity of at least 1×10^{-2} cm/sec; or
- A geosynthetic drainage media (e.g., geonet). The transmissivity of geonets shall be tested with method ASTM D4716, or an equivalent test method, to demonstrate that the design transmissivity will be maintained for the design period of the facility. The testing for the geonet in the liner system shall be conducted using actual boundary material intended for the geonet at the maximum design normal load for the MSWLF unit, and at the design load expected from one lift of waste. At the maximum design normal load, testing shall be conducted for a minimum period of 100 hours unless data equivalent of the 100-hour period is provided, in which case the test shall be conducted for a minimum period of one hour. In the case of the design load from one lift of waste, the minimum period shall be one hour. For geonets used in final covers, only one test shall be conducted for a minimum period of one hour using the expected maximum design normal load from the cover soils and the actual boundary materials intended for the geonet. A granular layer at least 12 inches thick with a hydraulic conductivity of at least 1×10^{-3} cm/sec shall be placed above the geosynthetic drainage material that readily transmits leachate and provides separation between the waste and liner.

(8) Manholes within the MSWLF unit shall be designed to minimize the potential for stressing or penetrating the liner due to friction on the manhole exterior from waste settlement.

(9) The leachate drainage and collection system within the MSWLF unit shall not be used for the purpose of storing leachate. If leachate is to be stored, it shall be stored in designated storage structures outside of the MSWLF unit.

(10) All of the facility's leachate storage and management structures outside of the MSWLF unit (e.g., tanks, holding ponds, pipes, sumps, manholes, lift stations) and operations shall have containment structures or countermeasures adequate to prevent seepage to groundwater or surface water. The containment structures and countermeasures for leachate storage shall be at least as protective of groundwater at the liner of the MSWLF unit on a performance basis.

(11) Unless alternative design requirements are approved as part of the permit under subrule 113.2(11) (relating to equivalency review procedure), the leachate storage structures shall be able to store at least 7 days of accumulated leachate at the maximum generation rate used in designing the leachate collection system. Such minimum storage capacity may be constructed in phases over time so long as the 7-day accumulation capacity is maintained. The storage facility shall also have the ability to load tanker trucks in case sanitary sewer service is unavailable for longer than 7 days.

(12) The leachate collection system shall be equipped with valves or devices similar in effectiveness so that leachate can be controlled during maintenance.

(13) The leachate collection system shall be accessible for maintenance at all times and under all weather conditions.

(14) The permit holder shall annually submit a Leachate Control System Performance Evaluation (LCSPE) Report as a supplement to the facility Annual Water Quality Report, as defined in subrule 113.10(10). The report shall include an evaluation of the effectiveness of the system in controlling the leachate, leachate head levels and elevations, the volume of leachate collected and transported to the treatment works or discharged under any NPDES permits, records of leachate contaminants testing required by the treatment works, proposed additional leachate control measures, and an implementation schedule in the event that the constructed system is not performing effectively.

113.7(6) *Quality control and assurance programs.* All MSWLF units shall be constructed under the supervision of a strict quality control and assurance (QC&A) program to ensure that MSWLF units are constructed in accordance with the requirements of rule 567—113.7(455B) and the approved plans and specifications. At a minimum, such a QC&A program shall consist of the following.

a. The owner or operator shall designate a quality control and assurance (QC&A) officer. The QC&A officer shall be a professional engineer (P.E.) registered in Iowa. The QC&A officer shall not be an employee of the facility, the construction company or construction contractor. The owner or operator shall notify the department of the designated QC&A officer and provide the department with that person's

contact information. The QC&A officer may delegate another person or persons who are not employees of the facility to supervise or implement an aspect of the QC&A program.

b. The QC&A officer shall document compliance with rule 567—113.7(455B), and the approved plans and specifications, for the following aspects of construction:

(1) The MSWLF unit's subgrade.

(2) The liner system, as applicable, below:

1. The flexible membrane liner (FML). Destructive testing of the FML shall be kept to side slopes when continuous seams are utilized. Patches over FML destructive testing areas shall be checked with nondestructive methods.

2. The compacted clay component of the liner system. A minimum of five field moisture density tests per 8-inch lift per acre shall be performed to verify that the correct density, as correlated to permeability by a laboratory analysis, has been achieved. Laboratory hydraulic conductivity testing of Shelby tube samples from the constructed soil liner or test pad, or field hydraulic conductivity testing of the constructed soil liner or test pad, or other methods approved by the department, shall be utilized as a QC&A test.

(3) The leachate collection, conveyance and storage systems.

(4) Any other aspect of construction as required by the department.

c. A sampling and testing program shall be implemented by the QC&A officer as part of the QC&A program. The sampling and testing program shall:

(1) Verify full compliance with the requirements of rule 567—113.7(455B), and the approved plans and specifications.

(2) Be approved by the department prior to construction of the MSWLF unit.

(3) Detail how each stage of construction will be verified for full compliance with the requirements of rule 567—113.7(455B), and the approved plans and specifications.

(4) Be based on statistically significant sampling techniques and establish criteria for the acceptance or rejection of materials and constructed components of the MSWLF unit.

(5) Detail what actions will take place to remedy and verify any material or constructed component that is not in compliance with the requirements of rule 567—113.7(455B), and the approved plans and specifications.

d. The QC&A officer shall document the QC&A program. Upon completion of the MSWLF unit construction, the QC&A officer shall submit a final report to the department that verifies compliance with the requirements of rule 567—113.7(455B), and the approved plans and specifications. A copy of the final report shall also be maintained by the facility in the operating record. At a minimum, the final report shall include the following.

(1) A title page and index.

(2) The name and permit number of the facility.

(3) Contact information for the QC&A officer and persons delegated by the QC&A officer to supervise or implement an aspect of the QC&A program.

(4) Contact information for all construction contractors.

(5) Copies of daily reports containing the following information.

1. The date.

2. Summary of weather conditions.

3. Summary of locations on the facility where construction was occurring.

4. Summary of equipment, materials and personnel utilized in construction.

5. Summary of meetings held regarding the construction of the MSWLF unit.

6. Summary of construction progress.

7. Photographs of the construction progress, with descriptions of the time, subject matter and location of each photograph.

8. Details of sampling and testing program for that day. At a minimum, this report shall include details of where sampling and testing occurred, the methods utilized, personnel involved and test results.

9. Details of how any material or constructed component that was found not to be in compliance via the sampling and testing program was remedied.

(6) A copy of detailed as-built drawings with supporting documentation and photographic evidence. This copy shall also include a narrative explanation of changes from the original department-approved plans and specifications.

(7) A signed and sealed statement by the QC&A officer that the MSWLF unit was constructed in accordance with the requirements of rule 567—113.7(455B), and the approved plans and specifications.

113.7(7) *Vertical and horizontal expansions of MSWLF units.* All vertical and horizontal expansions of disposal airspace over existing and new MSWLF units shall comply with the following requirements.

a. Horizontal expansions shall, at a minimum, comply with the following requirements:

(1) Horizontal expansions are new MSWLF units and, at a minimum, shall be designed and constructed in accordance with subrules 113.7(4), 113.7(5) and 113.7(6).

(2) The slope stability of the horizontal expansion between the existing unit and new MSWLF unit shall be analyzed. The interface between two MSWLF units shall not cause a slope failure of either of the MSWLF units.

(3) A horizontal expansion may include a vertical elevation increase of an existing MSWLF unit, pursuant to paragraph 113.7(7)*"b,"* if approved by the department.

b. Vertical expansions shall, at a minimum, comply with the following requirements:

(1) A vertical expansion of an MSWLF unit shall not be allowed if the MSWLF unit does not have an approved leachate collection system and a composite liner or a leachate collection system and an alternative liner modeled at an approved point of compliance.

(2) An analysis of the structural impacts of the proposed vertical expansion on the liner and leachate collection system shall be completed. The vertical expansion shall not contribute to the structural failure of the liner and leachate collection system.

(3) An analysis of the impact of the proposed vertical expansion on leachate generation shall be completed. The vertical expansion shall not overload the leachate collection system or contribute to excess head on the liner.

(4) An analysis of the effect of the proposed vertical expansion on run-on, runoff and discharges into waters of the state shall be completed. The vertical expansion shall not cause a violation of subrule 113.7(8).

(5) The proposed vertical expansion shall be in compliance with the final slopes required at closure pursuant to paragraph 113.12(1)*"e."*

(6) An analysis of the potential impact of the proposed vertical expansion on litter generation shall be completed. Landfill management strategies may need to be amended to help prevent increased litter.

(7) An analysis of the impact of the proposed vertical expansion on lines-of-sight and any visual buffering utilized by the landfill shall be completed.

113.7(8) *Run-on and runoff control systems.*

a. Owners or operators of all MSWLF units must design, construct, and maintain the following:

(1) A run-on control system to prevent flow onto the active portion of the landfill during the peak discharge from a 25-year storm;

(2) A runoff control system from the active portion of the landfill to collect and control at least the water volume resulting from a 24-hour, 25-year storm.

b. Runoff from the active portion of the MSWLF unit must be handled in accordance with paragraph 113.10(1)*"a."*

567—113.8(455B) Operating requirements. The requirements of this rule shall be consolidated in a development and operations plan (DOPs) pursuant to subrule 113.8(4) and the emergency response and remedial action plan (ERRAP) pursuant to subrule 113.8(5), as applicable.

113.8(1) *Prohibited operations and activities.* For the purposes of this subrule, "regulated hazardous waste" means a solid waste that is a hazardous waste, as defined in Iowa Code section 455B.411.

a. Waste screening for prohibited materials. Owners or operators of all MSWLF units must implement a program at the facility for detecting and preventing the disposal of regulated hazardous wastes, polychlorinated biphenyls (PCB) wastes and other prohibited wastes listed in paragraph 113.8(1)*"b."* This program must include, at a minimum:

(1) Random inspections of incoming loads unless the owner or operator takes other steps to ensure that incoming loads do not contain regulated hazardous wastes, PCB wastes or other prohibited wastes listed in paragraph 113.8(1)*"b"*;

(2) Records of any inspections;

(3) Training of facility personnel to recognize regulated hazardous wastes, PCB wastes and other prohibited wastes listed in paragraph 113.8(1)*"b"*; and

(4) Notification of the EPA regional administrator if regulated hazardous wastes or PCB wastes are discovered at the facility.

b. Materials prohibited from disposal. The following wastes shall not be accepted for disposal by an MSWLF. Some wastes may be banned from disposal via the multiple categories listed below.

(1) Hazardous waste, whether it is a chemical compound specifically listed by EPA as a regulated hazardous waste or a characteristic hazardous waste pursuant to the characteristics below:

1. Ignitable in that the waste has a flash point (i.e., it will ignite) at a temperature of less than 140 degrees Fahrenheit.

2. Corrosive in that the waste has a pH less than 2 or greater than 12.5.

3. Reactive in that the waste is normally unstable; reacts violently with water; forms an explosive mixture with water; contains quantities of cyanide or sulfur that could be released into the air in sufficient quantity to be a danger to human health; or can easily be detonated or exploded.

4. Toxicity characteristic leaching procedure (TCLP) (EPA Method 1311) toxic, in that a TCLP listed chemical constituent exceeds the EPA assigned concentration standard in 40 CFR Part 261 or the department assigned concentration standard in Table I of rule 567—113.7(455B). Waste from a residential building that is contaminated by lead-based paint (i.e., the waste fails the TCLP test for lead only) may be disposed of in an MSWLF unit. The purpose of this exclusion is to help prevent the exposure of children to lead-based paint. Therefore, the meaning of "residential building" in regard to this TCLP exclusion shall be interpreted broadly and include any building which children or parents may utilize as a residence (temporarily or permanently). Such residential buildings include, but are not limited to, single-family homes, apartment buildings, townhomes, condominiums, public housing, military barracks, nursing homes, hotels, motels, bunkhouses, and campground cabins.

(2) Polychlorinated biphenyl (PCB) wastes with a concentration equal to or greater than 50 parts per million (ppm).

(3) Free liquids, liquid waste and containerized liquids. For purposes of this subparagraph, "liquid waste" means any waste material that is determined to contain "free liquids" as defined by Method 9095B (Paint Filter Liquids Test), as described in Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods (EPA Pub. No. SW-846). For the purposes of this subparagraph, "gas condensate" means the liquid generated as a result of the gas recovery process(es) at the MSWLF unit. However, free liquids and containerized liquids may be placed in MSWLF units if:

1. The containerized liquid is household waste other than septic waste. The container must be a small container similar in size to that normally found in household waste;

2. The waste is leachate or gas condensate derived from the MSWLF unit, whether it is a new or existing MSWLF unit or lateral expansion, and is designed with a composite liner and leachate collection system as described in paragraph 113.7(5)*"a."* The owner or operator must demonstrate compliance with this subparagraph and place the demonstration in the operating record; or

3. The MSWLF unit is a research, development and demonstration (RD&D) project in which the department has authorized the addition of liquids and meets the applicable requirements of subrule 113.4(10).

(4) Septage, which is the raw material, liquids and pumpings from a septic system, unless treated pursuant to 567—Chapter 68.

(5) Appliances as defined pursuant to 567—Chapter 118, unless there is documentation that the appliance has been demanufactured pursuant to 567—Chapter 118.

(6) Radioactive waste, excluding luminous timepieces and other items using very small amounts of tritium.

(7) Infectious waste, unless managed and disposed of pursuant to 567—Chapter 109.

(8) Hot loads, meaning solid waste that is smoking, smoldering, emitting flames or hot gases, or otherwise indicating that the solid waste is in the process of combustion or close to igniting. Ash that has not been fully quenched or cooled is considered a hot load. Such wastes may be accepted at the gate, but shall be segregated and completely extinguished and cooled in a manner as safe and responsible as practical before disposal.

(9) Asbestos-containing material (ACM) waste with greater than 1 percent asbestos, unless managed and disposed of pursuant to 567—Chapter 109.

(10) Petroleum-contaminated soil, unless managed and remediated pursuant to 567—Chapter 120.

(11) Grit and bar screenings, and grease skimmings, unless managed and disposed of pursuant to 567—Chapter 109.

(12) Waste tires, unless each tire is processed into pieces no longer than 18 inches on any side. The department encourages the recycling of all waste tires, even if processed to disposal standards.

(13) Yard waste, except in the following circumstances:

1. When the yard waste is collected for disposal as a result of a severe storm and the yard waste originates in an area declared to be a disaster area in a declaration issued by the President of the United States or the governor.

2. When the yard waste is collected for disposal to control, eradicate, or prevent the spread of insect pests, tree and plant diseases, or invasive plant species.

3. When the yard waste is disposed of in a sanitary landfill that operates a methane collection system that produces energy. A methane collection system that burns landfill gas without using the energy for a purpose other than reducing the amount of methane released is not considered to be a system that produces energy.

(14) Lead-acid batteries.

(15) Waste oil and materials containing free-flowing waste oil. Materials contaminated with waste oil may be disposed of if no free-flowing oil is retained in the material, and the material is not a hazardous waste.

(16) Baled solid waste, unless the waste is baled on site after the waste has been visually inspected for prohibited materials.

c. Open burning and fire hazards. No open burning of any type shall be allowed within the permitted boundary of an MSWLF facility. The fueling of vehicles and equipment, and any other activity that may produce sparks or flame, shall be conducted at least 50 feet away from the working face.

d. Scavenging and salvaging. Scavenging shall not be allowed at the MSWLF facility. However, salvaging by MSWLF operators may be allowed.

e. Animal feeding and grazing. Feeding animals MSW shall not be allowed at an MSWLF facility. The grazing of domestic animals on fully vegetated areas of the MSWLF facility not used for disposal, including closed MSWLF units, may be allowed by the department so long as the animals do not cause damage or interfere with operations, inspections, environmental monitoring and other required activities. Large, hoofed animals (including but not limited to buffalo, cattle, llamas, pigs, and horses) shall not be allowed on closed MSWLF units.

113.8(2) *Disposal operations and activities.* All MSWLFs shall comply with the following requirements.

a. Survey controls and monuments. Survey controls and monuments shall be maintained as follows.

(1) The property boundary, the permitted boundary and the boundaries of all MSWLF units shall be surveyed and marked by a professional land surveyor at least once prior to closure.

(2) Prior to waste placement, all new MSWLF unit boundaries shall be surveyed and marked by a professional engineer.

(3) Survey monuments shall be established to check vertical elevations and the progression of fill sequencing. The survey monuments shall be established and maintained by a professional land surveyor.

(4) All survey stakes and monuments shall be clearly marked.

(5) A professional engineer shall biennially inspect all survey monuments and replace missing or damaged survey monuments.

b. *First lift.* The first lift and initial placement of MSW over a new MSWLF unit liner and leachate collection system shall comply with the following requirements.

(1) Waste shall not be placed in the new MSWLF unit until the QC&A officer has submitted a signed and sealed final report to the department pursuant to paragraph 113.7(6)*"d"* and that report has been approved by the department.

(2) Construction and earth-moving equipment shall not operate directly on the liner and leachate management system. Waste disposal operations shall begin at the edge of the new MSWLF unit by pushing MSW out over the liner and leachate collection system. Compactors and other similarly heavy equipment shall not operate directly on the leachate collection system until a minimum of 4 feet of waste has been mounded over the top of the leachate collection system.

(3) Construction and demolition debris and materials clearly capable of spearing through the leachate collection system and liner shall not be placed in the first 4 feet of waste over the top of the leachate collection system. The first 4 feet of waste shall consist of select waste that is unlikely to damage the liner and performance of the leachate collection system.

(4) The owner or operator must place documentation in the operating record and submit a copy to the department that adequate cover material was placed over the top of the leachate collection system in the MSWLF unit or that freeze/thaw effects had no adverse impact on the compacted clay component of the liner.

c. *Fill sequencing.* The rate and phasing of disposal operations shall comply with the following requirements.

(1) The fill sequencing shall be planned and conducted in a manner and at a rate that do not cause a slope failure, lead to extreme differential settlement, or damage the liner and leachate collection system.

(2) The fill sequencing shall be planned and conducted in a manner compliant with the run-on and runoff requirements of subrule 113.7(8) and surface water requirements of rule 567—113.10(455B).

d. *Working face.* The working face shall comply with the following requirements.

(1) The working face shall be no larger than necessary to accommodate the rate of disposal in a safe and efficient manner.

(2) The working face shall not be so steep as to cause heavy equipment and solid waste collection vehicles to roll over or otherwise lose control.

(3) Litter control devices of sufficient size to help prevent blowing litter shall be utilized at the working face. The operation of the working face shall attempt to minimize blowing litter.

(4) The operation of the working face shall prevent the harborage of vectors and attempt to minimize the attraction of vectors.

(5) Employees at the working face shall be trained to visually recognize universal symbols, markings and indications of prohibited wastes pursuant to paragraph 113.8(1)*"b."*

e. *Special wastes.* Special wastes shall be managed and disposed of pursuant to 567—Chapter 109.

f. *Cover material and alternative cover material.* Pursuant to 567—Chapter 108, alternative cover material of an alternative thickness (e.g., tarps, spray covers) may be authorized if the owner or operator demonstrates to the approval of the department that the alternative material and thickness control vectors, fires, odors, blowing litter, and scavenging without presenting a threat to human health and the environment. Cover material or alternative cover material shall be available for use during all seasons in all types of weather. Cover material and alternative cover material shall be utilized as follows unless otherwise approved by the department pursuant to 567—Chapter 108:

(1) Daily cover. Six inches of cover material or an approved depth or application of alternative cover material shall be placed and maintained over waste in the active portion at the end of each operating day, or at more frequent intervals if necessary, to control vectors, fires, odors, blowing litter, and scavenging.

(2) Intermediate cover. At least 1 foot of compacted cover material or an approved depth or application of alternative cover material shall be placed and maintained over waste in the active portion

that has not or will not receive more waste for at least 30 days. At least 2 feet of compacted cover material or alternative cover material shall be placed and maintained over waste in the active portion that has not or will not receive waste for at least 180 days. Such active portions shall be graded to manage run-on and runoff pursuant to subrule 113.7(8). Such active portions shall be seeded if they will not receive waste for a full growing season.

(3) Scarification of cover. To help prevent leachate seeps by aiding the downward flow of leachate, cover material or alternative cover material, which prevents the downward flow of leachate and is at least 5 feet from the outer edge of the MSWLF unit, shall be scarified prior to use of that area as a working face. Cover material or alternative cover material that does not impede the downward flow of leachate, as approved by the department, does not require scarification. Scarification may be as simple as the spearing or breaking up of a small area of the cover. Areas of intermediate cover may require removal of some of the cover material or alternative cover material to aid the downward flow of leachate.

(4) Final cover. Final cover over an MSWLF unit that is to be closed shall be constructed and maintained according to the closure and postclosure requirements of rules 567—113.12(455B) and 567—113.13(455B).

g. *Leachate seeps.* Leachate seeps shall be contained and plugged upon being identified. Leachate seeps shall not be allowed to reach waters of the state. Soils outside of the MSWLF unit that are contaminated by a leachate seep shall be excavated and then disposed of within the MSWLF unit. Such soils may be used for daily cover material.

h. *Leachate recirculation.* The department must approve an MSWLF unit for leachate recirculation. The primary goal of the leachate recirculation system is to help stabilize the waste in a more rapid, but controlled, manner. The leachate recirculation system shall not contaminate waters of the state, contribute to erosion, damage cover material, harm vegetation, or spray persons at the MSWLF facility. Leachate recirculation shall be limited to MSWLF units constructed with a composite liner.

i. *Differential settlement.* Areas of differential settlement sufficient to interfere with runoff and run-on shall be brought back up to the contours of the surrounding active portion. Differential settlement shall not be allowed to cause ponding of water on the active portion.

113.8(3) *Facility operations and activities.* All MSWLFs shall comply with the following requirements.

a. *Controlled access.* Owners or operators of all MSWLF units must control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate to protect human health and the environment.

b. *Scales and weights.* A scale certified by the Iowa department of agriculture and land stewardship shall weigh all solid waste collection vehicles and solid waste transport vehicles. The owner or operator shall maintain a record of the weight of waste disposed of.

c. *All-weather access to disposal.* A disposal area shall be accessible during all weather conditions.

d. *Salvaged and processed materials.* Salvaged and processed materials (e.g., scrap metal, compost, mulch, aggregate, tire chips) shall be managed and stored in an orderly manner that does not create a nuisance or encourage the attraction or harborage of vectors.

e. *Vector control.* Owners or operators must prevent or control the on-site populations of vectors using techniques appropriate for the protection of human health and the environment.

f. *Litter control.* The operator shall take steps to minimize the production of litter and the release of windblown litter off site of the facility. All windblown litter off site of the facility shall be collected daily unless prevented by unsafe working conditions. On-site litter shall be collected daily unless prevented by working conditions. A dated record of unsafe conditions that prevented litter collection activities shall be maintained by the facility.

g. *Dust.* The operator shall take steps to minimize the production of dust so that unsafe or nuisance conditions are prevented. Leachate shall not be used for dust control purposes.

h. *Mud.* The operator shall take steps to minimize the tracking of mud by vehicles exiting the facility so that slick or unsafe conditions are prevented.

i. *Leachate and wastewater treatment.* The leachate management system shall be managed and maintained pursuant to the requirements of paragraph 113.7(5)*"b."* Leachate collection pipes shall be cleaned and inspected as necessary, but not less than once every three years. Leachate and wastewater shall be treated as necessary to meet the pretreatment limits, if any, imposed by an agreement between the MSWLF and a publicly owned wastewater treatment works (POTW) or by the effluent discharge limits established by an NPDES permit. Documentation of the POTW agreement or NPDES permit must be submitted to the department. All leachate and wastewater treatment systems shall conform to department wastewater design standards.

j. *Financial assurance.* Financial assurance shall be maintained pursuant to rule 567—113.14(455B).

113.8(4) *Development and operations plan (DOPs).* An MSWLF unit shall maintain a development and operations plan (DOPs). At a minimum, the DOPs shall detail how the facility will operate and how compliance with the requirements of rule 567—113.8(455B) will be maintained. The DOPs shall contain at least the following components.

a. A title page and table of contents.

b. Telephone number of the official responsible for the operation of the facility and an emergency contact person if different.

c. Service area of the facility and political jurisdictions included in that area.

d. Days and hours of operation of the facility.

e. Details of how the site will comply with the prohibited operations and activity requirements of subrule 113.8(1) and any related permit conditions.

f. Details of how the site will comply with the disposal operation and activity requirements of subrule 113.8(2) and any related permit conditions.

g. Details of how the site will comply with the facility operations and activity requirements of subrule 113.8(3), any related permit conditions, and any leachate and wastewater treatment requirements.

113.8(5) *Emergency response and remedial action plan (ERRAP).* All MSWLFs shall develop, submit to the department for approval, and maintain on site an ERRAP.

a. *ERRAP submittal requirements.* An updated ERRAP shall be submitted to the department with any permit modification or renewal request that incorporates facility changes that impact the ERRAP.

b. *Content.* The ERRAP is intended to be a quick reference during an emergency. The content of the ERRAP shall be concise and readily usable as a reference manual by facility managers and operators during emergency conditions. The ERRAP shall contain and address at least the following components, unless facility conditions render the specific issue as not applicable. To facilitate department review, the rationale for exclusion of any issues that are not applicable must be provided either in the body of the plan or as a supplement. Additional ERRAP requirements unique to the facility shall be addressed as applicable.

(1) Facility information.

1. Permitted agency.
2. DNR permit number.
3. Responsible official and contact information.
4. Certified operator and contact information.
5. Facility description.
6. Site and environs map.

(2) Regulatory requirements.

1. Iowa Code section 455B.306(6)*"d"* criteria citation.
2. Reference to provisions of the permit.

(3) Emergency conditions, response activities and remedial action.

1. Failure of utilities.

- Short-term (48 hours or less).
- Long-term (over 48 hours).

2. Evacuation procedures during emergency conditions.
3. Weather-related events.

- Tornado and wind events.
- Snow and ice.
- Intense rainstorms, mud, and erosion.
- Lightning strikes.
- Flooding.
- Event and postevent conditions.

4. Fire and explosions.
- Waste materials.
- Buildings and site.
- Equipment.
- Fuels.
- Utilities.
- Facilities.
- Working area.
- Hot loads.
- Waste gases.
- Explosive devices.

5. Regulated waste spills and releases.
- Waste materials.
- Leachate.
- Waste gases.
- Waste stockpiles and storage facilities.
- Waste transport systems.
- Litter and airborne particulate.
- Site drainage system.
- Off-site releases.

6. Hazardous material spills and releases.
- Load-check control points.
- Mixed waste deliveries.
- Fuels.
- Waste gases.
- Site drainage systems.
- Off-site releases.

7. Mass movement of land and waste.
- Earthquakes.
- Slope failure.
- Waste shifts.
- Waste subsidence.

8. Emergency and release notification and reporting.
- Federal agencies.
- State agencies.
- County and city agencies including emergency management services.
- News media.
- Public and private facilities with special populations within five miles.
- Reporting requirements and forms.

9. Emergency waste management procedures.
- Communications.
- Temporary discontinuation of services—short-term and long-term.
- Facilities access and rerouting.
- Waste acceptance.
- Wastes in process.

10. Primary emergency equipment inventory.

- Major equipment.
- Fire hydrants and water sources.
- Off-site equipment resources.

11. Emergency aid.

- Responder contacts.
- Medical services.
- Contracts and agreements.

12. ERRAP training requirements.

- Training providers.
- Employee orientation.
- Annual training updates.
- Training completion and record keeping.

13. Reference tables, figures and maps.

113.8(6) *MSWLF operator certification.* Sanitary landfill operators shall be trained, tested, and certified by a department-approved certification program.

a. A sanitary landfill operator shall be on duty during all hours of operation of a sanitary landfill, consistent with the respective certification.

b. To become a certified operator, an individual shall complete a basic operator training course that has been approved by the department or an alternative, equivalent training approved by the department and shall pass a departmental examination as specified by this subrule. An operator certified by another state may have reciprocity subject to approval by the department.

c. A sanitary landfill operator certification is valid until June 30 of the following even-numbered year.

d. The required basic operator training course for a certified sanitary landfill operator shall have at least 25 contact hours and shall address the following areas, at a minimum:

(1) Description of types of wastes.
(2) Interpreting and using engineering plans.
(3) Construction surveying techniques.
(4) Waste decomposition processes.
(5) Geology and hydrology.
(6) Landfill design.
(7) Landfill operation.
(8) Environmental monitoring.
(9) Applicable laws and regulations.
(10) Permitting processes.
(11) Leachate control and treatment.

e. Alternate basic operator training must be approved by the department. The applicant shall be responsible for submitting any documentation the department may require to evaluate the equivalency of alternate training.

f. Fees.

(1) The examination fee for each examination is $20.

(2) The initial certification fee is $8 for each one-half year of a two-year period from the date of issuance to June 30 of the next even-numbered year.

(3) The certification renewal is $24.

(4) The penalty fee is $12.

g. Examinations.

(1) The operator certification examinations shall be based on the basic operator training course curriculum.

(2) All individuals wishing to take the examination required to become a certified operator of a sanitary landfill shall complete the Operator Certification Examination Application, Form 542-1354. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate the basic operator training course taken. Evidence

of training course completion must be submitted with the application for certification. The completed application and the application fee shall be sent to the department and addressed to the central office in Des Moines. Application for examination must be received by the department at least 30 days prior to the date of examination.

(3) A properly completed application for examination shall be valid for one year from the date the application is approved by the department.

(4) Upon failure of the first examination, the applicant may be reexamined at the next scheduled examination. Upon failure of the second examination, the applicant shall be required to wait a period of 180 days between each subsequent examination.

(5) Upon each reexamination when a valid application is on file, the applicant shall submit to the department the examination fee at least ten days prior to the date of examination.

(6) Failure to successfully complete the examination within one year from the date of approval of the application shall invalidate the application.

(7) Completed examinations will be retained by the department for a period of one year after which they will be destroyed.

(8) Oral examinations may be given at the discretion of the department.

h. Certification.

(1) All operators who passed the operator certification examination by July 1, 1991, are exempt from taking the required operator training course. Beginning July 1, 1991, all operators are required to take the basic operator training course and pass the examination in order to become certified.

(2) Application for certification must be received by the department within 30 days of the date the applicant receives notification of successful completion of the examination. All applications for certification shall be made on a form provided by the department and shall be accompanied by the certification fee.

(3) Applications for certification by examination which are received more than 30 days but less than 60 days after notification of successful completion of the examination shall be accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days of notice of successful completion of the examination will not be certified on the basis of that examination.

(4) For applicants who have been certified under other state mandatory certification programs, the equivalency of which has been previously reviewed and accepted by the department, certification without examination will be recommended.

(5) For applicants who have been certified under voluntary certification programs in other states, certification will be considered. The applicant must have successfully completed a basic operator training course and an examination generally equivalent to the Iowa examination. The department may require the applicant to successfully complete the Iowa examination.

(6) Applicants who seek Iowa certification pursuant to subparagraphs 113.8(6)*"h"*(4) and (5) shall submit an application for examination accompanied by a letter requesting certification pursuant to those subparagraphs. Application for certification pursuant to those subparagraphs shall be received by the department in accordance with subparagraphs 113.8(6)*"h"*(2) and (3).

i. Renewals. All certificates shall expire every two years, on even-numbered years, and must be renewed every two years to maintain certification. Application and fee are due prior to expiration of certification.

(1) Late application for renewal of a certificate may be made, provided that such late application shall be received by the department or postmarked within 30 days of the expiration of the certificate. Such late application shall be on forms provided by the department and accompanied by the penalty fee and the certification renewal fee.

(2) If a certificate holder fails to apply for renewal within 30 days following expiration of the certificate, the right to renew the certificate automatically terminates. Certification may be allowed at any time following such termination, provided that the applicant successfully completes an examination. The applicant must then apply for certification in accordance with paragraph 113.8(6)*"h."*

(3) An operator shall not continue to operate a sanitary landfill after expiration of a certificate without renewal thereof.

(4) Continuing education must be earned during the two-year certification period. All certified operators must earn ten contact hours per certificate during each two-year period. The two-year period will begin upon issuance of certification.

(5) Only those operators fulfilling the continuing education requirements before the end of each two-year period will be allowed to renew their certificates. The certificates of operators not fulfilling the continuing education requirements shall be void upon expiration, unless an extension is granted.

(6) All activities for which continuing education credit will be granted must be related to the subject matter of the particular certificate to which the credit is being applied.

(7) The department may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to three months within which the applicant may fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator which prevent attendance at the required activities. All requests for extensions must be made 60 days prior to expiration of certification.

(8) The certified operator is responsible for notifying the department of the continuing education credits earned during the period. The continuing education credits earned during the period shall be shown on the application for renewal.

(9) A certified operator shall be deemed to have complied with the continuing education requirements of this subrule during periods that the operator serves honorably on active duty in the military service; or for periods that the operator is a resident of another state or district having a continuing education requirement for operators and meets all the requirements of that state or district for practice there; or for periods that the person is a government employee working as an operator and is assigned to duty outside the United States; or for other periods of active practice and absence from the state approved by the department.

j. Discipline of certified operators.

(1) Disciplinary action may be taken on any of the following grounds:

1. Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified operator. Duties of certified operators include compliance with rules and permit conditions applicable to landfill operation.

2. Failure to submit required records of operation or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

3. Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

(2) Disciplinary sanctions allowable are:

1. Revocation of a certificate.

2. Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional education or training or reexamination may be required as a condition of probation.

(3) The procedure for discipline is as follows:

1. The department shall initiate disciplinary action. The commission may direct that the department investigate any alleged factual situation that may be grounds for disciplinary action under subparagraph 113.8(6)*"j"*(1) and report the results of the investigation to the commission.

2. A disciplinary action may be prosecuted by the department.

3. Written notice shall be given to an operator against whom disciplinary action is being considered. The notice shall state the informal and formal procedures available for determining the matter. The operator shall be given 20 days to present any relevant facts and indicate the operator's position in the matter and to indicate whether informal resolution of the matter may be reached.

4. An operator who receives notice shall communicate verbally, in writing, or in person with the department, and efforts shall be made to clarify the respective positions of the operator and department.

5. The applicant's failure to communicate facts and positions relevant to the matter by the required date may be considered when determining appropriate disciplinary action.

6. If agreement as to appropriate disciplinary sanction, if any, can be reached with the operator and the commission concurs, a written stipulation and settlement between the department and the operator shall be entered into. The stipulation and settlement shall recite the basic facts and violations alleged, any facts brought forth by the operator, and the reasons for the particular sanctions imposed.

7. If an agreement as to appropriate disciplinary action, if any, cannot be reached, the department may initiate formal hearing procedures. Notice and formal hearing shall be in accordance with 567—Chapter 7 related to contested and certain other cases pertaining to license discipline.

k. Revocation of certificates. Upon revocation of a certificate, application for certification may be allowed after two years from the date of revocation. Any such applicant must successfully complete an examination and be certified in the same manner as a new applicant.

l. Temporary certification. A temporary operator of a sanitary landfill may be designated for a period of six months when an existing certified operator is no longer available to the facility. The facility must make application to the department, explain why a temporary certification is needed, identify the temporary operator, and identify the efforts which will be made to obtain a certified operator. A temporary operator designation shall not be approved for greater than a six-month period except for extenuating circumstances. In any event, not more than one six-month extension to the temporary operator designation may be granted. Approval of a temporary operator designation may be rescinded for cause as set forth in paragraph 113.8(6)*"j."* All MSWLFs shall have at least one MSWLF operator trained, tested and certified by a department-approved program.

[**ARC 2692C**, IAB 8/31/16, effective 10/5/16]

567—113.9(455B) Environmental monitoring and corrective action requirements for air quality and landfill gas. All MSWLFs shall comply with the following environmental monitoring and corrective action requirements for air quality and landfill gas.

113.9(1) *Air criteria.* Owners or operators of all MSWLFs must ensure that the units do not violate any applicable requirements developed under a state implementation plan (SIP) approved or promulgated by the department pursuant to Section 110 of the Clean Air Act.

113.9(2) *Landfill gas.* All MSWLFs shall comply with the following requirements for landfill gas. For purposes of this subrule, "lower explosive limit" means the lowest percent by volume of a mixture of explosive gases in air that will propagate a flame at 25°C and atmospheric pressure.

a. Owners or operators of all MSWLF units must ensure that:

(1) The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas pipeline, control or recovery system components);

(2) The concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary; and

b. Owners or operators of all MSWLF units must implement a routine methane-monitoring program to ensure that the standards of paragraph 113.9(2)*"a"* are met. Such a program shall include routine subsurface methane monitoring (e.g., at select groundwater wells, at gas monitoring wells).

(1) The type and frequency of monitoring must be determined based on the following factors:

1. Soil conditions;
2. The hydrogeologic conditions surrounding the facility;
3. The hydraulic conditions surrounding the facility;
4. The location of facility structures (including potential subsurface preferential pathways such as, but not limited to, pipes, utility conduits, drain tiles and sewers) and property boundaries; and
5. The locations of structures near the outside of the facility to which or along which subsurface migration of methane gas may occur. Examples of such structures include, but are not limited to, houses, buildings, basements, crawl spaces, pipes, utility conduits, drain tiles and sewers.

(2) The minimum frequency of monitoring shall be quarterly.

c. If methane gas levels exceeding the limits specified in paragraph 113.9(2)*"a"* are detected, the owner or operator must:

(1) Immediately take all necessary steps to ensure protection of human health and notify the department and department field office with jurisdiction over the MSWLF;

(2) Within 7 days of detection, place in the operating record and notify the department and department field office with jurisdiction over the MSWLF of the methane gas levels detected and a description of the steps taken to protect human health; and

(3) Within 60 days of detection, implement a remediation plan for the methane gas releases, place a copy of the plan in the operating record, and notify the department and department field office with jurisdiction over the MSWLF that the plan has been implemented. The plan shall describe the nature and extent of the problem and the proposed remedy.

d. The owner or operator shall submit an annual report to the department detailing the gas monitoring sampling locations and results, any action taken, and the results of steps taken to address gas levels exceeding the limits of paragraph 113.9(2)*"a"* during the previous year. This report shall include a site map that delineates all structures, perimeter boundary locations, and other monitoring points where gas readings were taken. The site map shall also delineate areas of landfill gas migration outside the MSWLF units, if any. The report shall contain a narrative explaining and interpreting all of the data collected during the previous year. The report shall be due each year at a date specified by the department in the facility's permit.

567—113.10(455B) Environmental monitoring and corrective action requirements for groundwater and surface water. All MSWLFs shall comply with the following environmental monitoring and corrective action requirements for groundwater and surface water.

113.10(1) *General requirements for environmental monitoring and corrective action for groundwater and surface water.* The following general requirements apply to all provisions of this rule.

a. Surface water requirements. MSWLF units shall not:

(1) Cause a discharge of pollutants into waters of the United States, including wetlands, that violates any requirements of the Clean Water Act, including, but not limited to, the National Pollutant Discharge Elimination System (NPDES) requirements, pursuant to Section 402 of the Clean Water Act.

(2) Cause the discharge of a nonpoint source of pollution into waters of the United States, including wetlands, that violates any requirement of an areawide or statewide water quality management plan that has been approved under Section 208 or 319 of the Clean Water Act.

b. A new MSWLF unit must be in compliance with the groundwater monitoring requirements specified in subrules 113.10(2), 113.10(4), 113.10(5) and 113.10(6) before waste can be placed in the unit.

c. Once established at an MSWLF unit, groundwater monitoring shall be conducted throughout the active life and postclosure care period of that MSWLF unit as specified in rule 567—113.13(455B).

d. For the purposes of this rule, a "qualified groundwater scientist" means a scientist or an engineer who has received a baccalaureate or postgraduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields demonstrated by state registration, professional certifications, or completion of accredited university programs that enable that individual to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.

e. The department may establish alternative schedules for demonstrating compliance with:

(1) Subparagraph 113.10(2)*"e"*(3), pertaining to notification of placement of certification in operating record;

(2) Subparagraph 113.10(5)*"c"*(1), pertaining to notification that statistically significant increase (SSI) notice is in operating record;

(3) Subparagraphs 113.10(5)*"c"*(2) and (3), pertaining to an assessment monitoring program;

(4) Paragraph 113.10(6)"b," pertaining to sampling and analyzing Appendix II constituents;

(5) Subparagraph 113.10(6)*"d"*(1), pertaining to placement of notice (Appendix II constituents detected) in record and notification of placement of notice in record;

(6) Subparagraph 113.10(6)*"d"*(2), pertaining to sampling for Appendices I and II;

(7) Paragraph 113.10(6)*"g,"* pertaining to notification (and placement of notice in record) of SSI above groundwater protection standard;

(8) Numbered paragraph 113.10(6)*"g"*(1)"4" and paragraph 113.10(7)*"a,"* pertaining to assessment of corrective measures;

(9) Paragraph 113.10(8)*"a,"* pertaining to selection of remedy and notification of placement in record;

(10) Paragraph 113.10(9)*"f,"* pertaining to notification of placement in record (certification of remedy completed).

113.10(2) *Groundwater monitoring systems.* All MSWLFs shall have a groundwater monitoring system that complies with the following requirements:

a. A groundwater monitoring system must be installed that meets the following objectives:

(1) Yields groundwater samples from the uppermost aquifer that represent the quality of background groundwater that has not been affected by leakage from a unit. A determination of background quality may include sampling of wells that are not hydraulically upgradient of the waste management area where either:

1. Hydrogeologic conditions do not allow the owner or operator to determine which wells are hydraulically upgradient; or

2. Sampling at other wells will provide an indication of background groundwater quality that is as representative as or more representative than that provided by the upgradient wells.

(2) Yields groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the relevant point of compliance specified by the department under numbered paragraph 113.7(5)*"a"*(2)"2." The downgradient monitoring system must be installed at the relevant point of compliance specified by the department under numbered paragraph 113.7(5)*"a"*(2)"2" that ensures detection of groundwater contamination in the uppermost aquifer. When physical obstacles preclude installation of groundwater monitoring wells at the relevant point of compliance at existing units, the downgradient monitoring system may be installed at the closest practicable distance, hydraulically downgradient from the relevant point of compliance specified by the department under numbered paragraph 113.7(5)*"a"*(2)"2," that ensures detection of groundwater contamination in the uppermost aquifer.

(3) Provides a high level of certainty that releases of contaminants from the site can be promptly detected. Downgradient monitoring wells shall be placed along the site perimeter, within 50 feet of the planned liner or waste boundary unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored. Each groundwater underdrain system shall be included in the groundwater detection monitoring program under subrule 113.10(5). The maximum drainage area routed through each outfall shall not exceed 10 acres unless it can be demonstrated that site-specific factors such as drain flow capacity or site development sequencing require an alternative drainage area. If contamination is identified in the groundwater underdrain system pursuant to subrule 113.10(5), the owner or operator shall manage the underdrain discharge as leachate in lieu of assessment monitoring and corrective action.

(4) Be designed and constructed with the theoretical release evaluation pursuant to subparagraph 113.6(3)*"e"*(6) taken into consideration.

b. For those facilities which are long-term, multiphase operations, the department may establish temporary waste boundaries in order to define locations for monitoring wells. The convergence of groundwater paths to minimize the overall length of the downgradient dimension may be taken into consideration in the placement of downgradient monitoring wells provided that the multiphase unit groundwater monitoring system meets the requirements of paragraphs 113.10(2)*"a,"* 113.10(2)*"c,"* 113.10(2)*"d"* and 113.10(2)*"e"* and will be as protective of human health and the environment as the individual monitoring systems for each MSWLF unit, based on the following factors:

(1) Number, spacing, and orientation of the MSWLF units;

(2) Hydrogeologic setting;

(3) Site history;

(4) Engineering design of the MSWLF units; and

(5) Type of waste accepted at the MSWLF units.

c. Monitoring wells must be constructed and cased by a well contractor certified pursuant to 567—Chapter 82 in a manner that maintains the integrity of the monitoring well borehole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater. Monitoring wells constructed in accordance with the rules in effect at the time of construction shall not be required to be abandoned and reconstructed as a result of subsequent amendments to these rules unless the department finds that the well is no longer providing representative groundwater samples. See Figure 1 for a general diagram of a properly constructed monitoring well.

(1) The owner or operator must notify the department that the design, installation, development, and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record.

(2) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program.

(3) Each groundwater monitoring point must have a unique and permanent number, and that number must never change or be used again at the MSWLF. The types of groundwater monitoring points shall be identified as follows:

1. Monitoring wells by "MW# (Insert unique and permanent number)".

2. Piezometers by "PZ# (Insert unique and permanent number)".

3. Groundwater underdrain systems by "GU# (Insert unique and permanent number)".

(4) Monitoring well construction shall be performed by a certified well contractor (pursuant to 567—Chapter 82) and shall comply with the following requirements:

1. In all phases of drilling, well installation and completion, the methods and materials used shall not introduce substances or contaminants that may alter the results of water quality analyses.

2. Drilling equipment that comes into contact with contaminants in the borehole or aboveground shall be thoroughly cleaned to avoid spreading contamination to other depths or locations. Contaminated materials or leachate from wells must not be discharged onto the ground surface or into waters of the state so as to cause harm in the process of drilling or well development.

3. The owner or operator must ensure that, at a minimum, the well design and construction log information is maintained in the facility's permanent record using DNR Form 542-1277 and that a copy is sent to the department.

(5) Monitoring well casings shall comply with the following requirements:

1. The diameter of the inner well casing (see Figure 1) of a monitoring well shall be at least 2 inches.

2. Plastic-cased wells shall be constructed of materials with threaded and nonglued joints that do not allow water infiltration under the local subsurface pressure conditions and when the well is evacuated for sampling.

3. Well casing shall provide sufficient structural stability so that a borehole or well collapse does not occur. Flush joint casing is required for small diameter wells installed through hollow stem augers.

(6) Monitoring well screens shall comply with the following requirements:

1. Slot size shall be based on sieve analysis of the sand and gravel stratum or filter pack. The slot size must keep out at least 90 percent of the filter pack.

2. Slot configuration and open area must permit effective development of the well.

3. The screen shall be no longer than 10 feet in length, except for water table wells, in which case the screen shall be of sufficient length to accommodate normal seasonal fluctuations of the water table. The screen shall be placed 5 feet above and below the observed water table, unless local conditions are known to produce greater fluctuations. Screen length for piezometers shall be 2 feet or less. Multiple-screened, single-cased wells are prohibited.

(7) Monitoring well filter packs shall comply with the following requirements:

1. The filter pack shall extend at least 18 inches above and 12 inches below the well screen.

2. The size of the filter pack material shall be based on sieve analysis when sand and gravel are screened. The filter pack material must be 2.5 to 3 times larger than the 50 percent grain size of the zone being monitored.

3. In stratum that is neither sand nor gravel, the size of the filter pack material shall be selected based on the particle size of the zone being monitored.

(8) Monitoring well annular space shall comply with the following requirements:

1. Grouting materials must be installed from the top of the filter pack up in one continuous operation with a tremie tube.

2. The annular space between the filter pack and the frostline must be backfilled with bentonite grout.

3. The remaining annular space between the protective casing and the monitoring well casing must be sealed with bentonite grout from the frostline to the ground surface.

(9) Monitoring well heads shall be protected as follows:

1. Monitoring wells shall have a protective metal casing installed around the upper portion of the monitoring well casing as follows:

- The inside diameter of the protective metal casing shall be at least 2 inches larger than the outer diameter of the monitoring well casing.
- The protective metal casing shall extend from a minimum of 1 foot below the frostline to slightly above the well casing top; however, the protective casing shall be shortened if such a depth would cover a portion of the well screen.
- The protective casing shall be sealed and immobilized with a concrete plug around the outside. The bottom of the concrete plug must extend at least 1 foot below the frostline; however, the concrete plug shall be shortened if such a depth would cover a portion of the well screen. The top of the concrete plug shall extend at least 3 inches above the ground surface and slope away from the well. Soil may be placed above the plug and shall be at least 6 inches below the cap to improve runoff.
- The inside of the protective casing shall be sealed with bentonite grout from the frostline to the ground surface.
- A vented cap shall be placed on the monitoring well casing.
- A vented, locking cap shall be placed on the protective metal casing. The cap must be kept locked when the well is not being sampled.

2. All monitoring wells shall have a ring of brightly colored protective posts or other protective barriers to help prevent accidental damage.

3. All monitoring wells shall have a sign or permanent marking clearly identifying the permanent monitoring well number (MW#).

4. Run-on shall be directed away from all monitoring wells.

(10) Well development is required prior to the use of the monitoring well for water quality monitoring purposes. Well development must loosen and remove fines from the well screen and gravel pack. Any water utilized to stimulate well development must be of sufficient quality that future samples are not contaminated. Any gases utilized in well development must be inert gases that will not contaminate future samples. Following development, the well shall be pumped until the water does not contain significant amounts of suspended solids.

d. Groundwater monitoring points that are no longer functional must be sealed. Groundwater monitoring points that are to be sealed and are in a future waste disposal area shall be reviewed to determine if the method utilized to seal the monitoring point needs to be more protective than the following requirements. All abandoned groundwater-monitoring points (e.g., boreholes, monitoring wells, and piezometers) shall be sealed by a well contractor certified pursuant to 567—Chapter 82 and in accordance with the following requirements.

(1) The following information shall be placed in the operating record and a copy sent to the department:

1. The unique, permanent monitoring point number.

2. The reasons for abandoning the monitoring point.

3. The date and time the monitoring point was sealed.

4. The method utilized to remove monitoring point materials.

5. The method utilized to seal the monitoring point.

6. Department Form 542-1226 for Water Well Abandonment Plugging Record.

(2) The monitoring point materials (e.g., protective casing, casing, screen) shall be removed. If drilling is utilized to remove the materials, then the drilling shall be to the maximum depth of the previously drilled monitoring point. All drilling debris shall be cleaned from the interior of the borehole.

(3) The cleared borehole shall be sealed with impermeable bentonite grout via a tremie tube. The end of the tremie tube shall be submerged in the grout while filling from the bottom of the borehole to the top of the ground surface. Uncontaminated water shall be added from the surface as needed to aid grout expansion.

(4) After 24 hours, the bentonite grout shall be retopped if it has settled below the ground surface.

e. Hydrologic monitoring system plan (HMSP). Unless otherwise approved by the department in writing, the number, spacing, and depth of groundwater monitoring points shall be:

(1) Determined based upon site-specific technical information, including but not limited to the soil and hydrogeologic investigation pursuant to subrule 113.6(3) and the site exploration and characterization report pursuant to subrule 113.6(4), that must include thorough characterization of:

1. Aquifer thickness, groundwater flow rate, and groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

2. Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer, including, but not limited to: thicknesses, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities; and

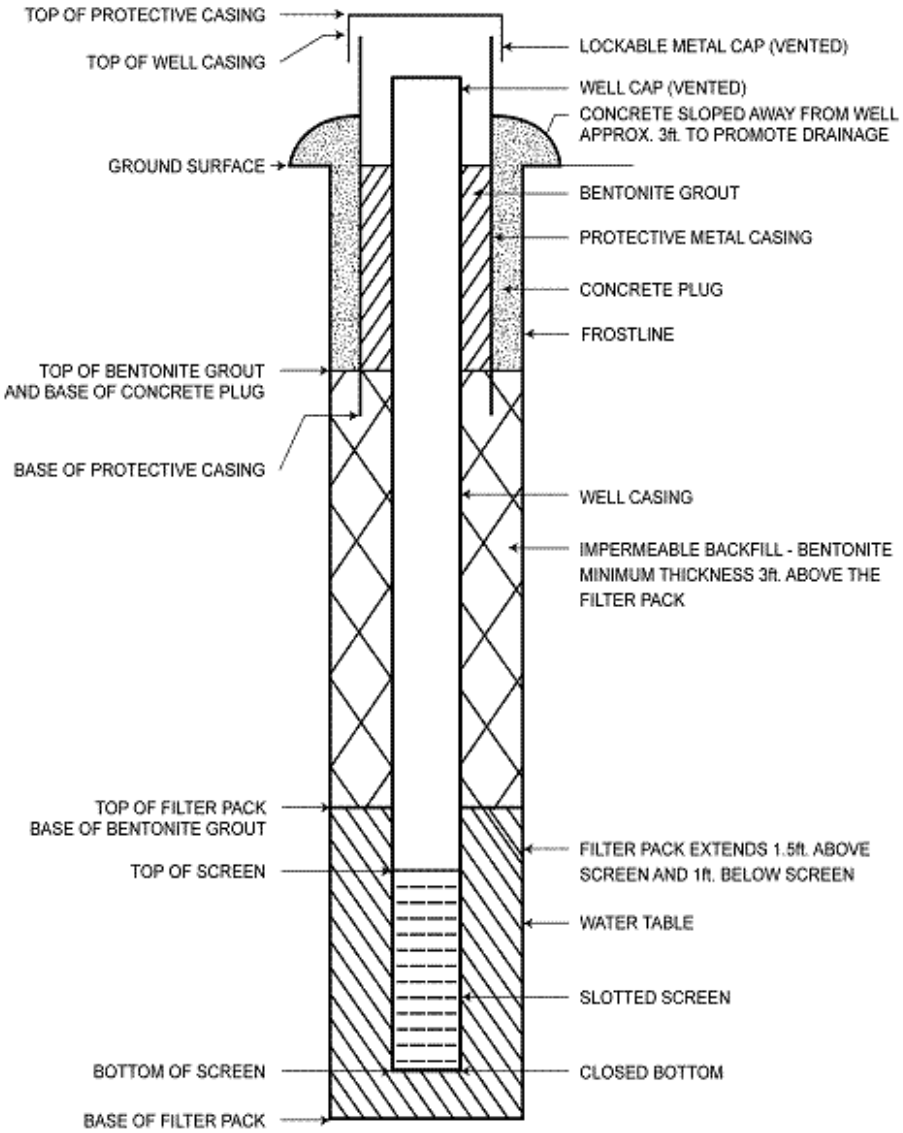
3. Projected paths and rates of movement of contaminants found in leachate pursuant to subparagraph 113.6(3)*"e"*(6).

(2) Designed and constructed with a maximum of 300 feet between downgradient groundwater monitoring wells, unless it is demonstrated by site-specific analysis or modeling that an alternative well spacing is justified. The convergence of groundwater paths to minimize the overall length of the downgradient dimension may be taken into consideration in the placement of downgradient monitoring wells provided that the groundwater monitoring system meets the requirements of paragraphs 113.10(2)*"a,"* 113.10(2)*"c,"* 113.10(2)*"d,"* and 113.10(2)*"e."*

(3) Certified by a qualified groundwater scientist, as defined in paragraph 113.10(1)*"d,"* and approved by the department. Within 14 days of this certification and approval by the department, the owner or operator must notify the department that the certification has been placed in the operating record.

Figure 1

Typical Monitoring Well Cross Section



f. Monitoring well maintenance and performance reevaluation plan. A monitoring well maintenance and performance reevaluation plan shall be included as part of the hydrologic monitoring system plan. The plan shall ensure that all monitoring points remain reliable. The plan shall provide for the following:

(1) A biennial examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.

(2) A biennial evaluation of water level conditions in the monitoring wells to ensure that the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.

(3) Measurements of well depths to ensure that wells are physically intact and not filling with sediment. Measurements shall be taken annually in wells which do not contain dedicated sampling pumps and every five years in wells containing dedicated sampling pumps.

(4) A biennial evaluation of well recharge rates and chemistry to determine if well deterioration is occurring.

113.10(3) *Surface water monitoring systems.* The department may require an MSWLF facility to implement a surface water monitoring program if there is reason to believe that a surface water of the state has been impacted as a result of facility operations (i.e., leachate seeps, sediment pond discharge) or a groundwater SSI over background has occurred.

a. A surface water monitoring program must be developed that consists of a sufficient number of monitoring points, designated at appropriate locations, to yield surface water samples that:

(1) Provide a representative sample of the upstream quality of a surface water of the state if the surface water being monitored is a flowing body of water.

(2) Provide a representative sample of the downstream quality of a surface water of the state if the surface water being monitored is a flowing body of water.

b. Surface water levels must be measured at a frequency specified in the facility's permit, within 1/10 of a foot at each surface water monitoring point immediately prior to sampling, each time surface water is sampled. The owner or operator must determine the rate and direction of surface water flow, if any, each time surface water is sampled. Surface water level and flow measurements for the same surface water of the state must be measured on the same day to avoid temporal variations that could preclude accurate determination of surface water flow and direction.

c. The owner or operator must notify and receive approval from the department for the designation or decommission of any surface water monitoring point, and must place that approval in the operating record.

d. The surface water monitoring points shall be designated to maintain sampling at that monitoring point throughout the life of the surface water monitoring program.

e. Each surface water monitoring point must have a unique and permanent number, and that number must never change or be used again at the MSWLF. Surface water monitoring points shall be identified by "SW# (Insert unique and permanent number)".

f. The number, spacing, and location of the surface water monitoring points shall be determined based upon site-specific technical information, including:

(1) Water level, including seasonal and temporal fluctuations in water level; and

(2) Flow rate and flow direction, including seasonal and temporal fluctuations in flow.

g. The MSWLF may discontinue the surface water monitoring program if monitoring data indicates that facility operations are not impacting surface water.

113.10(4) *Groundwater sampling and analysis requirements.*

a. The groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells installed in compliance with subrule 113.10(2). The groundwater monitoring program shall utilize a laboratory certified by the department. The owner or operator must notify the department that the sampling and analysis program documentation has been placed in the operating record, and the program must include procedures and techniques for:

(1) Sample collection;

(2) Sample preservation and shipment;

(3) Analytical procedures;

(4) Chain of custody control; and

(5) Quality assurance and quality control.

b. The groundwater monitoring programs must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples. Groundwater samples shall not be field-filtered prior to laboratory analysis.

c. The sampling procedures and frequency must be protective of human health and the environment, and consistent with subrule 113.10(5).

d. Groundwater elevations must be measured at a frequency specified in the facility's permit, within 1/100 of a foot in each well immediately prior to purging, each time groundwater is sampled. The owner or operator must determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same waste management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

e. The owner or operator must establish background groundwater quality in a hydraulically upgradient or background well(s) for each of the monitoring parameters or constituents required in the particular groundwater monitoring program that applies to the MSWLF unit, as determined under paragraph 113.10(5)*"a"* or 113.10(6)*"a."* Background groundwater quality may be established at wells that are not located hydraulically upgradient from the MSWLF unit if the wells meet the requirements of subparagraph 113.10(2)*"a"*(1).

f. The number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures determined pursuant to paragraph 113.10(4)*"g."* The sampling procedures shall be those specified under paragraphs 113.10(5)*"b"* for detection monitoring, 113.10(6)*"b"* and 113.10(6)*"d"* for assessment monitoring, and 113.10(7)*"b"* for corrective action.

g. The owner or operator must specify in the operating record which of the following statistical methods will be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

(1) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's mean and the background mean levels for each constituent.

(2) An analysis of variance (ANOVA) based on ranks followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's median and the background median levels for each constituent.

(3) A tolerance or prediction interval procedure in which an interval for each constituent is established from the distribution of the background data, and the level of each constituent in each compliance well is compared to the upper tolerance or prediction limit.

(4) A control chart approach that gives control limits for each constituent.

(5) Another statistical test method that meets the performance standards of paragraph 113.10(4)*"h."* The owner or operator must place a justification for this alternative in the operating record and notify the department of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of paragraph 113.10(4)*"h."*

h. The statistical method required pursuant to paragraph 113.10(4)*"g"* shall comply with the following performance standards:

(1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data shall be transformed or a distribution-free theory test shall be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level not less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experimentwise error rate for each testing period shall be not less than 0.05; however, the Type I error level of not less than 0.01 for individual well comparisons must be maintained.

(3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the

environment. The parameters shall be determined after the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern have been considered.

(4) If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern have been considered.

(5) The statistical method shall account for data below the limit of detection (LD) by recording such data at one-half the limit of detection (i.e., LD/2) or as prescribed by the statistical method. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(6) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

i. The owner or operator must determine whether or not there is an SSI over background values for each parameter or constituent required in the particular groundwater monitoring program that applies to the MSWLF unit, as determined under paragraph 113.10(5)*"a"* or 113.10(6)*"a."*

(1) In determining whether an SSI has occurred, the owner or operator must compare the groundwater quality of each parameter or constituent at each monitoring well designated pursuant to subrule 113.10(2) to the background value of that constituent, according to the statistical procedures and performance standards specified under paragraphs 113.10(4)*"g"* and 113.10(4)*"h."*

(2) Within 45 days after completing sampling and analysis, the owner or operator must determine whether there has been an SSI over background at each monitoring well.

113.10(5) *Detection monitoring program.*

a. Detection monitoring is required at MSWLF units at all groundwater monitoring wells defined under subrule 113.10(2). At a minimum, a detection monitoring program must include the monitoring for the constituents listed in Appendix I and any additional parameters required by the department on a site-specific basis. An alternative list of constituents may be used if it can be demonstrated that the constituents removed are not reasonably expected to be in or derived from the waste contained in the unit and if the alternative list of constituents is expected to provide a reliable indication of leachate leakage or gas impact from the MSWLF unit.

(1) The department may establish an alternative list of inorganic indicator parameters for an MSWLF unit within Appendix I, in lieu of some or all of the heavy metals (constituents 1 to 15 in Appendix I), if the alternative parameters provide a reliable indication of inorganic releases from the MSWLF unit to the groundwater. In determining alternative parameters, the department shall consider the following factors:

1. The types, quantities and concentrations of constituents in wastes managed at the MSWLF unit;

2. The mobility, stability and persistence of waste constituents or their reaction products in the unsaturated zone beneath the MSWLF unit;

3. The detectability of indicator parameters, waste constituents and reaction products in the groundwater; and

4. The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

(2) Reserved.

b. The monitoring frequency for all constituents listed in Appendix I or in the alternative list approved in accordance with subparagraph 113.10(5)*"a"*(1) shall be at least semiannual (i.e., every six months) during the active life of the facility (including closure) and the postclosure period. Where insufficient background data exist, a minimum of five independent samples from each well, collected at intervals to account for seasonal and temporal variation, must be analyzed for the constituents in Appendix I or in the alternative list approved in accordance with subparagraph 113.10(5)*"a"*(1) during the first year. At least one sample from each well must be collected and analyzed during subsequent

semiannual sampling events. The department may specify an appropriate alternative frequency for repeated sampling and analysis for constituents in Appendix I or in the alternative list approved in accordance with subparagraph 113.10(5)*"a"*(1) during the active life (including closure) and the postclosure care period. The alternative frequency during the active life (including closure) shall be not less than annually. The alternative frequency shall be based on consideration of the following factors:

(1) Lithology of the aquifer and unsaturated zone;

(2) Hydraulic conductivity of the aquifer and unsaturated zone;

(3) Groundwater flow rates;

(4) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel); and

(5) Resource value of the aquifer.

c. If the owner or operator determines, pursuant to paragraph 113.10(4)*"i,"* that there is an SSI over background for one or more of the constituents listed in Appendix I or in the alternative list approved in accordance with subparagraph 113.10(5)*"a"*(1) at any monitoring well specified under subrule 113.10(2), then the owner or operator:

(1) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the department that this notice was placed in the operating record.

(2) Must establish within 90 days an assessment monitoring program meeting the requirements of subrule 113.10(6) except as provided in subparagraph 113.10(5)*"c"*(3).

(3) The owner or operator may demonstrate that a source other than an MSWLF unit caused the contamination or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist, approved by the department, and placed in the operating record. If resampling is a part of the demonstration, resampling procedures shall be specified prior to initial sampling. If a successful demonstration to the department is made and documented, the owner or operator may continue detection monitoring as specified in subrule 113.10(5). If, after 90 days, a successful demonstration is not made, the owner or operator must initiate an assessment monitoring program as required in subrule 113.10(6).

113.10(6) *Assessment monitoring program.*

a. Assessment monitoring is required whenever an SSI over background has been confirmed pursuant to paragraph 113.10(5)*"c"* to be the result of a release from the facility.

b. Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the groundwater for all constituents identified in Appendix II. A minimum of one sample from each downgradient well shall be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as a result of the complete Appendix II analysis, a minimum of four independent samples from each well must be collected and analyzed to establish background for the constituents. The department may specify an appropriate subset of wells to be sampled and analyzed for Appendix II constituents during assessment monitoring. The department may delete any of the Appendix II monitoring parameters for an MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

c. The department may specify an appropriate alternate frequency for repeated sampling and analysis for the full set of Appendix II constituents required by paragraph 113.10(6)*"b"* during the active life (including closure) and postclosure care period of the unit. The following factors shall be considered:

(1) Lithology of the aquifer and unsaturated zone;

(2) Hydraulic conductivity of the aquifer and unsaturated zone;

(3) Groundwater flow rates;

(4) Minimum distance between upgradient edge of the MSWLF unit and downgradient monitoring well screen (minimum distance of travel);

(5) Resource value of the aquifer; and

(6) Nature (fate and transport) of any constituents detected in response to this paragraph.

d. After obtaining the results from the initial or subsequent sampling events required in paragraph 113.10(6)*"b,"* the owner or operator must:

(1) Within 14 days, place a notice in the operating record identifying the Appendix II constituents that have been detected and notify the department that this notice has been placed in the operating record;

(2) Within 90 days, and on at least a semiannual basis thereafter, resample all wells specified by subrule 113.10(2) and conduct analyses for all constituents in Appendix I or in the alternative list approved in accordance with subparagraph 113.10(5)*"a"*(1), and for those constituents in Appendix II that are detected in response to the requirements of paragraph 113.10(6)*"b."* Concentrations shall be recorded in the facility operating record. At least one sample from each well must be collected and analyzed during these sampling events. The department may specify an alternative monitoring frequency during the active life (including closure) and the postclosure period for the constituents referred to in this subparagraph. The alternative frequency for constituents in Appendix I or in the alternative list approved in accordance with subparagraph 113.10(5)*"a"*(1) during the active life (including closure) shall be no less than annual. The alternative frequency shall be based on consideration of the factors specified in paragraph 113.10(6)*"c"*;

(3) Establish background concentrations for any constituents detected pursuant to paragraph 113.10(6)*"b"* or subparagraph 113.10(6)*"d"*(2); and

(4) Establish groundwater protection standards for all constituents detected pursuant to paragraph 113.10(6)*"b"* or 113.10(6)*"d."* The groundwater protection standards shall be established in accordance with paragraph 113.10(6)*"h"* or 113.10(6)*"i."*

e. If the concentrations of all Appendix II constituents are shown to be at or below background values, using the statistical procedures in paragraph 113.10(4)*"g"* for two consecutive sampling events, the owner or operator must notify the department of this finding and may return to detection monitoring.

f. If the concentrations of any Appendix II constituents are above background values, but all concentrations are below the groundwater protection standard established under paragraph 113.10(6)*"h"* or 113.10(6)*"i,"* using the statistical procedures in paragraph 113.10(4)*"g,"* the owner or operator must continue assessment monitoring in accordance with this subrule.

g. If one or more Appendix II constituents are detected at statistically significant levels above the groundwater protection standard established under paragraph 113.10(6)*"h"* or 113.10(6)*"i"* in any sampling event, the owner or operator must, within 14 days of this finding, place a notice in the operating record identifying the Appendix II constituents that have exceeded the groundwater protection standard and notify the department and all other appropriate local government officials that the notice has been placed in the operating record. The owner or operator also:

(1) Must, within 90 days of this finding, comply with the following requirements or the requirements in subparagraph 113.10(6)*"g"*(2):

1. Characterize the nature and extent of the release by installing additional monitoring wells as necessary until the horizontal and vertical dimensions of the plume have been defined to background concentrations;

2. Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with subparagraph 113.10(6)*"g"*(2);

3. Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off site when indicated by sampling of wells in accordance with subparagraph 113.10(6)*"g"*(1); and

4. Initiate an assessment of corrective measures as required by subrule 113.10(7).

(2) May demonstrate that a source other than an MSWLF unit caused the contamination, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist, approved by the department, and placed in the operating record. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to subrule 113.10(6), and may return to detection monitoring if the Appendix II constituents are at or below background as specified in paragraph 113.10(6)*"e."* Until a successful demonstration

is made, the owner or operator must comply with paragraph 113.10(6)*"g"* including initiating an assessment of corrective measures.

h. The owner or operator must establish a groundwater protection standard for each Appendix II constituent detected in the groundwater. The groundwater protection standard shall be:

(1) For constituents for which a maximum contaminant level (MCL) has been promulgated under Section 1412 of the Safe Drinking Water Act (codified) under 40 CFR Part 141, the MCL for that constituent;

(2) For constituents for which MCLs have not been promulgated, the background concentration for the constituent established from wells in accordance with subrule 113.10(2); or

(3) For constituents for which the background concentration is higher than the MCL identified under subparagraph 113.10(6)*"h"*(1) or health-based concentrations identified under paragraph 113.10(6)*"i,"* the background concentration.

i. The department may establish an alternative groundwater protection standard for constituents for which MCLs have not been established. These groundwater protection standards shall be appropriate health-based concentrations that comply with the statewide standards for groundwater established pursuant to 567—Chapter 137.

j. In establishing alternative groundwater protection standards under paragraph 113.10(6)*"i,"* the department may consider the following:

(1) The policies set forth by the Groundwater Protection Act;

(2) Multiple contaminants in the groundwater with the assumption that the effects are additive regarding detrimental effects to human health and the environment;

(3) Exposure threats to sensitive environmental receptors; and

(4) Other site-specific exposure or potential exposure to groundwater.

113.10(7) *Assessment of corrective measures.*

a. Within 90 days of finding that any of the constituents listed in Appendix II have been detected at a statistically significant level exceeding the groundwater protection standards defined under paragraph 113.10(6)*"h"* or 113.10(6)*"i,"* the owner or operator must initiate an assessment of corrective measures. Such an assessment must be completed and submitted to the department for review and approval within 180 days of the initial finding unless otherwise authorized or required by the department.

b. The owner or operator must continue to monitor in accordance with the assessment monitoring program as specified in subrule 113.10(6).

c. The assessment shall include an analysis of the effectiveness of potential corrective measures in meeting all of the requirements and objectives of the remedy as described under subrule 113.10(8), addressing at least the following:

(1) The performance, reliability, ease of implementation, and potential impacts of appropriate potential remedies, including safety impacts, cross-media impacts, and control of exposure to any residual contamination;

(2) The time required to begin and complete the remedy;

(3) The costs of remedy implementation; and

(4) The institutional requirements such as state or local permit requirements or other environmental or public health requirements that may substantially affect implementation of the remedy(ies).

d. Within 60 days of approval from the department of the assessment of corrective measures, the owner or operator must discuss the results of the corrective measures assessment, prior to the selection of a remedy, in a public meeting with interested and affected parties. The department may establish an alternative schedule for completing the public meeting requirement. Notice of public meeting shall be sent to all owners and occupiers of property adjacent to the permitted boundary of the facility, the department, and the department field office with jurisdiction over the facility. A copy of the minutes of this public meeting and the list of community concerns must be placed in the operating record and submitted to the department.

113.10(8) *Selection of remedy.*

a. Based on the results of the corrective measures assessment conducted under subrule 113.10(7), the owner or operator must select a remedy within 60 days of holding the public meeting that, at a

minimum, meets the standards listed in paragraph 113.10(8)*"b."* The department may establish an alternative schedule for selecting a remedy after holding the public meeting. The owner or operator must submit a report to the department, within 14 days of selecting a remedy, describing the selected remedy, stating that the report has been placed in the operating record, and explaining how the selected remedy meets the standards in paragraph 113.10(8)*"b."*

b. Remedies must:

(1) Be protective of human health and the environment;

(2) Attain the groundwater protection standards specified pursuant to paragraph 113.10(6)*"h"* or 113.10(6)*"i"*;

(3) Control the source(s) of releases so as to reduce or eliminate, to the maximum extent practicable, further releases of Appendix II constituents into the environment that may pose a threat to human health or the environment; and

(4) Comply with standards for management of wastes as specified in paragraph 113.10(9)*"d."*

c. In selecting a remedy that meets the standards of paragraph 113.10(8)*"b,"* the owner or operator shall consider the following evaluation factors:

(1) The long-term and short-term effectiveness and protectiveness of the potential remedy(ies), along with the degree of certainty that the remedy will prove successful based on consideration of the following:

1. Magnitude of reduction of existing risks;

2. Magnitude of residual risks in terms of likelihood of further releases due to waste remaining following implementation of a remedy;

3. The type and degree of long-term management required, including monitoring, operation, and maintenance;

4. Short-term risks that might be posed to the community, workers, or the environment during implementation of such a remedy, including potential threats to human health and the environment associated with excavation, transportation, redisposal, or containment;

5. Time period until full protection is achieved;

6. Potential for exposure of humans and environmental receptors to remaining wastes, considering the potential threat to human health and the environment associated with excavation, transportation, redisposal, or containment;

7. Long-term reliability of the engineering and institutional controls; and

8. Potential need for replacement of the remedy.

(2) The effectiveness of the remedy in controlling the source to reduce further releases based on consideration of the following factors:

1. The extent to which containment practices will reduce further releases; and

2. The extent to which treatment technologies may be used.

(3) The ease or difficulty of implementing a potential remedy(ies) based on consideration of the following factors:

1. Degree of difficulty associated with constructing the technology;

2. Expected operational reliability of the technology;

3. Need to coordinate with and obtain necessary approvals and permits from other agencies;

4. Availability of necessary equipment and specialists; and

5. Available capacity and location of needed treatment, storage, and disposal services.

(4) Practicable capability of the owner or operator, including a consideration of technical and economic capabilities.

(5) The degree to which community concerns, including but not limited to the concerns identified at the public meeting required pursuant to paragraph 113.10(7)*"d,"* are addressed by a potential remedy(ies).

d. The owner or operator shall specify as part of the selected remedy a schedule(s) for initiating and completing remedial activities. Such a schedule must require the initiation of remedial activities within a reasonable period of time taking into consideration the factors set forth in subparagraphs 113.10(8)*"d"*(1)

to (8). The owner or operator must consider the following factors in determining the schedule of remedial activities:

(1) Extent and nature of contamination;

(2) Practical capabilities of remedial technologies in achieving compliance with groundwater protection standards established under paragraph 113.10(6)*"h"* or 113.10(6)*"i"* and other objectives of the remedy;

(3) Availability of treatment or disposal capacity for wastes managed during implementation of the remedy;

(4) Desirability of utilizing alternative or experimental technologies that are not widely available, but which may offer significant advantages over already available technologies in terms of effectiveness, reliability, safety, or ability to achieve remedial objectives;

(5) Potential risks to human health and the environment from exposure to contamination prior to completion of the remedy;

(6) Resource value of the aquifer including:

1. Current and future uses;
2. Proximity and withdrawal rate of users;
3. Groundwater quantity and quality;
4. The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents;
5. The hydrogeologic characteristics of the facility and surrounding land;
6. Groundwater removal and treatment costs; and
7. The cost and availability of alternative water supplies;

(7) Practicable capability of the owner or operator; and

(8) Other relevant factors.

113.10(9) *Implementation of the corrective action plan.*

a. Based on the schedule established under paragraph 113.10(8)*"d"* for initiation and completion of remedial activities, the owner or operator must:

(1) Establish and implement a corrective action groundwater monitoring program that:

1. At a minimum, meets the requirements of an assessment monitoring program under subrule 113.10(6);
2. Indicates the effectiveness of the corrective action remedy; and
3. Demonstrates compliance with groundwater protection standards pursuant to paragraph 113.10(9)*"e"*;

(2) Implement the corrective action remedy selected under subrule 113.10(8); and

(3) Take any interim measures necessary to ensure the protection of human health and the environment. Interim measures should, to the greatest extent practicable, be consistent with the objectives of and contribute to the performance of any remedy that may be required pursuant to subrule 113.10(8). The following factors must be considered by an owner or operator in determining whether interim measures are necessary:

1. Time period required to develop and implement a final remedy;
2. Actual or potential exposure of nearby populations or environmental receptors to hazardous constituents;
3. Actual or potential contamination of drinking water supplies or sensitive ecosystems;
4. Further degradation of the groundwater that may occur if remedial action is not initiated expeditiously;
5. Weather conditions that may cause hazardous constituents to migrate or be released;
6. Risk of fire or explosion, or potential for exposure to hazardous constituents as a result of an accident or the failure of a container or handling system; and
7. Other factors that may pose threats to human health and the environment.

b. An owner or operator may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with the requirements of paragraph 113.10(8)*"b"* is not being achieved through the remedy selected. In such cases, the owner or operator

must notify the department and implement other methods or techniques that could practicably achieve compliance with the requirements, unless the owner or operator makes the determination under paragraph 113.10(9)*"c."* The notification shall explain how the proposed alternative methods or techniques will meet the standards in paragraph 113.10(8)*"b,"* or the notification shall indicate that the determination was made pursuant to paragraph 113.10(9)*"c."* The notification shall also specify a schedule(s) for implementing and completing the remedial activities to comply with paragraph 113.10(8)*"b"* or the alternative measures to comply with paragraph 113.10(9)*"c."* Within 90 days of approval by the department for the proposed alternative methods or techniques or the determination of impracticability, the owner or operator shall implement the proposed alternative methods or techniques meeting the standards of paragraph 113.10(8)*"b"* or implement alternative measures meeting the requirements of subparagraphs 113.10(9)*"c"*(2) and (3).

c. If the owner or operator determines that compliance with requirements under paragraph 113.10(8)*"b"* cannot be practicably achieved with any currently available methods, the owner or operator must:

(1) Obtain certification of a qualified groundwater scientist and approval by the department that compliance with requirements under paragraph 113.10(8)*"b"* cannot be practicably achieved with any currently available methods;

(2) Implement alternate measures to control exposure of humans or the environment to residual contamination, as necessary to protect human health and the environment;

(3) Implement alternate measures for control of the sources of contamination, or for removal or decontamination of equipment, units, devices, or structures that are:

1. Technically practicable; and

2. Consistent with the overall objective of the remedy; and

(4) Notify the department within 14 days that a report justifying the alternate measures prior to implementation has been placed in the operating record.

d. All solid wastes that are managed pursuant to a remedy required under subrule 113.10(8), or an interim measure required under subparagraph 113.10(9)*"a"*(3), shall be managed in a manner:

(1) That is protective of human health and the environment; and

(2) That complies with applicable RCRA, state and local requirements.

e. Remedies selected pursuant to subrule 113.10(8) shall be considered complete when:

(1) The owner or operator complies with the groundwater protection standards established under paragraph 113.10(6)*"h"* or 113.10(6)*"i"* at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under subrule 113.10(2).

(2) Compliance with the groundwater protection standards established under paragraph 113.10(6)*"h"* or 113.10(6)*"i"* has been achieved by demonstrating that concentrations of Appendix II constituents have not exceeded the groundwater protection standard(s) for a period of three consecutive years using the statistical procedures and performance standards in paragraphs 113.10(4)*"g"* and 113.10(4)*"h."* The department may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of Appendix II constituents have not exceeded the groundwater protection standard(s), taking into consideration:

1. The extent and concentration of the release(s);

2. The behavior characteristics of the hazardous constituents in the groundwater;

3. The accuracy of monitoring or modeling techniques, including any seasonal, meteorological, or other environmental variables that may affect accuracy; and

4. The characteristics of the groundwater.

(3) All actions required by the department to complete the remedy have been satisfied.

f. Upon completion of the remedy, the owner or operator must notify the department within 14 days that a certification has been placed in the operating record verifying that the remedy has been completed in compliance with the requirements of paragraph 113.10(9)*"e."* The certification must be signed by the owner or operator and by a qualified groundwater scientist and approved by the department.

g. When, upon completion of the certification, the owner or operator determines that the corrective action remedy has been completed in accordance with the requirements under paragraph 113.10(9)*"e,"*

the owner or operator shall be released from the requirements for financial assurance for corrective action pursuant to subrule 113.14(5).

113.10(10) *Annual water quality reports.* The owner or operator shall submit an annual report to the department detailing the water quality monitoring sampling locations and results, assessments, selection of remedies, implementation of corrective action, and the results of corrective action remedies to address SSIs, if any, during the previous year. This report shall include a site map that delineates all monitoring points where water quality samples were taken, and plumes of contamination, if any. The report shall contain a narrative explaining and interpreting all of the data collected during the previous year. The report shall be due each year on a date set by the department in the facility's permit.

567—113.11(455B,455D) Record-keeping and reporting requirements. The primary purpose of the record-keeping and reporting activities is to verify compliance with this chapter and to document the construction and operations of the facility. The department can set alternative schedules for record-keeping and notification requirements as specified in subrules 113.11(1) and 113.11(2), except for the notification requirements in paragraph 113.6(2)*"a"* and numbered paragraph 113.10(6)*"g"*(1)"3." All MSWLFs shall comply with the following record-keeping and reporting requirements.

113.11(1) *Record keeping.* The owner or operator of an MSWLF unit must record and retain near the facility in an operating record or in an alternative location approved by the department the following information as it becomes available:

a. Permit application, permit renewal and permit modification application materials pursuant to rule 567—113.5(455B);

b. The site exploration and characterization reports pursuant to subrule 113.6(4);

c. Design and construction plans and specifications, and related analyses and documents, pursuant to rule 567—113.7(455B). The QC&A final reports, and related analyses and documents, pursuant to paragraph 113.7(6)*"d"*;

d. Inspection records, training procedures, and notification procedures required in rule 567—113.8(455B);

e. Any MSWLF unit design documentation for placement of leachate or gas condensate in an MSWLF unit as required under numbered paragraphs 113.8(1)*"b"*(3)"2" and "3";

f. Gas monitoring results from monitoring and any remediation plans required by rule 567—113.9(455B);

g. Any demonstration, certification, finding, monitoring, testing, or analytical data required by rule 567—113.10(455B);

h. Closure and postclosure care plans and any monitoring, testing, or analytical data as required by rules 567—113.12(455B) and 567—113.13(455B); and

i. Any cost estimates and financial assurance documentation required by this chapter.

113.11(2) *Reporting requirements.* The owner or operator must notify the department when the documents required in subrule 113.11(1) have been placed in the operating record. All information contained in the operating record must be furnished upon request to the department and be made available at all reasonable times for inspection by the department.

567—113.12(455B) Closure criteria. All MSWLFs shall comply with the following closure requirements.

113.12(1) Owners or operators of all MSWLF units must install a final cover system that is designed to minimize infiltration and erosion. The final cover system must be designed and constructed to:

a. Have a permeability less than or equal to the permeability of any bottom liner system (for MSWLFs with some type of liner) or have a permeability no greater than 1×10^{-7} cm/sec, whichever is less;

b. Minimize infiltration through the closed MSWLF by the use of an infiltration layer that contains a minimum of 18 inches of compacted earthen material;

c. Minimize erosion of the final cover by the use of an erosion layer that contains a minimum of 24 inches of earthen material that is capable of sustaining native plant growth;

d. Have an infiltration layer and erosion layer that are a combined minimum of 42 inches of earthen material at all locations over the closed MSWLF unit; and

e. Have a slope between 5 percent and 25 percent. Steeper slopes may be used if it is demonstrated that a steeper slope is unlikely to adversely affect final cover system integrity.

113.12(2) The department may approve an alternative final cover design that includes:

a. An infiltration layer that achieves reduction in infiltration equivalent to the infiltration layer specified in paragraphs 113.12(1)*"a"* and 113.12(1)*"b"*; and

b. An erosion layer that provides protection from wind and water erosion equivalent to the erosion layer specified in paragraphs 113.12(1)*"c"* and 113.12(1)*"d."*

113.12(3) The owner or operator must prepare a written closure plan that describes the steps necessary to close all MSWLF units at any point during the active life in accordance with the cover design requirements in subrule 113.12(1) or 113.12(2), as applicable. The closure plan, at a minimum, must include the following information:

a. A description of the final cover including source, volume, and characteristics of cover material, designed in accordance with subrule 113.12(1) or 113.12(2) and the methods and procedures to be used to install the cover;

b. An estimate of the largest area of the MSWLF unit requiring a final cover, as required under subrule 113.12(1) or 113.12(2), at any time during the active life;

c. An estimate of the maximum inventory of wastes on site over the active life of the landfill facility; and

d. A schedule for completing all activities necessary to satisfy the closure criteria in rule 567—113.12(455B).

113.12(4) The owner or operator must notify the department that the closure plan has been placed in the operating record no later than the initial receipt of waste in a new MSWLF unit.

113.12(5) At least 180 days prior to beginning closure of each MSWLF unit as specified in subrule 113.12(6), an owner or operator must notify the department of the intent to close the MSWLF unit, and that a notice of the intent to close the unit has been placed in the operating record. If the MSWLF facility will no longer be accepting MSW for disposal, then the owner or operator must also notify all local governments utilizing the facility and post a public notice of the intent to close and no longer to accept MSW.

113.12(6) The owner or operator must begin closure activities of each MSWLF unit:

a. No later than 30 days after the date on which the MSWLF unit receives the known final receipt of wastes; or

b. If the MSWLF unit has remaining capacity and there is a reasonable likelihood that the MSWLF unit will receive additional wastes, no later than one year after the most recent receipt of wastes. Extensions beyond the one-year deadline for beginning closure may be granted by the department if the owner or operator demonstrates that the MSWLF unit has the capacity to receive additional wastes and the owner or operator has taken and will continue to take all steps necessary to prevent threats to human health and the environment from the unclosed MSWLF unit.

113.12(7) The owner or operator of all MSWLF units must complete closure activities of each MSWLF unit in accordance with the closure plan within 180 days following the beginning of closure as specified in subrule 113.12(6). Extensions of the closure period may be granted by the department if the owner or operator demonstrates that closure will, of necessity, take longer than 180 days and that the owner or operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed MSWLF unit.

113.12(8) Following closure of each MSWLF unit, the owner or operator must submit to the department certification, signed by an independent professional engineer (P.E.) registered in Iowa, verifying that closure has been completed in accordance with the closure plan. Upon approval by the department, the certification shall be placed in the operating record.

113.12(9) Following closure of all MSWLF units, the owner or operator must record a notation on the deed to the landfill facility property, or some other instrument that is normally examined during title search in lieu of a deed notification, and notify the department that the notation has been recorded and

a copy has been placed in the operating record. The notation on the deed must in perpetuity notify any potential purchaser of the property that:

a. The land has been used as a landfill facility; and

b. Its use is restricted under paragraph 113.13(3)*"c."*

113.12(10) The owner or operator may request permission from the department to remove the notation from the deed if all wastes are removed from the facility.

567—113.13(455B) Postclosure care requirements. All MSWLFs shall comply with the following postclosure care requirements.

113.13(1) Following closure of each MSWLF unit, the owner or operator must conduct postclosure care. Postclosure care must be conducted for 30 years, except as provided under subrule 113.13(2), and consist of at least the following:

a. Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and runoff from eroding or otherwise damaging the final cover;

b. Maintaining and operating the leachate collection system in accordance with the requirements in paragraphs 113.7(5)*"b"* and 113.8(3)*"i,"* if applicable. The department may allow the owner or operator to stop managing leachate if the owner or operator demonstrates that leachate no longer poses a threat to human health and the environment;

c. Monitoring the groundwater in accordance with the requirements of rule 567—113.10(455B) and maintaining the groundwater monitoring system; and

d. Maintaining and operating the gas monitoring system in accordance with the requirements of rule 567—113.9(455B).

113.13(2) The length of the postclosure care period may be:

a. Decreased by the department if the owner or operator demonstrates that the reduced period is sufficient to protect human health and the environment and this demonstration is approved by the department; or

b. Increased by the department if the department determines that the lengthened period is necessary to protect human health and the environment.

113.13(3) The owner or operator of all MSWLF units must prepare a written postclosure plan that includes, at a minimum, the following information:

a. A description of the monitoring and maintenance activities required in subrule 113.13(1) for each MSWLF unit, and the frequency at which these activities will be performed;

b. Name, address, and telephone number of the person or office to contact about the facility during the postclosure period; and

c. A description of the planned uses of the property during the postclosure period. Postclosure use of the property shall not disturb the integrity of the final cover, liner(s), or any other components of the containment system, or the function of the monitoring systems unless necessary to comply with the requirements in this chapter. The department may approve any other disturbance if the owner or operator demonstrates that disturbance of the final cover, liner or other component of the containment system, including any removal of waste, will not increase the potential threat to human health or the environment.

113.13(4) The owner or operator must notify the department that a postclosure plan has been prepared and placed in the operating record by the date of initial receipt of waste.

113.13(5) Following completion of the postclosure care period for each MSWLF unit, the owner or operator must submit to the department a certification, signed by an independent professional engineer (P.E.) registered in Iowa, verifying that postclosure care has been completed in accordance with the postclosure plan. Upon department approval, the certification shall be placed in the operating record.

567—113.14(455B) Municipal solid waste landfill financial assurance.

113.14(1) *Purpose.* The purpose of this rule is to implement Iowa Code sections 455B.304(8) and 455B.306(8) by providing the criteria for establishing financial assurance for closure, postclosure care and corrective action at MSWLFs.

113.14(2) *Applicability.* The requirements of this rule apply to all owners and operators of MSWLFs except owners or operators that are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.

113.14(3) *Financial assurance for closure.* The owner or operator of an MSWLF must establish financial assurance for closure in accordance with the criteria in this rule. The owner or operator must provide continuous coverage for closure until released from this requirement by demonstrating compliance with rule 567—113.12(455B). Proof of compliance pursuant to paragraphs 113.14(3)*"a"* through 113.14(3)*"e"* must be submitted by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit the current version of department Form 542-8090, Municipal Solid Waste Sanitary Landfill Financial Assurance Report Form, which contains, but is not limited to, the amount of the financial assurance, the annual financial statement required by Iowa Code sections 455B.306(8)*"e"* and 455B.306(6)*"c,"* and the current balances of the closure and postclosure accounts at the time of submittal as required by Iowa Code section 455B.306(8)*"b."*

b. The owner or operator shall submit a copy of the financial assurance instruments or the documents establishing the financial assurance instruments in an amount equal to or greater than the amount specified in subrule 113.14(9). Documentation for the mechanism(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in paragraphs 113.14(6)*"a"* to 113.14(6)*"i."*

c. The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to close the MSWLF in accordance with the closure plan as required by paragraph 103.5(1)*"i"* and rule 567—113.12(455B). Such estimate must be available at any time during the active life of the landfill.

(1) The cost estimate must equal the cost of closing the MSWLF at any time during the permitted life of the facility when the extent and manner of its operation would make closure the most expensive.

(2) The costs contained in the third-party estimate for closure must be accurate and reasonable when compared to the cost estimates used by other similarly situated landfills in Iowa.

(3) During the active life of the MSWLF, the owner or operator must annually adjust the closure cost estimate for inflation.

(4) The owner or operator must, annually or at the time of application for a permit amendment that increases closure costs, whichever occurs first, increase the closure cost estimate and the amount of financial assurance provided if changes to the closure plan or MSWLF conditions increase the maximum cost of closure at any time during the remaining active life of the facility.

(5) The owner or operator may reduce the amount of financial assurance for closure if the most recent estimate of the maximum cost of closure at any time during the active life of the facility is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the closure cost estimate and the updated documentation required by paragraphs 113.14(3)*"a"* through 113.14(3)*"e"* and receive department approval for the reduction. Approval or denial shall be issued within 30 days of receipt of the reduction request.

(6) The third-party estimate submitted to the department must include the site area subject to closure and account for at least the following factors determined by the department to be minimal necessary costs for closure:

1. Closure and postclosure plan document revisions;
2. Site preparation, earthwork and final grading;
3. Drainage control culverts, piping and structures;
4. Erosion control structures, sediment ponds and terraces;
5. Final cap construction;
6. Cap vegetation soil placement;

7. Cap seeding, mulching and fertilizing;
8. Monitoring well, piezometer and gas control modifications;
9. Leachate system cleanout and extraction well modifications;
10. Monitoring well installations and abandonments;
11. Facility modifications to effect closed status;
12. Engineering and technical services;
13. Legal, financial and administrative services; and
14. Closure compliance certifications and documentation.

d. For publicly owned MSWLFs, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa.

e. Privately held MSWLFs shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by a certified public accountant to determine whether the privately owned landfill is in compliance with this chapter. The affidavit shall state the name of the certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

113.14(4) *Financial assurance for postclosure care.* The owner or operator of an MSWLF must establish financial assurance for the costs of postclosure care in accordance with the criteria in this chapter. The owner or operator must provide continuous coverage for postclosure care until released from this requirement by demonstrating compliance with the postclosure plan and the closure permit. Proof of compliance pursuant to paragraphs 113.14(4)*"a"* through 113.14(4)*"e"* must be submitted by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit the current version of department Form 542-8090, Municipal Solid Waste Sanitary Landfill Financial Assurance Report Form, which contains, but is not limited to, the amount of the financial assurance, the annual financial statement required by Iowa Code sections 455B.306(8)*"e"* and 455B.306(6)*"c,"* and the current balances of the closure and postclosure accounts required by Iowa Code section 455B.306(8)*"b."*

b. The owner or operator shall submit a copy of the documents establishing a financial assurance instrument in an amount equal to or greater than the amount specified in subrule 113.14(9). Documentation for the mechanism(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in paragraphs 113.14(6)*"a"* to 113.14(6)*"i."*

c. The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to conduct postclosure care for the MSWLF in compliance with the postclosure plan developed pursuant to paragraph 113.5(1)*"i"* and rule 567—113.13(455B). The cost estimate must account for the total cost of conducting postclosure care, as described in the plan, for the entire postclosure care period.

(1) The cost estimate for postclosure care must be based on the most expensive costs of that care during the entire postclosure care period.

(2) The costs contained in the third-party estimate for postclosure care must be accurate and reasonable when compared to the cost estimates used by other similarly situated landfills in Iowa.

(3) During the active life of the MSWLF and during the postclosure care period, the owner or operator must annually adjust the postclosure cost estimate for inflation.

(4) The owner or operator must, annually or at the time of application for a permit amendment that increases postclosure costs, whichever occurs first, increase the estimate and the amount of financial assurance provided if changes in the postclosure plan or MSWLF conditions increase the maximum cost of postclosure care.

(5) The owner or operator may reduce the amount of financial assurance for postclosure care if the most recent estimate of the maximum cost of postclosure care beginning at any time during the active life of the facility is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the postclosure cost estimate and the updated documentation required by paragraphs 113.14(4)*"a"* through 113.14(4)*"e"* and

must receive department approval for the reduction. Approval or denial shall be issued within 30 days of receipt of the reduction request.

(6) The third-party estimate submitted to the department must include the site area subject to postclosure care and account for at least the following factors determined by the department to be minimal necessary costs for postclosure care:

1. General site facilities, access roads and fencing maintenance;
2. Cap and vegetative cover maintenance;
3. Drainage and erosion control systems maintenance;
4. Groundwater to waste separation systems maintenance;
5. Gas control systems maintenance;
6. Gas control systems monitoring and reports;
7. Groundwater and surface water monitoring systems maintenance;
8. Groundwater and surface water quality monitoring and reports;
9. Groundwater monitoring systems performance evaluations and reports;
10. Leachate control systems maintenance;
11. Leachate management, transportation and disposal;
12. Leachate control systems performance evaluations and reports;
13. Engineering and technical services;
14. Legal, financial and administrative services; and
15. Financial assurance, accounting, audits and reports.

d. For publicly owned MSWLFs, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa.

e. Privately held MSWLFs shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by a certified public accountant to determine whether the privately owned landfill is in compliance with this chapter. The affidavit shall state the name of the certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

113.14(5) *Financial assurance for corrective action.*

a. An owner or operator required to undertake corrective action pursuant to rules 567—113.9(455B) and 567—113.10(455B) must have a detailed written estimate, in current dollars, prepared by an Iowa licensed professional engineer of the cost of hiring a third party to perform the required corrective action. The estimate must account for the total costs of the activities described in the approved corrective action plan for the entire corrective action period. The owner or operator must submit to the department the estimate and financial assurance documentation within 30 days of department approval of the corrective action plan.

(1) The owner or operator must annually adjust the estimate for inflation until the corrective action plan is completed.

(2) The owner or operator must increase the cost estimate and the amount of financial assurance provided if changes in the corrective action plan or MSWLF conditions increase the maximum cost of corrective action.

(3) The owner or operator may reduce the amount of the cost estimate and the amount of financial assurance provided if the estimate exceeds the maximum remaining costs of the remaining corrective action. The owner or operator must submit to the department the justification for the reduction of the cost estimate and documentation of financial assurance.

b. The owner or operator of an MSWLF required to undertake a corrective action plan must establish financial assurance for the most recent corrective action plan by one of the mechanisms prescribed in subrule 113.14(6). The owner or operator must provide continuous coverage for corrective action until released from financial assurance requirements by demonstrating compliance with the following:

(1) Upon completion of the remedy, the owner or operator must submit to the department a certification of compliance with the approved corrective action plan. The certification must be signed by the owner or operator and by a qualified groundwater scientist and approved by the department.

(2) Upon department approval of completion of the corrective action remedy, the owner or operator shall be released from the requirements for financial assurance for corrective action.

113.14(6) *Allowable financial assurance mechanisms.* The mechanisms used to demonstrate financial assurance as required by Iowa Code section 455B.306(8)*"a"* must ensure that the funds necessary to meet the costs of closure, postclosure care, and corrective action for known releases will be available whenever the funds are needed. Owners or operators must choose from options in paragraphs 113.14(6)*"a"* to 113.14(6)*"i."*

a. Trust fund.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, and corrective action, whichever is applicable, by establishing a trust fund which conforms to the requirements of this subrule. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. A copy of the trust agreement must be submitted pursuant to subrules 113.14(3) and 113.14(4) and placed in the facility's official files.

(2) Payments into the trust fund must be made annually by the owner or operator over ten years or over the remaining life of the MSWLF, whichever is shorter, in the case of a trust fund for closure or postclosure care; or over one-half of the estimated length of the corrective action plan in the case of response to a known release. This period is referred to as the pay-in period.

(3) For a trust fund used to demonstrate financial assurance for closure and postclosure care, the first payment into the fund must be at least equal to the amount specified in subrule 113.14(9) for closure or postclosure care divided by the number of years in the pay-in period as defined in subparagraph 113.14(6)*"a"*(2).

The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{CE - CB}{Y}$$

where CE is the amount specified in 113.14(9) for closure or postclosure care (updated for inflation or other changes), CB is the current balance of the trust fund, and Y is the number of years remaining in the pay-in period.

(4) For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action divided by the number of years in the corrective action pay-in period as defined in subparagraph 113.14(6)*"a"*(2). The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{RB - CV}{Y}$$

where RB is the most recent estimate of the required trust fund balance for corrective action, which is the total cost that will be incurred during the second half of the corrective action period, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(5) The initial payment into the trust fund must be made before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure care; or no later than 120 days after the corrective action remedy has been approved by the department.

(6) The owner or operator, or other person authorized to conduct closure, postclosure care, or corrective action activities may request reimbursement from the trustee for these expenditures, including partial closure, as they are incurred. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, postclosure care, or corrective action and if justification and documentation of the costs are placed in the operating

record. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that reimbursement has been received.

(7) The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternative financial assurance as specified in this rule or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this chapter.

(8) After the pay-in period has been completed, the trust fund shall be adjusted annually to correct any deficiency of the fund with respect to the adjusted cost estimates and may be adjusted annually should the balance in the fund exceed the adjusted cost estimate.

b. Surety bond guaranteeing payment or performance.

(1) An owner or operator may demonstrate financial assurance for closure or postclosure care by obtaining a payment or performance surety bond which conforms to the requirements of this subrule. An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond which conforms to the requirements of this subrule. The bond must be effective before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure care; or no later than 120 days after the corrective action remedy has been approved by the department. The owner or operator must submit a copy of the bond to the department and keep a copy in the facility's official files. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. The state shall not be considered a party to the surety bond.

(2) The penal sum of the bond must be in an amount at least equal to the amount specified in subrule 113.14(9) for closure and postclosure or corrective action, whichever is applicable.

(3) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond and also upon notice from the department pursuant to subparagraph 113.14(6)*"b"*(6).

(4) The owner or operator must establish a standby trust fund. The standby trust fund must meet the requirements of paragraph 113.14(6)*"a"* except the requirements for initial payment and subsequent annual payments specified in subparagraphs 113.14(6)*"a"*(2) through (5).

(5) Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund. Payments from the trust fund must be approved by the trustee and the department.

(6) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner and operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice from the surety of withdrawal of the cancellation, or proof of a deposit into the standby trust of a sum equal to the amount of the bond. If the owner or operator has not complied with this subparagraph within the 60-day time period, this shall constitute a failure to perform and the department shall notify the surety, prior to the expiration of the 120-day notice period, that such a failure has occurred.

(7) The bond must be conditioned upon faithful performance by the owner or operator of all closure, postclosure, or corrective action requirements of the Code of Iowa and this chapter. A failure to comply with subparagraph 113.14(6)*"b"*(6) shall also constitute a failure to perform under the terms of the bond.

(8) Liability under the bond shall be for the duration of the operation, closure, and postclosure periods.

(9) The owner or operator may cancel the bond only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this chapter.

c. Letter of credit.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure care, or corrective action, whichever is applicable, by obtaining an irrevocable standby letter of credit which conforms to the requirements of this subrule. The letter of credit must be effective before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure care; or no later than 120 days after the corrective action plan is approved by the department. The owner or operator must submit to the department a copy of the letter of credit

and place a copy in the facility's official files. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility, and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and issued for a period of at least one year in an amount at least equal to the amount specified in subrule 113.14(9) for closure, postclosure care or corrective action, whichever is applicable. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into the closure and postclosure accounts established pursuant to Iowa Code section 455B.306(8)*"b."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the closure and postclosure accounts established by the owner or operator pursuant to Iowa Code section 455B.306(8)*"b."* The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

(4) The owner or operator may cancel the letter of credit only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this chapter.

d. Insurance.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure care, or corrective action by obtaining insurance which conforms to the requirements of this subrule. The insurance must be effective before the initial receipt of waste or prior to cancellation of an alternative financial assurance, in the case of closure and postclosure care; or no later than 120 days after the corrective action plan has been approved by the department. At a minimum, the insurer must be licensed to transact the business of insurance, or be eligible to provide insurance as an excess or surplus lines insurer, in one or more states. The owner or operator must submit to the department a copy of the insurance policy and retain a copy in the facility's official files.

(2) The closure or postclosure care insurance policy must guarantee that funds will be available to close the MSWLF unit whenever final closure occurs or to provide postclosure care for the MSWLF unit whenever the postclosure care period begins, whichever is applicable. The policy must also guarantee that once closure or postclosure care begins, the insurer will be responsible for the paying out of funds to the owner or operator or other person authorized to conduct closure or postclosure care, up to an amount equal to the face amount of the policy.

(3) The insurance policy must be issued for a face amount at least equal to the amount specified in subrule 113.14(9) for closure, postclosure care, or corrective action, whichever is applicable. The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) An owner or operator, or any other person authorized to conduct closure or postclosure care, may receive reimbursements for closure or postclosure expenditures, including partial closure, whichever is applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or postclosure care, and if justification and documentation of the cost are placed in the operating record. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that the reimbursement has been received.

(5) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

(6) The insurance policy must provide that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner and operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice from the insurer of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the insurance coverage into the closure and postclosure accounts established pursuant to Iowa Code section 455B.306(8)*"b."* If the owner or operator has not complied with this subrule within the 60-day time period, this shall constitute a failure to perform and shall be a covered event pursuant to the terms of the insurance policy. A failure by the owner or operator to comply with this subrule within the 60-day period shall make the insurer liable for the closure and postclosure care of the covered facility up to the amount of the policy limits, which shall be equal to the most recently submitted cost estimates.

(7) For insurance policies providing coverage for postclosure care, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the U.S. Treasury for 26-week treasury securities.

(8) The owner or operator may cancel the insurance only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

e. Corporate financial test. An owner or operator that satisfies the requirements of this subrule may demonstrate financial assurance up to the amount specified below:

(1) Financial component. The owner or operator must satisfy the requirements of numbered paragraphs 113.14(6)*"e"*(1)"1" to "3" to meet the financial component of the corporate financial test.

1. The owner or operator must satisfy one of the following three conditions:

- A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A or Baa as issued by Moody's; or
- A ratio of less than 1.5 comparing total liabilities to net worth (net worth calculations may not include future permitted capacity of the subject landfill as an asset); or
- A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities;

2. The tangible net worth, excluding future permitted capacity of the subject landfill, of the owner or operator must be greater than:

- The sum of the current closure, postclosure care, and corrective action cost estimates and any other environmental obligations, including guarantees, covered by this financial test plus $10 million except as provided in the second bulleted paragraph of numbered paragraph 113.14(6)*"e"*(1)"2"; or
- Net worth of $10 million, excluding future permitted capacity of the subject landfill, plus the amount of any guarantees that have not been recognized as liabilities on the financial statements, provided that all of the current closure, postclosure care, and corrective action costs and any other environmental obligations covered by a financial test are recognized as liabilities on the owner's or operator's audited financial statements, and are subject to the approval of the department; and

3. The owner or operator must have, located in the United States, assets, excluding future permitted capacity of the subject landfill, amounting to at least the sum of current closure, postclosure care, and corrective action cost estimates and any other environmental obligations covered by a financial test as described in subparagraph 113.14(6)*"e"*(5).

(2) Record-keeping and reporting requirements. The owner or operator must submit the following records to the department and place a copy in the facility's official files prior to the initial receipt of

solid waste or cancellation of an alternative financial assurance instrument, in the case of closure and postclosure care; or no later than 120 days after the corrective action plan has been approved by the department:

1. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a financial test including, but not limited to, cost estimates required by subrules 113.14(3) to 113.14(5); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
- Provides evidence demonstrating that the owner or operator meets the conditions of subparagraph 113.14(6)*"e"*(1).

2. A copy of the independent certified public accountant's unqualified opinion of the owner's or operator's financial statements for the latest completed fiscal year. To be eligible to use the financial test, the owner's or operator's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this mechanism. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate financial test, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

3. If the certified public accountant's letter providing evidence of financial assurance includes financial data showing that the owner or operator satisfies subparagraph 113.14(6)*"e"*(1) that differs from data in the audited financial statements referred to in numbered paragraph 113.14(6)*"e"*(2)"2," then a special report from the owner's or operator's independent certified public accountant to the owner or operator is required. The special report shall be based upon an agreed-upon procedures engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the certified public accountant's letter derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of that comparison, and the reasons for any differences.

4. If the certified public accountant's letter provides a demonstration that the owner or operator has assured for environmental obligations as provided in the second bulleted paragraph of numbered paragraph 113.14(6)*"e"*(1)"2," then the letter shall include a report from the independent certified public accountant that verifies that all of the environmental obligations covered by a financial test have been recognized as liabilities on the audited financial statements and that documents how these obligations have been measured and reported, and verifies that the tangible net worth of the owner or operator is at least $10 million plus the amount of any guarantees provided.

(3) The owner or operator may cease the submission of the information required by paragraph 113.14(6)*"e"* only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this chapter.

(4) The department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of subparagraph 113.14(6)*"e"*(1), require the owner or operator to provide reports of its financial condition in addition to or including current financial test documentation as specified in subparagraph 113.14(6)*"e"*(2). If the department finds that the owner or operator no longer meets the requirements of subparagraph 113.14(6)*"e"*(1), the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

(5) Calculation of costs to be assured. When calculating the current cost estimates for closure, postclosure care, corrective action, or the sum of the combination of such costs to be covered, and any other environmental obligations assured by a financial test referred to in paragraph 113.14(6)*"e,"* the owner or operator must include cost estimates required for subrules 113.14(3) to 113.14(5); cost estimates for municipal solid waste management facilities pursuant to 40 CFR Section 258.74; and cost estimates required for the following environmental obligations, if the owner or operator assures

those environmental obligations through a financial test: obligations associated with UIC facilities under 40 CFR Part 144, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265.

f. *Local government financial test.* An owner or operator that satisfies the requirements of this subrule may demonstrate financial assurance up to the amount specified below:

(1) Financial component.

1. The owner or operator must satisfy one of the following requirements:

- If the owner or operator has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the owner or operator must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's on all such general obligation bonds; or
- The owner or operator must satisfy both of the following financial ratios based on the owner's or operator's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

2. The owner or operator must prepare its financial statements in conformity with Generally Accepted Accounting Principles or Other Comprehensive Bases of Accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

3. A local government is not eligible to assure its obligations in paragraph 113.14(6)*"f"* if it:

- Is currently in default on any outstanding general obligation bonds; or
- Has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or
- Operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or
- Receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement as required under numbered paragraph 113.14(6)*"f"*(1)"2." A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism.

4. The following terms used in this paragraph are defined as follows:

- "Cash plus marketable securities" means all the cash plus marketable securities held by the local government on the last day of a fiscal year, excluding cash and marketable securities designated to satisfy past obligations such as pensions.
- "Debt service" means the amount of principal and interest due on a loan in a given time period, typically the current year.
- "Deficit" means total annual revenues minus total annual expenditures.
- "Total expenditures" means all expenditures, excluding capital outlays and debt repayment.
- "Total revenues" means revenues from all taxes and fees, excluding revenue from funds managed by local government on behalf of a specific third party, and does not include the proceeds from borrowing or asset sales.

(2) Public notice component. The local government owner or operator must include disclosure of the closure and postclosure care costs assured through the financial test in its next annual audit report prior to the initial receipt of waste at the facility or prior to cancellation of an alternative financial assurance mechanism, whichever is later. A reference to corrective action costs must be placed in the next annual audit report after the corrective action plan is approved by the department. For the first year the financial test is used to assure costs at a particular facility, the reference may instead be placed in the facility's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure and postclosure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(3) Record-keeping and reporting requirements.

1. The local government owner or operator must submit to the department the following items:

- A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by a financial test, as described in subparagraph 113.14(6)*"f"*(4); provides evidence and certifies that the local government meets the conditions of numbered paragraphs 113.14(6)*"f"*(1)"1," "2," and "3"; and certifies that the local government meets the conditions of subparagraphs 113.14(6)*"f"*(2) and (4); and
- The local government's annual financial report indicating compliance with the financial ratios required by numbered paragraph 113.14(6)*"f"*(1)"1," second bulleted paragraph, if applicable; and the requirements of numbered paragraph 113.14(6)*"f"*(1)"2" and the third and fourth bulleted paragraphs of numbered paragraph 113.14(6)*"f"*(1)"3"; and also indicating that the requirements of Governmental Accounting Standards Board Statement 18 have been met.

2. The items required in numbered paragraph 113.14(6)*"f"*(3)"1" must be submitted to the department and placed in the facility's official files prior to the receipt of waste or prior to the cancellation of an alternative financial mechanism, in the case of closure and postclosure care; or, in the case of corrective action, not later than 120 days after the corrective action plan is approved by the department.

3. After the initial submission of the required items and their placement in the facility's official files, the local government owner or operator must update the information and place the updated information in the facility's official files within 180 days following the close of the owner's or operator's fiscal year.

4. The owner or operator may cease the submission of the information required by paragraph 113.14(6)*"f"* only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

5. A local government must satisfy the requirements of the financial test at the close of each fiscal year. If the local government owner or operator no longer meets the requirements of the local government financial test, the local government must, within 180 days following the close of the owner's or operator's fiscal year, obtain alternative financial assurance that meets the requirements of this rule, place the required submissions for that assurance in the operating record, and notify the department that the owner or operator no longer meets the criteria of the financial test and that alternative financial assurance has been obtained.

6. The department, based on a reasonable belief that the local government owner or operator may no longer meet the requirements of the local government financial test, may require additional reports of financial conditions from the local government at any time. If the department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of the local government financial test, the local government must provide alternative financial assurance in accordance with this rule.

(4) Calculation of costs to be assured. The portion of the closure, postclosure care, and corrective action costs which an owner or operator may assure under this subrule is determined as follows:

1. If the local government owner or operator does not assure other environmental obligations through a financial test, the owner or operator may assure closure, postclosure care, and corrective action costs that equal up to 43 percent of the local government's total annual revenue.

2. If the local government assures other environmental obligations through a financial test, including those associated with UIC facilities under 40 CFR Section 144.62, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, the owner or operator must add those costs to the closure, postclosure care, and corrective action costs it seeks to assure under this subparagraph. The total that may be assured must not exceed 43 percent of the local government's total annual revenue.

3. The owner or operator must obtain an alternative financial assurance instrument for those costs that exceed the limits set in numbered paragraphs 113.14(6)*"f"*(4)"1" and "2."

g. Corporate guarantee.

(1) An owner or operator may meet the requirements of this paragraph by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator. The guarantor must meet the requirements for owners or operators in paragraph 113.14(6)*"g"* and must comply with the terms of the guarantee. A certified copy of the guarantee must be placed in the facility's operating record along with copies of the letter from a certified public accountant and the accountant's opinions. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the certified public accountant must describe the value received in consideration of the guarantee. If the guarantor is an owner or operator with a ``substantial business relationship" with the owner or operator, this letter must describe this ``substantial business relationship" and the value received in consideration of the guarantee.

(2) The guarantee must be effective and all required submissions made to the department prior to the initial receipt of waste or before cancellation of an alternative financial mechanism, in the case of closure and postclosure care; or, in the case of corrective action, no later than 120 days after the corrective action plan has been approved by the department.

(3) The terms of the guarantee must provide that:

1. If the owner or operator fails to perform closure, postclosure care, or corrective action of a facility covered by the guarantee, or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to numbered paragraphs 113.14(6)*"g"*(3)"2" and "3," the guarantor will:

- Perform, or pay a third party to perform, closure, postclosure care, or corrective action as required (performance guarantee);
- Establish a fully funded trust fund as specified in paragraph 113.14(6)*"a"* in the name of the owner or operator (payment guarantee); or
- Obtain alternative financial assurance as required by numbered paragraph 113.14(6)*"g"*(3)"3."

2. The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this rule unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

3. If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of the establishment of a fully funded trust fund pursuant to paragraph 113.14(6)*"a."* If the owner or operator fails to comply with the provisions of this paragraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the corporate guarantee.

(4) If a corporate guarantor no longer meets the requirements of paragraph 113.14(6)*"e,"* the owner or operator must, within 90 days, obtain alternative financial assurance and submit proof of alternative financial assurance to the department. If the owner or operator fails to provide alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

(5) The owner or operator is no longer required to meet the requirements of paragraph 113.14(6)*"g"* upon the submission to the department of proof of the substitution of alternative financial assurance or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this chapter.

h. Local government guarantee. An owner or operator may demonstrate financial assurance for closure, postclosure care, or corrective action by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E. The guarantor must meet the requirements of the local government financial test in paragraph 113.14(6)*"f"* and must comply with the terms of a written guarantee.

(1) Terms of the written guarantee. The guarantee must be effective before the initial receipt of waste or before the cancellation of alternative financial assurance, in the case of closure and postclosure care; or no later than 120 days after the corrective action plan is approved by the department. The guarantee must provide that:

1. If the owner or operator fails to perform closure, postclosure care, or corrective action of a facility covered by the guarantee or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to numbered paragraphs 113.14(6)*"h"*(1)"2" and "3," the guarantor will:

- Perform, or pay a third party to perform, closure, postclosure care, or corrective action as required; or
- Establish a fully funded trust fund as specified in paragraph 113.14(6)*"a"* in the name of the owner or operator; or
- Obtain alternative financial assurance as required by numbered paragraph 113.14(6)*"h"*(1)"3."

2. The guarantee will remain in force unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department as evidenced by the return receipts.

3. If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of the establishment of a fully funded trust fund pursuant to paragraph 113.14(6)*"a."* If the owner or operator fails to comply with the provisions of this paragraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the guarantee.

(2) Record-keeping and reporting requirements.

1. The owner or operator must submit to the department a certified copy of the guarantee along with the items required under subparagraph 113.14(6)*"f"*(3) and place a copy in the facility's official files before the initial receipt of waste or before cancellation of alternative financial assurance, whichever is later, in the case of closure and postclosure care; or no later than 120 days after the corrective action plan has been approved by the department.

2. The owner or operator shall no longer be required to submit the items specified in numbered paragraph 113.14(6)*"h"*(2)"1" when proof of alternative financial assurance has been submitted to the department or the owner or operator is no longer required to provide financial assurance pursuant to this rule.

3. If a local government guarantor no longer meets the requirements of paragraph 113.14(6)*"f,"* the owner or operator must, within 90 days, submit to the department proof of alternative financial assurance. If the owner or operator fails to obtain alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

i. Local government dedicated fund. The owner or operator of a publicly owned MSWLF or local government serving as a guarantor may demonstrate financial assurance for closure, postclosure care, or corrective action, whichever is applicable, by establishing a dedicated fund or account that conforms to the requirements of this subrule. A dedicated fund will be considered eligible if it complies with subparagraph 113.14(6)*"i"*(1) or (2) below, and all other provisions of this paragraph, and documentation of this compliance has been submitted to the department.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, or order to pay for closure, postclosure care, or corrective action costs, whichever is applicable, arising from the operation of the MSWLF and shall be funded for the full amount of coverage or funded for part of the required amount of coverage and used in combination with another mechanism(s) that provides the remaining coverage.

(2) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, or order as a reserve fund and shall be funded for no less than the full amount of coverage or funded for part of the required amount of coverage and used in combination with another mechanism(s) that provides the remaining coverage.

(3) Payments into the dedicated fund must be made annually by the owner or operator for ten years or over the permitted life of the MSWLF, whichever is shorter, in the case of a dedicated fund for closure or postclosure care; or over one-half of the estimated length of an approved corrective action plan in the case of a response to a known release. This is referred to as the "pay-in period." The initial payment into the dedicated fund must be made before the initial receipt of waste in the case of closure and postclosure care or no later than 120 days after the corrective action plan has been approved by the department.

(4) For a dedicated fund used to demonstrate financial assurance for closure and postclosure care, the first payment into the dedicated fund must be at least equal to the amount specified in subrule 113.14(9), divided by the number of years in the pay-in period as defined in this subrule. The amount of subsequent payments must be determined by the following formula:

$$\text{Next Payment} = \frac{CE - CB}{Y}$$

where CE is the total required financial assurance for the owner or operator, CB is the current balance of the fund, and Y is the number of years remaining in the pay-in period.

(5) For a dedicated fund used to demonstrate financial assurance for corrective action, the first payment into the dedicated fund must be at least one-half of the current cost estimate, divided by the number of years in the corrective action pay-in period as defined in this subrule. The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{RB - CF}{Y}$$

where RB is the most recent estimate of the required dedicated fund balance, which is the total cost that will be incurred during the second half of the corrective action period, CF is the current amount in the dedicated fund, and Y is the number of years remaining in the pay-in period.

(6) The initial payment into the dedicated fund must be made before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure care; or no later than 120 days after the corrective action remedy has been approved by the department.

(7) After the pay-in period has been completed, the dedicated fund shall be adjusted annually to correct any deficiency of the fund with respect to the adjusted cost estimates and may be adjusted annually should the balance in the fund exceed the adjusted cost estimate.

113.14(7) *General requirements.*

a. Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this subrule by establishing more than one financial mechanism per facility. The mechanisms must be a combination of those mechanisms outlined in this rule and must provide financial assurance for an amount at least equal to the current cost estimate for closure, postclosure care, or corrective action, whichever is applicable. The financial test and a guarantee provided by a corporate parent, sibling or grandparent may not be combined if the financial statements of the two entities are consolidated.

b. Use of one mechanism for multiple facilities. An owner or operator may satisfy the requirements of this subrule for multiple MSWLFs by the use of one mechanism if the owner or operator ensures that the mechanism provides financial assurance for an amount at least equal to the current cost estimates for closure, postclosure care, or corrective action, whichever is applicable, for all MSWLFs covered.

c. Criteria. The language of the financial assurance mechanisms listed in this rule must ensure that the instruments satisfy the following criteria:

(1) The financial assurance mechanisms must ensure that the amount of funds assured is sufficient to cover the costs of closure, postclosure care, or corrective action for known releases, whichever is applicable;

(2) The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed;

(3) The financial assurance mechanisms must be obtained by the owner or operator prior to the initial receipt of solid waste and no later than 120 days after the corrective action plan has been approved by the department until the owner or operator is released from the financial assurance requirements; and

(4) The financial assurance mechanisms must be legally valid, binding, and enforceable under Iowa law.

d. No permit shall be issued by the department pursuant to Iowa Code section 455B.305 unless the applicant has demonstrated compliance with rule 567—113.14(455B).

113.14(8) *Closure and postclosure accounts.* The holder of a permit for an MSWLF shall maintain a separate account for closure and postclosure care as required by Iowa Code section 455B.306(8)*"b."* The account shall be specific to a particular facility.

a. Definitions. For the purpose of this subrule, the following definitions shall apply:

"Account" means a formal, separate set of records.

"Current balance" means cash in an account established pursuant to this rule plus the current value of investments of moneys collected pursuant to subrule 113.14(8) and used to purchase one or more of the investments listed in Iowa Code section 12B.10(5).

"Current cost estimate" means the closure cost estimate prepared and submitted to the department pursuant to subrule 113.14(3) and the postclosure cost estimate prepared and submitted pursuant to subrule 113.14(4).

b. Moneys in the accounts shall not be assigned for the benefit of creditors except the state of Iowa.

c. Moneys in the accounts shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

d. Withdrawal of funds. Except as provided in paragraph 113.14(8)*"e,"* moneys in the accounts may be withdrawn without departmental approval only for the purpose of funding closure, including partial closure, or postclosure activities that are in conformance with a closure/postclosure plan which has been submitted pursuant to paragraph 113.5(1)*"i."* Withdrawals for activities not in conformance with a closure/postclosure plan must receive prior written approval from the department. Permit holders using a trust fund established pursuant to paragraph 113.14(6)*"a"* to satisfy the requirements of this subrule must comply with the requirements of subparagraph 113.14(6)*"a"*(6) prior to withdrawal.

e. Excess funds. If the balance of a closure or postclosure account exceeds the current cost estimate for closure or postclosure at any time, the permit holder may withdraw the excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

f. Initial proof of establishment of account. A permit holder shall submit a statement of account, signed by the permit holder, to the department by April 1, 2003, that indicates that accounts have been established pursuant to this subrule. Permit holders for new MSWLFs permitted after April 1, 2003, shall submit to the department prior to the MSWLF's initial receipt of waste a statement of account, signed by the permit holder.

g. An account established pursuant to paragraph 113.14(6)*"a"* for trust funds or paragraph 113.14(6)*"i"* for local government dedicated funds also satisfies the requirements of this subrule, and the permit holder shall not be required to establish closure and postclosure accounts in addition to said financial assurance accounts. Accounts established pursuant to paragraph 113.14(6)*"a"* or 113.14(6)*"i,"* which are intended to satisfy the requirements of this subrule, must comply with Iowa Code section 455B.306(8)*"b."*

h. Yearly deposits. Deposits into the closure and postclosure accounts shall be made at least yearly in the amounts specified in this subrule beginning with the close of the facility's first fiscal year that begins after June 30, 2002. The deposits shall be made within 30 days of the close of each fiscal year. The minimum yearly deposit to the closure and postclosure accounts shall be determined using the following formula:

$$\frac{CE - CB}{RPC} \times TR = \text{yearly deposit to account}$$

Where:

"CE" means the current cost estimate of closure and postclosure costs.

"CB" means the current balance of the closure or postclosure accounts.

"RPC" means the remaining permitted capacity, in tons, of the MSWLF as of the start of the permit holder's fiscal year.

"TR" is the number of tons of solid waste disposed of at the facility in the prior year.

i. Closure and postclosure accounts may be commingled with other accounts so long as the amounts credited to each account balance are reported separately pursuant to paragraphs 113.14(3)*"a"* and 113.14(4)*"a."*

j. The department shall have full rights of access to all funds existing in a facility's closure or postclosure account, at the sole discretion of the department, if the permit holder fails to undertake closure or postclosure activities after being directed to do so by a final agency action of the department. These funds shall be used only for the purposes of funding closure and postclosure activities at the site.

113.14(9) *Amount of required financial assurance.* A financial assurance mechanism established pursuant to subrule 113.14(6) shall be in the amount of the third-party cost estimates required by subrules 113.14(3), 113.14(4), and 113.14(5) except that the amount of the financial assurance may be reduced by the sum of the cash balance in a trust fund or local government dedicated fund established to comply with subrule 113.14(8) plus the current value of investments held by said trust fund or local government dedicated fund if invested in one or more of the investments listed in Iowa Code section 12B.10(5).

567—113.15(455B,455D) Variances. A request for a variance to this chapter shall be submitted in writing pursuant to 561—Chapter 10. Some provisions of this chapter are minimum standards required by federal law (see 40 CFR 258), and variances to such provisions shall not be granted unless they are as protective as the applicable minimum federal standards.

Appendix I
Constituents for Detection Monitoring[1]

Inorganic Constituents:	
(1) Antimony	(Total)
(2) Arsenic	(Total)
(3) Barium	(Total)
(4) Beryllium	(Total)
(5) Cadmium	(Total)
(6) Chromium	(Total)
(7) Cobalt	(Total)
(8) Copper	(Total)
(9) Lead	(Total)
(10) Nickel	(Total)
(11) Selenium	(Total)
(12) Silver	(Total)
(13) Thallium	(Total)
(14) Vanadium	(Total)
(15) Zinc	(Total)

Organic Constituents:	
(16) Acetone	67-64-1
(17) Acrylonitrile	107-13-1
(18) Benzene	71-43-2
(19) Bromochloromethane	74-97-5
(20) Bromodichloromethane	75-27-4
(21) Bromoform; Tribromomethane	75-25-2
(22) Carbon disulfide	75-15-0
(23) Carbon tetrachloride	56-23-5
(24) Chlorobenzene	108-90-7
(25) Chloroethane; Ethyl chloride	75-00-3
(26) Chloroform; Trichloromethane	67-66-3
(27) Dibromochloromethane; Chlorodibromomethane	124-48-1
(28) 1,2-Dibromo-3-chloropropane; DBCP	96-12-8
(29) 1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4
(30) o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1
(31) p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7
(32) trans-1,4-Dichloro-2-butene	110-57-6
(33) 1,1-Dichloroethane; Ethylidene chloride	75-34-3
(34) 1,2-Dichloroethane; Ethylene dichloride	107-06-2
(35) 1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4
(36) cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2
(37) trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5
(38) 1,2-Dichloropropane; Propylene dichloride	78-87-5
(39) cis-1,3-Dichloropropene	10061-01-5
(40) trans-1,3-Dichloropropene	10061-02-6

Organic Constituents:	
(41) Ethylbenzene	100-41-4
(42) 2-Hexanone; Methyl butyl ketone	591-78-6
(43) Methyl bromide; Bromomethane	74-83-9
(44) Methyl chloride; Chloromethane	74-87-3
(45) Methylene bromide; Dibromomethane	74-95-3
(46) Methylene chloride; Dichloromethane	75-09-2
(47) Methyl ethyl ketone; MEK; 2-Butanone	78-93-3
(48) Methyl iodide; Iodomethane	74-88-4
(49) 4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1
(50) Styrene	100-42-5
(51) 1,1,1,2-Tetrachloroethane	630-20-6
(52) 1,1,2,2-Tetrachloroethane	79-34-5
(53) Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4
(54) Toluene	108-88-3
(55) 1,1,1-Trichloroethane; Methylchloroform	71-55-6
(56) 1,1,2-Trichloroethane	79-00-5
(57) Trichloroethylene; Trichloroethene	79-01-6
(58) Trichlorofluoromethane; CFC-11	75-69-4
(59) 1,2,3-Trichloropropane	96-18-4
(60) Vinyl acetate	108-05-4
(61) Vinyl chloride	75-01-4
(62) Xylenes	1330-20-7

Notes:

[1]This list contains 47 volatile organics for which possible analytical procedures provided in EPA Report SW-846 ``Test Methods for Evaluating Solid Waste,” third edition, November 1986, as revised December 1987, includes Method 8260; and 15 metals for which SW-846 provides either Method 6010 or a method from the 7000 series of methods.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3]Chemical Abstracts Service registry number. Where ``Total” is entered, all species in the groundwater that contain this element are included.

Appendix II
List of Hazardous Inorganic and Organic Constituents[1]

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Acenaphthene	83-32-9	Acenaphthylene, 1,2-dihydro-	8100 8270	200 10
Acenaphthylene	208-96-8	Acenaphthylene	8100 8270	200 10
Acetone	67-64-1	2-Propanone	8260	100
Acetonitrile; Methyl cyanide	75-05-8	Acetonitrile	8015	100
Acetophenone	98-86-2	Ethanone, 1-phenyl-	8270	10
2-Acetylaminofluorene; 2-AAF	53-96-3	Acetamide, N-9H-fluoren-2-yl-	8270	20
Acrolein	107-02-8	2-Propenal	8030 8260	5 100
Acrylonitrile	107-13-1	2-Propenenitrile	8030 8260	5 200
Aldrin	309-00-2	1,4:5,8-Dimethanonaphthalene, 1,2,3,4, 10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-(1α,4α,4aβ,5α,8α,8aβ)-	8080 8270	0.05 10
Allyl chloride	107-05-1	1-Propene, 3-chloro-	8010 8260	5 10
4-Aminobiphenyl	92-67-1	[1,1[1]-Biphenyl]-4-amine	8270	20
Anthracene	120-12-7	Anthracene	8100 8270	200 10
Antimony	(Total)	Antimony	6010 7040 7041	300 2000 30
Arsenic	(Total)	Arsenic	6010 7060 7061	500 10 20
Barium	(Total)	Barium	6010 7080	20 1000

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Benzene	71-43-2	Benzene	8020 8021 8260	2 0.1 5
Benzo[a]anthracene; Benzanthracene	56-55-3	Benz[a]anthracene	8100 8270	200 10
Benzo[b]fluoranthene	205-99-2	Benz[e]acephenanthrylene	8100 8270	200 10
Benzo[k]fluoranthene	207-08-9	Benzo[k]fluoranthene	8100 8270	200 10
Benzo[ghi]perylene	191-24-2	Benzo[ghi]perylene	8100 8270	200 10
Benzo[a]pyrene	50-32-8	Benzo[a]pyrene	8100 8270	200 10
Benzyl alcohol	100-51-6	Benzenemethanol	8270	20
Beryllium	(Total)	Beryllium	6010 7090 7091	3 50 2
alpha-BHC	319-84-6	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5β,6β)-	8080 8270	0.05 10
beta-BHC	319-85-7	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2β,3α,4β,5α,6β)-	8080 8270	0.05 20
delta-BHC	319-86-8	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3α,4β,5α,6β)-	8080 8270	0.1 20
gamma-BHC; Lindane	58-89-9	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1α,2α,3β,4α,5α,6β)-	8080 8270	0.05 20
Bis(2-chloroethoxy)methane	111-91-1	Ethane, 1,1[1]-[methylene bis(oxy)] bis[2-chloro-	8110 8270	5 10
Bis(2-chloroethyl) ether; Dichloroethyl ether	111-44-4	Ethane, 1,1[1]-oxybis[2-chloro-	8110 8270	3 10
Bis-(2-chloro-1-methylethyl) ether; 2,2[1]-Dichlorodiisopropyl ether; DCIP, see Note 7	108-60-1	Propane, 2,2[1]-oxybis[1-chloro-	8110 8270	10 10

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Bis(2-ethylhexyl) phthalate	117-81-7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	8060	20
Bromochloromethane; Chlorobromomethane	74-97-5	Methane, bromochloro-	8021 8260	0.1 5
Bromodichloromethane; Dibromochloromethane	75-27-4	Methane, bromodichloro-	8010 8021 8260	1 0.2 5
Bromoform; Tribromomethane	75-25-2	Methane, tribromo-	8010 8021 8260	2 15 5
4-Bromophenyl phenyl ether	101-55-3	Benzene, 1-bromo-4-phenoxy-	8110 8270	25 10
Butyl benzyl phthalate; Benzyl butyl phthalate	85-68-7	1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	8060 8270	5 10
Cadmium	(Total)	Cadmium	6010 7130 7131	40 50 1
Carbon disulfide	75-15-0	Carbon disulfide	8260	100
Carbon tetrachloride	56-23-5	Methane, tetrachloro-	8010 8021 8260	1 0.1 10
Chlordane	See Note 8	4,7-Methano-1H-indene,1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	8080 8270	0.1 50
p-Chloroaniline	106-47-8	Benzenamine, 4-chloro-	8270	20
Chlorobenzene	108-90-7	Benzene, chloro-	8010 8020 8021 8260	2 2 0.1 5
Chlorobenzilate	510-15-6	Benzeneacetic acid, 4-chlor-α-(4- chlorophenyl)-α-hydroxy-, ethyl ester	8270	10
p-Chloro-m-cresol; 4-Chloro-3-methylphenol	59-50-7	Phenol, 4-chloro-3-methyl-	8040 8270	5 20

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Chloroethane; Ethyl chloride	75-00-3	Ethane, chloro-	8010 8021 8260	5 1 10
Chloroform; Trichloromethane	67-66-3	Methane, trichloro-	8010 8021 8260	0.5 0.2 5
2-Chloronaphthalene	91-58-7	Naphthalene, 2-chloro-	8120 8270	10 10
2-Chlorophenol	95-57-8	Phenol, 2-chloro-	8040 8270	5 10
4-Chlorophenyl phenyl ether	7005-72-3	Benzene, 1-chloro-4-phenoxy-	8110 8270	40 10
Chloroprene	126-99-8	1,3-Butadiene, 2-chloro-	8010 8260	50 20
Chromium	(Total)	Chromium	6010 7190 7191	70 500 10
Chrysene	218-01-9	Chrysene	8100 8270	200 10
Cobalt	(Total)	Cobalt	6010 7200 7201	70 500 10
Copper	(Total)	Copper	6010 7210 7211	60 200 10
m-Cresol; 3-methylphenol	108-39-4	Phenol, 3-methyl-	8270	10
o-Cresol; 2-methylphenol	95-48-7	Phenol, 2-methyl-	8270	10
p-Cresol; 4-methylphenol	106-44-5	Phenol, 4-methyl-	8270	10
Cyanide	57-12-5	Cyanide	9010	200
2,4-D; 2,4-Dichlorophenoxyacetic acid	94-75-7	Acetic acid, (2,4-dichlorophenoxy)-	8150	10
4,4[1]-DDD	72-54-8	Benzene 1,1[1]-(2,2-dichloroethyl-idene) bis[4-chloro-	8080 8270	0.1 10

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
4,4[1]-DDE	72-55-9	Benzene, 1,1[1]-(dichloroethyenyl-idene) bis[4-chloro-	8080 8270	0.05 10
4,4[1]-DDT	50-29-3	Benzene, 1,1[1]-(2,2,2-trichloroethylidene)bis[4-chloro-	8080 8270	0.1 10
Diallate	2303-16-4	Carbamothioic acid, bis(1-methyl-ethyl)-, S-(2,3-dichloro-2-propenyl) ester	8270	10
Dibenz[a,h]anthracene	53-70-3	Dibenz[a,h]anthracene	8100 8270	200 10
Dibenzofuran	132-64-9	Dibenzofuran	8270	10
Dibromochloromethane; Chlorodibromomethane	124-48-1	Methane, dibromochloro-	8010 8021 8260	1 0.3 5
1,2-Dibromo-3-chloropropane; DBCP	96-12-8	Propane, 1,2-dibrome-3-chloro-	8011 8021 8260	0.1 30 25
1,2-Dibromoethane; Ethylene dibromide; EDB	106-93-4	Ethane, 1,2-dibromo-	8011 8021 8260	0.1 10 5
Di-n-butyl phthalate	84-74-2	1,2-Benzenedicarboxylic acid, dibutyl ester	8060 8270	5 10
o-Dichlorobenzene; 1,2-Dichlorobenzene	95-50-1	Benzene, 1,2-dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.5 10 5 10
m-Dichlorobenzene; 1,3-Dichlorobenzene	541-73-1	Benzene, 1,3-dichloro-	8010 8020 8021 8120 8260 8270	5 5 0.2 10 5 10
p-Dichlorobenzene; 1,4-Dichlorobenzene	106-46-7	Benzene, 1,4-dichloro-	8010 8020 8021 8120 8260 8270	2 5 0.1 15 5 10

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
3,3[1]-Dichlorobenzidine	91-94-1	[1,1[1]-Biphenyl]-4,4[1]-diamine, 3,3[1]-dichloro-	8270	20
trans-1,4-Dichloro-2-butene	110-57-6	2-Butene, 1,4-dichloro-, (E)-	8260	100
Dichlorodifluoromethane; CFC 12	75-71-8	Methane, dichlorodifluoro-	8021 8260	0.5 5
1,1-Dichloroethane; Ethyldidene chloride	75-34-3	Ethane, 1,1-dichloro-	8010 8021 8260	1 0.5 5
1,2-Dichloroethane; Ethylene dichloride	107-06-2	Ethane, 1,1-dichloro-	8010 8021 8260	0.5 0.3 5
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	75-35-4	Ethene, 1,1-dichloro-	8010 8021 8260	1 0.5 5
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	156-59-2	Ethene, 1,2-dichloro-, (Z)-	8021 8260	0.2 5
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	156-60-5	Ethene, 1,2-dichloro-, (E)-	8010 8021 8260	1 0.5 5
2,4-Dichlorophenol	120-83-2	Phenol, 2,4-dichloro-	8040 8270	5 10
2,6-Dichlorophenol	87-65-0	Phenol, 2,6-dichloro-	8270	10
1,2-Dichloropropane; Propylene dichloride	78-87-5	Propane, 1,2-dichloro-	8010 8021 8260	0.5 0.05 5
1,3-Dichloropropane; Trimethylene dichloride	142-28-9	Propane, 1,3-dichloro-	8021 8260	0.3 5
2,2-Dichloropropane; Isopropylidene chloride	594-20-7	Propane, 2,2-dichloro-	8021 8260	0.5 15
1,1-Dichloropropene	563-58-6	1-Propene, 1,1-dichloro-	8021 8260	0.2 5
cis-1,3-Dichloropropene	10061-01-5	1-Propene, 1,3-dichloro-, (Z)-	8010 8260	20 10
trans-1,3-Dichloropropene	10061-02-6	1-Propene, 1,3-dichloro-, (E)-	8010 8260	5 10

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Dieldrin	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b] oxirene, 3,4,5,6,9,9-hexa,chloro-1a, 2,2a,3,6,6a,7, 7a-octahydro-,(1aα, 2β,2aα,3β,6β,6aα,7β, 7aα)-	8080 8270	0.05 10
Diethyl phthalate	84-66-2	1,2-Benzenedicarboxylic acid, diethyl ester	8060 8270	5 10
0,0-Diethyl 0-2-pyrazinyl phosphorothioate; Thionazin	297-97-2	Phosphorothioic acid, 0,0-diethyl 0-pyrazinyl ester	8141 8270	5 20
Dimethoate	60-51-5	Phosphorodithioic acid, 0,0-dimethyl S- [2-(methylamino)-2-oxoethyl] ester	8141 8270	3 20
p-(Dimethylamino)azobenzene	60-11-7	Benzenamine, N,N-dimethyl-4-(phenylazo)-	8270	10
7,12-Dimethylbenz[a]anthracene	57-97-6	Benz[a]anthracene, 7,12-dimethyl-	8270	10
3,3[1]-Dimethylbenzidine	119-93-7	[1,1[1]-Biphenyl]-4,4[1]-diamine, 3,3[1]-dimethyl-	8270	10
2,4-Dimethylphenol; m-Xylenol	105-67-9	Phenol, 2,4-dimethyl-	8040 8270	5 10
Dimethyl phthalate	131-11-3	1,2-Benzenedicarboxylic acid, dimethyl ester	8060 8270	5 10
m-Dinitrobenzene	99-65-0	Benzene, 1,3-dinitro-	8270	20
4,6-Dinitro-o-cresol 4,6-Dinitro-2-methylphenol	534-52-1	Phenol, 2-methyl-4,6-dinitro-	8040 8270	150 50
2,4-Dinitrophenol	51-28-5	Phenol, 2,4-dinitro-	8040 8270	150 50
2,4-Dinitrotoluene	121-14-2	Benzene, 1-methyl-2,4-dinitro-	8090 8270	0.2 10
2,6-Dinitrotoluene	606-20-2	Benzene, 2-methyl-1,3-dinitro-	8090 8270	0.1 10
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	8150 8270	1 20

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Di-n-octyl phthalate	117-84-0	1,2-Benzenedicarboxylic acid, dioctyl ester	8060 8270	30 10
Diphenylamine	122-39-4	Benzenamine, N-phenyl-	8270	10
Disulfoton	298-04-4	Phosphorodithioic acid, 0,0-diethyl S-[2-(ethylthio)ethyl] ester	8140 8141 8270	2 0.5 10
Endosulfan I	959-98-8	6,9-Methano-2,4,3-benzodioxa-thiepin, 6,7,8,9,10,10-hexa-chloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	8080 8270	0.1 20
Endosulfan II	33213-65-9	6,9-Methano-2,4,3-benzodioxa-thiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide,(3α,5aα,6β,9β,9aα)-	8080 8270	0.05 20
Endosulfan sulfate	1031-07-8	6,9-Methano-2,4,3-benzodioxa-thiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-3-dioxide	8080 8270	0.5 10
Endrin	72-20-8	2,7:3,6-Dimethanonaphth[2,3-b] oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a, 7,7a-octahydro-, (1aα,2β,2aβ,3α,6α, 6aβ,7β,7aα)-	8080 8270	0.1 20
Endrin aldehyde	7421-93-4	1,2,4-Methenocyclopenta[cd]penta-lene- 5-carboxaldehyde,2,2a,3, 3,4,7-hexachlorodecahydro-, (1α,2β, 2aβ,4β,4aβ,5β,6aβ, 6bβ,7R)-	8080 8270	0.2 10
Ethylbenzene	100-41-4	Benzene, ethyl-	8020 8221 8260	2 0.05 5
Ethyl methacrylate	97-63-2	2-Propenoic acid, 2-methyl-, ethyl ester	8015 8260 8270	5 10 10
Ethyl methanesulfonate	62-50-0	Methanesulfonic acid, ethyl ester	8270	20

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Famphur	52-85-7	Phosphorothioic acid, 0-[4-[(dimethyl-amino) sulfonyl]phenyl] 0,0-dimethyl ester	8270	20
Fluoranthene	206-44-0	Fluoranthene	8100 8270	200 10
Fluorene	86-73-7	9H-Fluorene	8100 8270	200 10
Heptachlor	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7, 8,8- heptachloro-3a,4,7, 7a-tetrahydro-	8080 8270	0.05 10
Heptachlor epoxide	1024-57-3	2,5-Methano-2H-indeno[1,2-b] oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1aα,1bβ, 2α, 5α,5aβ, 6β, 6aα)	8080 8270	1 10
Hexachlorobenzene	118-74-1	Benzene, hexachloro-	8120 8270	0.5 10
Hexachlorobutadiene	87-68-3	1,3-Butadiene, 1,1,2,3,4, 4-hexachloro-	8021 8120 8260 8270	0.5 5 10 10
Hexachlorocyclopentadiene	77-47-4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	8120 8270	5 10
Hexachloroethane	67-72-1	Ethane, hexachloro-	8120 8260 8270	0.5 10 10
Hexachloropropene	1888-71-7	1-Propene, 1,1,2,3,3,3-hexachloro-	8270	10
2-Hexanone; Methyl butyl ketone	591-78-6	2-Hexanone	8260	50
Indeno(1,2,3-cd)pyrene	193-39-5	Indeno(1,2,3-cd)pyrene	8100 8270	200 10
Isobutyl alcohol	78-83-1	1-Propanol, 2-methyl-	8015 8240	50 100

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Isodrin	465-73-6	1,4,5,8-Dimethanonaphthalene,1,2, 3,4, 10,10- hexachloro-1,4,4a,5,8,8a-hexahydro-(1α,4α,4aβ,5β,8β,8aβ)-	8270 8260	20 10
Isophorone	78-59-1	2-Cyclohexen-1-one, 3,5,5-trimethyl-	8090 8270	60 10
Isosafrole	120-58-1	1,3-Benzodioxole, 5-(1-propenyl)-	8270	10
Kepone	143-50-0	1,3,4-Metheno-2H-cyclobuta[cd] pentalen-2-one,1,1a,3,3a,4,5,5, 5a,5b,6-decachlorooctahydro-	8270	20
Lead	(Total)	Lead	6010 7420 7421	400 1000 10
Mercury	(Total)	Mercury	7470	2
Methacrylonitrile	126-98-7	2-Propenenitrile, 2-methyl-	8015 8260	5 100
Methapyrilene	91-80-5	1,2-Ethanediamine, N.N-dimethyl-N[1]-2-pyridinyl-N1/2 -thienylmethyl)-	8270	100
Methoxychlor	72-43-5	Benzene,1,1[1]-(2,2,2, trichloroethylidene)bis[4-methoxy-	8080 8270	2 10
Methyl bromide; Bromomethane	74-83-9	Methane, bromo-	8010 8021	20 10
Methyl chloride; Chloromethane	74-87-3	Methane, chloro-	8010 8021	1 0.3
3-Methylcholanthrene	56-49-5	Benz[j]aceanthrylene, 1,2-dihydro- 3-methyl-	8270	10
Methyl ethyl ketone; MEK; 2-Butanone	78-93-3	2-Butanone	8015 8260	10 100
Methyl iodide; Iodomethane	74-88-4	Methane, iodo-	8010 8260	40 10
Methyl methacrylate	80-62-6	2-Propenoic acid, 2-methyl-, methyl ester	8015 8260	2 30

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Methyl methanesulfonate	66-27-3	Methanesulfonic acid, methyl ester	8270	10
2-Methylnaphthalene	91-57-6	Naphthalene, 2-methyl-	8270	10
Methyl parathion; Parathion methyl	298-00-0	Phosphorothioic acid, 0,0-dimethyl	8140 8141 8270	0.5 1 10
4-Methyl-2-pentanone; Methyl isobutyl ketone	108-10-1	2-Pentanone, 4-methyl-	8015 8260	5 100
Methylene bromide; Dibromomethane	74-95-3	Methane, dibromo-	8010 8021 8260	15 20 10
Methylene chloride; Dichloromethane	75-09-2	Methane, dichloro-	8010 8021 8260	5 0.2 10
Naphthalene	91-20-3	Naphthalene	8021 8100 8260 8270	0.5 200 5 10
1,4-Naphthoquinone	130-15-4	1,4-Naphthalenedione	8270	10
1-Naphthylamine	134-32-7	1-Naphthalenamine	8270	10
2-Naphthylamine	91-59-8	2-Naphthalenamine	8270	10
Nickel	(Total)	Nickel	6010 7520	150 400
o-Nitroaniline; 2-Nitroaniline	88-74-4	Benzenamine, 2-nitro-	8270	50
m-Nitroaniline; 3-Nitroanile	99-09-2	Benzenamine, 3-nitro-	8270	50
p-Nitroaniline; 4-Nitroaniline	100-01-6	Benzenamine, 4-nitro-	8270	20
Nitrobenzene	98-95-3	Benzene, nitro-	8090 8270	40 10
o-Nitrophenol; 2-Nitrophenol	88-75-5	Phenol, 2-nitro-	8040 8270	5 10
p-Nitrophenol; 4-Nitrophenol	100-02-7	Phenol, 4-nitro-	8040 8270	10 50

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
N-Nitrosodi-n-butylamine	924-16-3	1-Butanamine, N-butyl-N-nitroso-	8270	10
N-Nitrosodiethylamine	55-18-5	Ethanamine, N-ethyl-N-nitroso-	8270	20
N-Nitrosodimethylamine	62-75-9	Methanamine, N-methyl-N-nitroso-	8070	2
N-Nitrosodiphenylamine	86-30-6	Benzenamine, N-nitroso-N-phenyl-	8070	5
N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine propyl-	621-64-7	1-Propanamine, N-nitroso-N-	8070	10
N-Nitrosomethylethalamine	10595-95-6	Ethanamine, N-methyl-N-nitroso-	8270	10
N-Nitrosopiperidine	100-75-4	Piperidine, 1-nitroso-	8270	20
N-Nitrosopyrrolidine	930-55-2	Pyrrolidine, 1-nitroso-	8270	40
5-Nitro-o-toluidine	99-55-8	Benzenamine, 2-methyl-5-nitro-	8270	10
Parathion	56-38-2	Phosphorothioic acid, 0,0-diethyl 0-(4-nitrophenyl) ester	8141 8270	0.5 10
Pentachlorobenzene	608-93-5	Benzene, pentachloro-	8270	10
Pentachloronitrobenzene	82-68-8	Benzene, pentachloronitro-	8270	20
Pentachlorophenol	87-86-5	Phenol, pentachloro-	8040 8270	5 50
Phenacetin	62-44-2	Acetamide, N-(4-ethoxyphenl)	8270	20
Phenanthrene	85-01-8	Phenanthrene	8100 8270	200 10
Phenol	108-95-2	Phenol	8040	1
p-Phenylenediamine	106-50-3	1,4-Benzenediamine	8270	10
Phorate	298-02-2	Phosphorodithioic acid, 0,0-diethyl S-[(ethylthio)methyl]ester	8140 8141 8270	2 0.5 10

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
Polychlorinated biphenyls; PCBs; Aroclors	See Note 9	1,1[prime]-Biphenyl, chloroderivatives	8080 8270	50 200
Pronamide	23950-58-5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	8270	10
Propionitrile; Ethyl cyanide	107-12-0	Propanenitrile	8015 8260	60 150
Pyrene	129-00-0	Pyrene	8100 8270	200 10
Safrole	94-59-7	1,3-Benzodioxole, 5-(2-propenyl)-	8270	10
Selenium	(Total)	Selenium	6010 7740 7741	750 20 20
Silver	(Total)	Silver	6010 7760 7761	70 100 10
Silvex; 2,4,5-TP	93-72-1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	8150	2
Styrene	100-42-5	Benzene, ethenyl-	8020 8021 8260	1 0.1 10
Sulfide	18496-25-8	Sulfide	9030	4000
2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	8150	2
1,2,4,5-Tetrachlorobenzene	95-94-3	Benzene, 1,2,4,5-tetrachloro-	8270	10
1,1,1,2-Tetrachloroethane	630-20-6	Ethane, 1,1,1,2-tetrachloro-	8010 8021 8260	5 0.05 5
1,1,2,2-Tetrachloroethane	79-34-5	Ethane, 1,1,2,2-tetrachloro-	8010 8021 8260	0.5 0.1 5
Tetrachloroethylene; Tetrachloroethene; Perchloroethylene	127-18-4	Ethene, tetrachloro-	8010 8021 8260	0.5 0.5 5

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (µg/L)[6]
2,3,4,6-Tetrachlorophenol	58-90-2	Phenol, 2,3,4,6-tetrachloro-	8270	10
Thallium	(Total)	Thallium	6010 7840 7841	400 1000 10
Tin	(Total)	Tin	6010	40
Toluene	108-88-3	Benzene, methyl-	8020 8021 8260	2 0.1 5
o-Toluidine	95-53-4	Benzenamine, 2-methyl-	8270	10
Toxaphene	See Note 10	Toxaphene	8080	2
1,2,4-Trichlorobenzene	120-82-1	Benzene, 1,2,4-trichloro-	8021 8120 8260 8270	0.3 0.5 10 10
1,1,1-Trichloroethane; Methylchloroform	71-55-6	Ethane, 1,1,1-trichloro-	8010 8021 8260	0.3 0.3 5
1,1,2-Trichloroethane	79-00-5	Ethane, 1,1,2-trichloro-	8010 8260	0.2 5
Trichloroethylene; Trichloroethene	79-01-6	Ethene, trichloro-	8010 8021 8260	1 0.2 5
Trichlorofluoromethane; CFC-11	75-69-4	Methane, trichlorofluoro-	8010 8021 8260	10 0.3 5
2,4,5-Trichlorophenol	95-95-4	Phenol, 2,4,5-trichloro-	8270	10
2,4,6-Trichlorophenol	88-06-2	Phenol, 2,4,6-trichloro-	8040 8270	5 10
1,2,3-Trichloropropane	96-18-4	Propane, 1,2,3-trichloro-	8010 8021 8260	10 5 15
0,0,0-Triethyl phosphorothioate	126-68-1	Phosphorothioic acid, 0,0,0-triethyl ester	8270	10
sym-Trinitrobenzene	99-35-4	Benzene, 1,3,5-trinitro-	8270	10

Common Name[2]	CAS RN[3]	Chemical abstracts index name[4]	Suggested Method[5]	PQL (μg/L)[6]
Vanadium	(Total)	Vanadium	6010 7910 7911	80 2000 40
Vinyl acetate	108-05-4	Acetic acid, ethenyl ester	8260	50
Vinyl chloride; Chloroethene	75-01-4	Ethene, chloro-	8010 8021 8260	2 0.4 10
Xylene (total)	See Note 11	Benzene, dimethyl-	8020 8021 8260	5 0.2 5
Zinc	(Total)	Zinc	6010 7950 7951	20 50 0.5

Notes:

[1]The regulatory requirements pertain only to the list of substances; the right-hand columns (Methods and PQL) are given for informational purposes only. See also footnotes 5 and 6.

[2]Common names are those widely used in government regulations, scientific publications, and commerce; synonyms exist for many chemicals.

[3]Chemical Abstracts Service registry number. Where "Total" is entered, all species in the groundwater that contain this element are included.

[4]CAS index names are those used in the 9th Collective Index.

[5]Suggested Methods refer to analytical procedure numbers used in EPA Report SW-846 "Test Methods for Evaluating Solid Waste," third edition, November 1986, as revised, December 1987. Analytical details can be found in SW-846 and in documentation on file at the agency. CAUTION: The methods listed are representative SW-846 procedures and may not always be the most suitable method(s) for monitoring an analyte under the regulations.

[6]Practical Quantitation Limits (PQLs) are the lowest concentrations of analytes in groundwaters that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. The PQLs listed are generally stated to one significant figure. PQLs are based on 5 mL samples for volatile organics and 1 L samples for semivolatile organics. CAUTION: The PQL values in many cases are based only on a general estimate for the method and not on a determination for individual compounds; PQLs are not a part of the regulation.

[7]This substance is often called Bis(2-chloroisopropyl) ether, the name Chemical Abstracts Service applies to its noncommercial isomer, Propane, 2,2[sec]-oxybis[2-chloro- (CAS RN 39638-32-9).

[8]Chlordane: This entry includes alpha-chlordane (CAS RN 5103-71-9), beta-chlordane (CAS RN 5103-74-2), gamma-chlordane (CAS RN 5566-34-7), and constituents of chlordane (CAS RN 57-74-9 and CAS RN 12789-03-6). PQL shown is for technical chlordane. PQLs of specific isomers are about 20 μg/L by method 8270.

[9]Polychlorinated biphenyls (CAS RN 1336-36-3); this category contains congener chemicals, including constituents of Aroclor 1016 (CAS RN 12674-11-2), Aroclor 1221 (CAS RN 11104-28-2), Aroclor 1232 (CAS RN 11141-16-5), Aroclor 1242 (CAS RN 53469-21-9), Aroclor 1248 (CAS RN 12672-29-6), Aroclor 1254 (CAS RN 11097-69-1), and Aroclor 1260 (CAS RN 11096-82-5). The PQL shown is an average value for PCB congeners.

[10]Toxaphene: This entry includes congener chemicals contained in technical toxaphene (CAS RN 8001-35-2), i.e., chlorinated camphene.

[11]Xylene (total): This entry includes o-xylene (CAS RN 96-47-6), m-xylene (CAS RN 108-38-3), p-xylene (CAS RN 106-42-3), and unspecified xylenes (dimethylbenzenes) (CAS RN 1330-20-7). PQLs for method 8021 are 0.2 μg/L for o-xylene and 0.1 for m- or p-xylene. The PQL for m-xylene is 2.0 μg/L by method 8020 or 8260.

These rules are intended to implement Iowa Code section 455B.304.

[Filed 11/21/02, Notice 9/18/02—published 12/11/02, effective 1/15/03]
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[Editorial change: IAC Supplement 2/25/09]
[Filed ARC 2692C (Notice ARC 2539C, IAB 5/25/16), IAB 8/31/16, effective 10/5/16]

[1] Effective date delayed 70 days by the Administrative Rules Review Committee at its meeting held September 11, 2007.

OBJECTION

At its February 6, 2009 meeting the Administrative Rules Review Committee voted to object to the provisions of ARC 7474B relating to the closure of existing landfills. This filing appears in IAB Vol. XXXI, No. 14 (12-31-2008). The committee takes this action pursuant to the authority of §17A.4(5).

This rulemaking attempted to resolve issues raised by a Committee objection imposed in December, 2007. Although the Commission has made a serious effort to resolve the issues surrounding the 2007 rulemaking, the Committee believes the main underlying issue in the 2007 objection remains: that ARC 7474B is unreasonable because projects that were designed and constructed in accordance with rules in effect at the time of construction cannot be required to be redesigned or reconstructed due to subsequent rule changes unless the department finds that such facilities are causing pollution. That principle was set out in a "grandfather" clause which first appeared in an earlier rule and while it remains in place it has been restricted in the current filing. This filing continues to impose new requirements on facilities properly designed, constructed and permitted under the earlier rules. The committee believes the right conferred in the earlier rule cannot be extinguished or conditioned.

Objection filed February 10, 2009

CHAPTER 114
SANITARY LANDFILLS: CONSTRUCTION AND DEMOLITION WASTES

[Prior to 12/11/02, see 567—Chs 102, 103, 110]

567—114.1(455B) Scope and applicability. This chapter details the plan and operating requirements for all sanitary landfills accepting only construction and demolition wastes. All sanitary landfills accepting only construction and demolition wastes must conform with the provisions of these rules. This chapter also pertains to the hydrologic monitoring system standards for these solid waste disposal facilities.

567—114.2(455B) Permit required. No public or private agency shall construct or operate a sanitary disposal project without first obtaining a permit from the director.

567—114.3(455B) Types of permits. There are four types of permits issued by the director.

114.3(1) *Sanitary disposal project permit.* This permit is issued by the director under the authority of Iowa Code section 455B.305 for sanitary disposal projects which comply with the requirements described in 567—Chapters 102 to 106, 109 to 116, and 118 to 122. Such permits are issued for a term of three years and are renewable for similar terms.

a. Applications for renewal shall be received at the department office at least 90 days before the expiration date of the existing permit. For application forms, see 567—100.3(17A,455B).

b. The department shall conduct an inspection of the sanitary disposal project following receipt of the application for renewal. Following the inspection, the permit holder shall be notified of all measures needed to bring the sanitary disposal project into conformance with Iowa Code chapter 455B and these rules.

c. A permit shall be renewed when a properly completed application has been received and all corrective measures identified in 114.3(1)*"b"* have been completed.

114.3(2) *Temporary permit.* This permit is issued by the director under the authority of Iowa Code subsection 455B.307(1) for solid waste disposal sites which do not comply with the requirements of Iowa Code chapter 455B and these rules. Such permits are issued for a term of one year and are renewable. Temporary permits may be renewed if the director finds that the public interest will be best served by granting a renewal and the applicant has complied with the terms of the previous temporary permit.

a. Temporary permits shall incorporate as a condition a compliance schedule that specifies how and when the applicant will meet the requirements of Iowa Code chapter 455B and these rules.

b. The decision of the director whether to issue a temporary permit, which is discretionary, shall be a final decision. Once a temporary permit has been issued, it may be suspended or revoked only as provided in Iowa Code section 455B.305 and 567—Chapter 7.

114.3(3) *Developmental permit.* The director may issue a developmental permit for construction and operation of a sanitary disposal project which is not specifically described in these rules if the permit applicant demonstrates at a public hearing that the proposed project can provide satisfactory disposal of solid waste without adverse health-related or environmental effects.

a. No such permit shall be issued until the director, after public hearing, considers and approves the proposed project.

b. A developmental permit shall be issued for a term of no less than one year and no more than three years.

c. A developmental permit may be renewed if the director finds, following public hearing, that the sanitary disposal project provided satisfactory disposal of solid waste without adverse health-related or environmental effects over the term of the prior permit.

114.3(4) *Closure permit.* This permit is issued by the director under the authority of Iowa Code section 455B.305 for sanitary disposal projects which no longer accept solid waste. Such permits are issued for a term of 30 years. If the postclosure period is extended, the term of subsequent renewal of the permit will be determined on a site-specific basis. A sanitary disposal project shall require a closure permit until the department determines that postclosure maintenance, postclosure monitoring, and operation of the required leachate control system are no longer necessary.

a. Application shall be filed at the time of department notification of intended closure as required by this rule.

b. The application for issuance of this permit shall be based on a previously approved comprehensive plan and other rules adopted pursuant to the authority of Iowa Code section 455B.306.

c. This permit shall require submission of an annual audit report detailing the status of the financial instrument and other funds as required to guarantee completion of postclosure and monitoring requirements.

d. This permit may be modified by the issuance of an amendment by the department. Requests for permit amendments may be initiated by the department or by the permit holder.

e. At the end of the applicable postclosure period, and upon satisfactory completion of all required postclosure activities as established by Iowa Code chapter 455B, written notification shall be issued by the director stating that a permit is no longer required for the facility.

567—114.4(455B) Applications for permits.

114.4(1) *Application requirements for permits and renewals.* See 567—100.3(17A,455B).

114.4(2) *Time limit on submittal of information.*

a. Sanitary disposal project permit applications. If an application for a sanitary disposal project permit is found by the department to be incomplete, the applicant will be notified of that fact and of the specific deficiencies. Thirty days following such notification, the application may be returned by the department as incomplete without prejudice to the applicant's right to reapply. The applicant may be granted, upon request, an additional 30 days to complete the application.

b. Application for renewal or amendment of a sanitary disposal project. If an application for a sanitary disposal project permit renewal or amendment is found by the department to be incomplete, the applicant will be notified of that fact and of the specific deficiencies. Thirty days following such notification, the application may be denied by the department.

567—114.5(455B) Preparation of plans. All plans and specifications submitted in the application for a sanitary disposal project permit or a developmental permit shall be prepared in conformance with Iowa Code chapter 542B and shall be submitted in triplicate.

567—114.6(455B) Construction and operation. All sanitary disposal projects shall be constructed and operated according to the plans and specifications as approved by the department and the terms of the permit. The approved plans and specifications shall constitute a term of the permit.

567—114.7(455B) Compliance with rule changes.

114.7(1) *Design and construction.* Sanitary disposal projects designed and constructed in accordance with rules in effect at the time of construction shall not be required to be redesigned or reconstructed due to subsequent rule changes unless the department finds that such facilities are causing pollution. Such facilities shall be brought into compliance with rules in effect at the time of reconstructing, enlarging, or otherwise modifying the sanitary disposal project, or at the time of permit renewal.

114.7(2) *Operation.* If any new rule conflicts with an operating procedure prescribed in the engineering plans or the permit of a sanitary disposal project, the operation shall conform with the new rule.

567—114.8(455B) Amendments. Sanitary disposal project permits, temporary permits, and developmental permits may be modified by the issuance of an amendment by the department, except as provided in 114.7(1).

567—114.9(455B) Transfer of title and permit. If title to an operational sanitary disposal project is transferred, and the transferee desires to continue operation of the project, the transferee shall apply in writing to the department within 30 days of the transfer for a transfer of the permit.

114.9(1) The department shall transfer the permit when it determines that the sanitary disposal project is in compliance with Iowa Code chapter 455B and these rules and the terms of the permit, and that the transferee possesses the equipment and personnel to operate the project in conformance with Iowa Code chapter 455B and these rules and the terms of the permit.

114.9(2) No permit shall be valid after 60 days following transfer of title, unless the permit has been transferred by the department to the new titleholder pursuant to this rule.

567—114.10(455B) Permit conditions. Any permit may be issued subject to conditions specified in writing which are necessary to ensure that the sanitary disposal project can be constructed and operated in compliance with these rules.

567—114.11(455B) Effect of revocation. If a permit for a sanitary disposal project held by any public or private agency is revoked by the director, no new permit shall be issued to that agency for that disposal project for a period of one year from the date of revocation. Such revocation shall not prohibit the issuance of a permit for the disposal project to another public or private agency.

567—114.12(455B) Inspection prior to start-up. The department shall be notified when the initial construction of a sanitary disposal project has been completed in order that an inspection may be made to determine that the project is constructed as designed. No solid waste shall be accepted by a sanitary disposal project until that project has been inspected and approved by the department.

567—114.13(455B) Primary plan requirements for all sanitary disposal projects. Every application for any permit issued by the department shall include the following. In addition, every application shall include the particular information required by the chapter describing the type of project to be constructed.

114.13(1) The name, address and telephone number of:

a. Owner of site where project will be located.

b. Permit applicant.

c. Official responsible for operation of project.

d. Design engineer.

e. Agency to be served by the project, if any.

f. Responsible official of agency served, if any.

114.13(2) A legal description of the site.

114.13(3) A map or aerial photograph locating the boundaries of the site and identifying:

a. North or other principal compass points.

b. Zoning and land use within one-half mile.

c. Haul routes to and from the site with load limits or other restrictions.

d. Homes and buildings within one-half mile.

e. Section lines or other legal boundaries.

f. Any nearby runway used or planned to be used by turbojet or piston-type aircraft at FAA-certified airports.

114.13(4) Type, source, and expected volume or weight of waste to be handled per day, week or year.

114.13(5) An organizational chart.

114.13(6) A detailed description of the disposal process to be used.

114.13(7) A table listing the equipment to be used, its design capacities and expected loads.

114.13(8) A contingency plan detailing specific procedures to be followed in case of equipment breakdown, maintenance downtime, or fire in equipment or vehicles, including methods to be used to remove or dispose of accumulated waste.

114.13(9) Proof of the applicant's ownership of the site or legal entitlement to use the site for the disposal of solid waste for the term of the permit for which application is made.

114.13(10) Closure/postclosure plan.

a. A closure/postclosure plan shall be submitted which:

(1) Details how and when the facility will be closed in accordance with applicable requirements of this chapter.

(2) Describes the proposed groundwater monitoring plan, leachate control system, and site inspection and maintenance activities necessary to comply with this chapter.

(3) States the name, address and telephone number of the person or office to serve as a contact with regard to the facility during the postclosure period.

b. The closure/postclosure plan shall be submitted at the time of the first permit renewal after January 15, 2003, but not less than 180 days prior to closure.

114.13(11) Such other information as may be required by the director.

567—114.14(455B) Hydrologic monitoring system planning requirements.

114.14(1) All plans, specifications and other documentation required herein must be developed by an engineer registered in Iowa.

114.14(2) All sanitary disposal projects shall conduct a soil and hydrogeologic investigation which conforms to the requirements of this chapter. The purpose of soil and hydrogeologic investigation is to obtain data to determine potential routes of contaminant migration from a site via groundwater. The rules that follow set forth minimum requirements for such investigations. Additional work and use of other methods (e.g., geophysical techniques) are encouraged.

567—114.15(455B) Soil investigation.

114.15(1) *Soil borings.*

a. *Number of borings.* A sufficient number of soil borings shall be made to accurately identify the hydrogeologic variations of the site. For new sites, the minimum number of borings required is 10 for sites of less than 10 acres, 20 for sites of 10 to 50 acres, and 20 plus an additional boring for every 10 acres above 50 acres for sites larger than 50 acres. Fewer borings may be needed for existing sites, depending on previous work done at the site. Also, no borings will be required in existing fill areas. The department may require additional borings based on the geological complexity of the site.

b. *Depth of borings.* All borings must extend a minimum of 25 feet deep and at least 10 feet deep below the water table. However, borings in proposed fill areas shall be terminated 10 feet above the uppermost aquifer or be grouted to provide such separation. At least half the borings located outside the existing or proposed fill area shall extend 10 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock. At least one boring shall extend 10 feet into bedrock or 100 feet below the lowest ground surface elevation.

c. *Boring method.* Borings shall comply with the applicable portions of rule 114.23(455B). The preferred boring method is hollow stem auger, although it may be necessary to use other methods at greater depths and in bedrock. When wet drilling methods are used for boring in which monitoring wells or piezometers are installed, the drilling fluid and methods and development procedures shall be approved by and documented with the department.

d. *Assurance that soil boring samples have been taken at the site.* The soil boring samples must be kept by the permit applicant until the permit is issued and must be made available to the department if the department requests them.

114.15(2) *Soil samples.* Samples shall be collected at 5-foot intervals and at every change in stratum. These samples shall be obtained using a split spoon sampler and the procedures of the standard penetration test, conducted in accordance with American Society of Testing and Materials (ASTM) Standard D1586. This test simply counts the blows of a 140-pound hammer falling 30 inches on the sampler per foot penetration of the sampler. A minimum of one undisturbed Shelby tube sample shall be obtained in the uppermost cohesive stratum at or below the lowest depth at which solid waste will be disposed of. Shelby tube sampling shall be in accordance with ASTM Standard D1587. Samples shall be clearly marked, preserved, and maintained for future inspection. Samples selected for laboratory analysis shall be preserved and transported to the laboratory in accordance with ASTM Standard D422.

114.15(3) *Laboratory test of discrete soil samples.* Laboratory tests of discrete soil samples shall be conducted to correlate strata between soil borings, obtain permeability data on each stratum, and design monitoring wells.

a. *Permeability tests.* Permeability tests using a constant-head or falling-head permeameter shall be run on a minimum of one sample from each Shelby tube sample. Each sample shall be from a different soil boring representing a different area of the site.

b. *Grain size distribution.* Grain size distribution tests shall be conducted on a minimum of one sample from each distinct stratum. Analysis shall be conducted in accordance with ASTM Standards D422 and D1140. Estimates of permeability shall be developed for each sample tested based on grain size distribution and standard penetration blow counts.

567—114.16(455B) Hydrogeologic investigation.

114.16(1) *Groundwater level measurements.* The elevation of the water table shall be determined at or near the location of each soil boring which penetrates the water table. The water table may be determined using a completed water table monitoring well, or piezometer. The bottom of a piezometer used to measure water table elevation shall be no more than 5 feet below the water table.

The apparent horizontal groundwater flow direction should be determined based on water table measurements. Vertical groundwater flow shall then be assessed in at least two profiles approximately parallel to the apparent horizontal flow direction. Vertical groundwater flow shall be assessed using at least two well clusters per profile. Each well cluster shall contain a water table monitoring well or piezometer and additional water level monitoring points based on site conditions as follows:

a. If the water table is in the uppermost aquifer, one additional water level monitoring point shall be located near the base of the aquifer or at least 20 feet below the base of the water table monitoring point. This additional monitoring point may not be required if the aquifer is less than 20 feet thick.

b. If the uppermost aquifer is less than 50 feet below the water table, an additional water level monitoring point shall be located at the top of the aquifer.

c. If the uppermost aquifer is more than 50 feet below the water table, additional water level monitoring points shall be placed at depths of 30 feet and 50 feet below the water table.

d. If required, the one deeper soil boring into bedrock shall be used as a site for one well cluster. Water table monitoring points in this cluster shall correspond to the other well cluster used for a profile. In addition, water level monitoring points shall be placed at the bottom of the boring and, if possible, at the top and bottom of the uppermost aquifer. Groundwater level measurements shall be made after the water levels have stabilized in the monitoring point, at least 24 hours after completion and bailing of the monitoring well, or installation of the piezometer. The water level in existing wells shall be observed and recorded prior to bailing. Each set of water level measurements shall be made in as short a time frame as possible not to exceed 8 hours.

114.16(2) *In-situ permeability tests.* In-situ permeability tests shall be conducted on each monitoring well and piezometer in each well cluster.

a. *Pumping test.* If more than one monitoring point is located in the uppermost aquifer, a pumping test shall be conducted at one or more upper aquifer monitoring points. A pumping test involves pumping at a constant rate from one well while observing water levels in other wells. The pumping rate shall be as high as possible without dewatering the well. Water level measurements in other uppermost aquifer wells shall be measured at frequent intervals near the start of the test and then at progressively longer intervals (e.g., 1-minute intervals to 10 minutes, 5-minute intervals to an hour, 15-minute intervals to 2 hours, and half-hour intervals thereafter). Continuous water level recording is preferable.

Water levels in wells not located in the uppermost aquifer shall be recorded throughout the test at regular intervals (e.g., every half hour). Water levels in all wells shall be measured 24 hours prior to the test and just before the test. The test duration shall be at least 4 hours and continue until a stabilized drawdown condition is observed. Longer tests may be necessary if other uppermost aquifer monitoring points are slow to respond. Water level readings shall be recorded through the recovery phase of the water table.

b. Bail and slug tests. Monitoring wells and piezometers located in materials with low permeabilities shall be tested using bail or slug tests. These tests involve rapidly removing or adding a known volume of water to a well and then recording water levels in the well as the well recovers to its original level. Typically, the necessary frequency of measurements will be similar to that required of pumping tests. In materials of very low permeability, less frequent measurements are necessary. In materials of higher permeability, more frequent measurements may be necessary.

567—114.17(455B) Hydrologic monitoring system planning report requirements. The hydrologic monitoring system planning report shall contain a description of field investigations and presentation of results including a description of the field and laboratory testing methods; a presentation of the test results and field measurements; documentation of a reasonable effort to inventory all active, unused, and abandoned wells within one mile of the facility; and the identification of all public water supply wells and wells with water withdrawal permits pursuant to 567—Chapters 50 to 52 within three miles of the facility. Well logs, other available information on well construction, static water levels, and usage shall be obtained. The well inventory shall be based on thorough reviews of state and local collections of well logs and, when possible, interviews or surveys of well owners. Also to be included are maps showing the location of soil borings, other field tests/measurements, and existing wells.

567—114.18(455B) Evaluation of hydrogeologic conditions.

114.18(1) Based on soil boring and other available information, a description of the site geology shall be made. This description shall include preparation of geologic cross sections of sufficient number and spacing (no fewer than four at every site) to adequately define all areas of the site and of sufficient detail to adequately depict major stratigraphic and structural trends and reflect geologic structural features in relation to groundwater flow. Each pair of cross sections must be as near to perpendicular as possible to adequately portray the site geology.

114.18(2) A description of the hydrogeologic unit(s) within the saturated zone shall be made including thickness; depth; hydraulic properties, such as transmissivity and storage coefficient or specific yield; description of the role of each as confining bed, aquifer, or perched saturated zone and its actual or potential use as a water supply aquifer.

114.18(3) All groundwater flow paths from the site shall be identified, including both horizontal and vertical components of flow. A contour map of the water table shall be presented showing horizontal flow paths. A potentiometric surface map of the uppermost aquifer showing horizontal flow paths shall also be presented, if different from the water table. Vertical flow paths shall be shown in at least two profiles approximately parallel to the direction of horizontal flow. Vertical flow paths shall be determined by water level measurements from clustered wells at different depths, if possible. An evaluation of vertical groundwater flow based on the hydrologic properties of the various strata encountered at the site, estimated groundwater flow and recharge rates, and known information on hydraulic head shall also be made.

114.18(4) The seasonal, temporal and artificially induced variations in groundwater flow shall be evaluated. Temporal variations occur due to natural events, such as rainfall. The addition of tile lines, removal of overburden, or deposition of wastes would constitute artificially induced variations.

114.18(5) Surface water flow paths from the site shall be identified on topographic contour maps.

567—114.19(455B) Monitoring system plan. A hydrologic monitoring system shall be designed to intercept the groundwater and surface water flow paths from the site. The plan shall include proposed locations and depths for monitoring wells in accordance with monitoring well siting criteria in rule 114.22(455B). Monitoring wells shall be designed in accordance with rule 114.23(455B). The surface water monitoring plan shall include monitoring points on all standing and flowing bodies of water which will receive surface runoff or groundwater discharge from the site. For streams, sampling points upstream and downstream of areas of potential impact from the site shall be selected.

567—114.20(455B) Sampling protocol. At a minimum, the sampling protocol must include the following:

1. Order in which monitoring points are to be sampled, all tests and procedures needed at each monitoring point and the order in which these procedures will be carried out, equipment and containers to be used, procedures and precautions for their use; precautions to avoid introducing contaminants from outside sources into monitoring wells or samples; and how equipment must be cleaned between uses;
2. Procedures for evacuating each monitoring well prior to each water quality sampling;
3. Procedures for handling field blanks and other quality assurance samples at the facility and in transit to and from the laboratory;
4. Procedures for field filtration of samples, if required;
5. Procedures for sample preservation;
6. Procedures for sample collection, labeling and handling at the facility and during transport to the laboratory;
7. Procedures for recording field observations and measurements;
8. Procedures for records maintenance and data analysis; and
9. Procedures for sampling surface water monitoring points including exact sampling locations and depths.

567—114.21(455B) Monitoring well maintenance and performance reevaluation plan.

114.21(1) A monitoring well maintenance and performance reevaluation plan shall be included as part of the hydrologic monitoring system plan. The plan shall ensure that all monitoring points remain reliable.

114.21(2) The plan shall provide for the following:

a. A biennial examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.

b. A biennial evaluation of water level conditions in the monitoring wells to ensure that the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.

c. Annual measurement of well depths to ensure that wells are physically intact and not filling with sediment.

d. Every five years conduct in-situ permeability tests on monitoring wells to compare test data with those collected originally to determine if well deterioration is occurring.

567—114.22(455B) Monitoring well siting requirements.

114.22(1) *Downgradient monitoring wells.* Downgradient monitoring wells must be located to provide a high level of certainty that releases of contaminants from the site can be promptly detected. Downgradient monitoring wells shall be placed along the site perimeter, within 50 feet of the planned liner or waste boundary unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored. For those facilities which are long-term, multiphase operations, the department may establish temporary waste boundaries in order to define locations for monitoring wells. The convergence of groundwater paths to minimize the overall length of the downgradient dimension may be taken into consideration in the placement of downgradient monitoring wells.

114.22(2) *Water table wells.* At least three downgradient water table monitoring wells shall be installed at each facility. The maximum spacing between wells shall be 600 feet.

114.22(3) *Uppermost aquifer monitoring wells.* If different from water table monitoring wells, at least three uppermost aquifer monitoring wells shall be installed at each facility. Uppermost aquifer monitoring wells shall be spaced no more than 600 feet apart. If the uppermost aquifer is located more than 50 feet below the water table, this requirement may be relaxed, although at least one downgradient uppermost aquifer monitoring well will be required.

114.22(4) *Other downgradient monitoring wells.* Additional downgradient monitoring wells will be required if the water table and uppermost aquifer monitoring wells do not intercept most vertical flow paths from the site. In such situations, monitoring wells shall be placed at the appropriate depths to intercept the remaining flow paths and shall be spaced at no more than 600 feet apart.

114.22(5) *Upgradient monitoring wells.* Upgradient monitoring wells shall not be affected by the site. At least one upgradient monitoring well shall be installed into each stratum being monitored by downgradient monitoring wells. If it is not possible to actually locate a monitoring well upgradient of the site, the well shall be placed as near the site as feasible without being affected by the site.

114.22(6) *Monitoring point identification system.* The various types of monitoring points shall be identified as follows:

a. Monitoring Well MW# _____

b. Surface Water Monitoring Point SW# _____

c. Piezometer PZ# _____

Each monitoring point must have a unique number, regardless of the type of monitoring point, and that number must never change.

567—114.23(455B) Monitoring well/soil boring construction standards.

114.23(1) *General considerations.*

a. Contractors involved in construction of monitoring wells and piezometers and soil boring activities shall be registered with the department as required in 567—Chapter 82.

b. To the extent possible, all monitoring well construction materials must not absorb, desorb, react or otherwise alter the screened soil stratum or the quality of the groundwater being sampled. Galvanized metal, glues, welding solvents, pipe thread lubricants and other foreign substances must not be used.

c. All monitoring well construction materials must be protected from contamination prior to installation.

d. A typical cross section of a properly constructed monitoring well is shown in Figure 1 at the end of this chapter.

114.23(2) *Casings.*

a. As a minimum, the diameter of the inner casing (see Figure 1) of a monitoring well must be at least 2 inches.

b. Plastic cased wells must be constructed of materials with threaded, nonglued joints which do not allow water infiltration under natural subsurface pressure conditions or when the well is evacuated for sampling.

c. Well casings must provide structural stability to prevent casing collapse during installation as well as drill hole integrity when installed. Flush joint casing is required for small diameter wells installed through hollow stem augers.

d. Well casings must be constructed of inert materials such as polytetrafluorethylene, stainless steel or polyvinyl chloride. The department may approve other casing materials if the owner or operator can demonstrate that the material has a low potential for biasing the water quality parameters of samples. The department may approve the construction of composite well casings (casings with less inert materials in the unsaturated zone).

114.23(3) *Well screens.*

a. Slot size will be based on sieve analysis of the sand and gravel stratum or filter pack. The slot size must hold out 35 percent to 60 percent of the formation material and not less than 90 percent of the filter pack.

b. Slot configuration and open area must permit effective development of the well.

c. Screen length. Maximum screen length shall be 10 feet except for water table wells in which the screen must be of sufficient length to accommodate expected seasonal fluctuations of the water table. The screen shall be placed 5 feet above and below the observed water table, unless local conditions are known to produce greater fluctuations. Screen length for piezometers shall be 2 feet or less. Multiple screened single-cased wells are prohibited.

114.23(4) *Filter pack.*

a. To prevent other materials from coming in contact with the well screen, the filter pack shall extend 18 inches above and 12 inches below the well screen.

b. Size must be based on sieve analysis of sand and gravel stratum. The filter pack material must be 2.5 to 3 times larger than 50 percent grain size of the zone being monitored.

114.23(5) *Grouting.*

a. The annular space above the filter pack must be sealed with expanding cement or bentonite grout. The vertical dimension of this seal must be a minimum of 3 feet.

b. The annular space between the seal and to just below the frostline must be backfilled with an impervious material such as bentonite grout or expanding cement.

c. The remaining annular space must be sealed with bentonite grout to the ground surface.

d. Grouting materials must be installed from the top of the filter pack up in one continuous operation with a tremie tube.

114.23(6) *Well protection.*

a. Plastic cased wells. A protective metal casing must be installed around the well casing. The inside diameter of the protective metal casing shall be at least 2 inches larger than the outside diameter of the well casing. The protective metal casing shall extend from a minimum of 1 foot below the frostline to slightly above the well casing top. The protective casing shall be shortened or omitted if it covers part of the well screen. The protective casing shall be sealed or immobilized with a concrete plug around the outside. The bottom of the concrete plug must extend at least 1 foot below the frostline. The concrete plug shall be shortened if it covers part of the well screen. The top of the plug shall be extended approximately 3 to 6 inches above the ground surface and shall slope away from the well approximately 3 feet. Soil may be placed above the plug. The inside of the protective casing shall be sealed with a bentonite grout. A vented cap shall be placed on the well casing and a protective locking cap on the metal casing. The lockable cap must be kept locked when the well is not in use.

b. Metal cased wells. The concrete plug shall be extended from at least 1 foot below the frostline to approximately 3 to 6 inches above the ground surface and sloped away from the well approximately 3 feet. Soil may be placed on top of the concrete plug. A vented, locking cap shall be placed on the casing. The lockable cap must be kept locked when the well is not in use. See Figure 1.

c. To protect against accidental damage, a ring of brightly colored posts or other protective devices must be installed around all wells.

114.23(7) *Well drilling.*

a. The owner or operator must ensure that in all phases of drilling, well installation and completion, the methods and materials used do not introduce substances that may alter the results of water quality analyses.

b. Well drilling equipment coming into contact with contaminants in the borehole or aboveground must be thoroughly cleaned to avoid spreading contamination to other depths or locations. Contaminated materials or leachate from wells must not be discharged onto the ground surface or into ponds or streams so as to cause environmental harm in the processes of drilling or well development.

c. The owner or operator must ensure that, at a minimum, the following well design and construction log information be retained at the site and a copy of this information be sent to the department:

(1) Date/time of construction;
(2) Name and address of the driller;
(3) Drilling method and drilling fluid used;
(4) Soil sampling methods;
(5) Surveyed location (±0.5 ft.);
(6) Soil and rock classifications;
(7) Field observations;
(8) Well name/number;
(9) Borehole diameter and well casing diameter;
(10) Well depth (±0.1 ft.);
(11) Water level measurements;

(12) Drilling and lithologic logs;
(13) Casing materials, inside diameter and weight or wall thickness;
(14) Screen materials;
(15) Casing and screen joint type;
(16) Screen slot size/length;
(17) Filter pack material/size (depths from ____ to ____);
(18) Filter pack volume;
(19) Filter pack replacement method;
(20) Sealant materials (depths from ____ to ____);
(21) Sealant volume;
(22) Sealant placement method;
(23) Grouting schedule and materials;
(24) Surface seal design/construction (depths from ____ to ____);
(25) Type of protection well cap;
(26) Ground surface elevation (±0.1 ft.);
(27) Well cap elevation (±0.01 ft.);
(28) Top of casing elevation (±0.01 ft.); and
(29) Detailed drawing of well (including dimensions).

114.23(8) *Well development.* Prior to use of the monitoring well for water quality monitoring purposes, well development is required to ensure the collection of representative groundwater samples. Procedures used in well development involve using a surge block, bailing or surging by pumping of compressed inert gas to produce a movement of water at alternately high and low velocities into and out of the well screen and gravel pack in order to loosen and remove fine materials. Development of low hydraulic conductivity wells may require the circulation of water down the well casing, out through the screen and gravel pack, and up the open borehole prior to the placement of grout or seal in the annulus. Any additional water used must be of a quality so as not to interfere with future groundwater quality determinations. Following surging, the well is pumped until the water does not contain significant quantities of suspended solids.

567—114.24(455B) Sealing abandoned wells and boreholes. Boreholes, piezometers and observation wells not used for groundwater monitoring must be sealed. The location of the abandoned well or borehole shall be documented in writing with reference to the landfill's coordinate system and method of sealing. The document must be retained at the landfill with a copy sent to the department.

114.24(1) *Sealing boreholes.* The borehole shall be filled by extending a tremie tube to the bottom of the hole. Bentonite or expanding cement grout shall be applied through the tube to the bottom of the hole and the tremie tube shall be raised as the hole is filled from the bottom upward. The end of the tremie tube shall be submerged in the grout while filling. The borehole shall be filled from the base of the boring all the way to the ground surface.

114.24(2) *Sealing abandoned monitoring wells.*

a. Well is known to be constructed properly with impermeable grout that was installed from the bottom up using a tremie tube. Any existing protective metal casing shall be removed by vertically pulling it off the well. With a tremie tube, the inner well casing shall be filled with an impermeable grout slurry from the bottom to ground surface. After 24 hours, the grout shall be retopped if it has settled below the existing ground surface.

b. Well construction is improper or undocumented. An attempt should be made to remove the well casing. If the well casing cannot be removed, the well casing shall either be drilled around with a hollow stem auger of large inside diameter or shall be drilled out with a standard casing bit or solid stem auger with a boring diameter greater than the initial diameter of the hole. Drilling shall be to the maximum depth of the previously drilled boring. The drilling debris shall be cleaned from the interior of the auger or borehole. The borehole shall be sealed with an impermeable grout using a tremie tube. If the soil conditions permit the sealing to be conducted in a continuous operation, the tremie tube shall

be submerged in the grout at all times. After 24 hours, the grout shall be retopped if it has settled below the ground surface.

c. Monitoring wells in future fill areas. The well shall be removed and sealed as described in the procedures for sealing boreholes in 114.24(1).

567—114.25(455B) Variance from design, construction, and operation standards. Pursuant to the authority of Iowa Code section 455B.303, a variance from the specific requirements of rules 114.14(455B) to 114.25(455B) may be issued, modified, or denied by the director. The request shall also include any supporting information to be considered by the director in the formulation of a decision.

567—114.26(455B) General requirements for all sanitary landfills.

114.26(1) *Plan requirements.* The plans for all sanitary landfills shall include the following:

a. The map and aerial photograph required in subrule 114.13(3) of sufficient scale to show all homes, buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads and other applicable details including topography and drainage patterns. All wells shall be identified on the map or aerial photograph and a bench mark shall be indicated.

b. A plot drawing in appropriate scale of the site and the immediately adjacent area showing dimensions, topography with appropriate contour intervals, drainage patterns, known existing drainage tiles, locations where any geologic samples were taken, all water wells with their uses, and present and planned pertinent features including but not limited to roads, fencing, and cover stockpiles.

c. Detailed engineering drawing of the site showing all initial and permanent roads, buildings and equipment to be installed; unloading and holding areas; fences and gates; landscaping and screening devices; personnel and maintenance facilities; and sewer and water lines.

d. A liner system that meets the following requirements, depending upon the type of waste material disposed of:

(1) Municipal solid waste landfills (MSWLFs) shall have a composite liner system consisting of two components. The upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil as specified in subparagraph 114.26(1)*"d"*(2). FML components consisting of high-density polyethylene (HDPE) shall be at least 60-mil thick. The FML must be installed in direct and uniform contact with the compacted soil component. The requirements for MSWLF facilities under this subparagraph were effective November 13, 1996, and apply to liner and cover systems that had not been installed by that date.

(2) Nonmunicipal solid waste landfills may utilize a liner system meeting 114.26(1)*"d"*(1) or shall have a soil liner consisting of at least four feet of recompacted soil. The description, source and volume of the material to be used for the landfill liner, including the method of installation, must be provided. The coefficient of permeability must be 1×10^{-7} cm/sec (0.00028 ft/day) or less as determined by appropriate laboratory analysis. The percent of standard or modified proctor density at moisture contents consistent with expected field conditions and corresponding to a measured coefficient of permeability equal to or less than 1×10^{-7} cm/sec shall be determined in the laboratory. The soil shall be placed in lifts not to exceed 8 inches in thickness. A minimum of one field density test shall be performed per lift per acre to verify that the density determined by the laboratory analysis as correlated to permeability has been achieved. Results of field density tests shall be submitted to the department prior to the placement of solid waste.

e. Alternative liner systems.

(1) The department may approve an alternative to the liner system specified in subparagraph 114.26(1)*"d"*(1) provided that the alternative liner system design has included certification by a professional engineer registered in Iowa stating that the proposed alternative liner system will ensure that the contaminant concentration values listed in federal regulations under 40 CFR 258, Subpart D, Table 1, will not be exceeded in the uppermost aquifer at the designated monitoring points of compliance as specified by the department.

This point of compliance shall be no more than 150 meters from the waste management boundary. This point of compliance is to be utilized for the purpose of certifying the alternative design only. All

operational issues related to monitoring systems, compliance determinations, groundwater assessments, and remedial measures are governed by the appropriate relevant rules in this chapter and 567—Chapter 111. The certification shall be on a form furnished by the department which shall include space for identification of the sources of data utilized; formulas, models, tests or other methods utilized to determine contaminant concentrations at the points of compliance; and all references or guidance documents relied upon for the techniques or methods applied. A copy of all data utilized, formulas, models, tests or other methods utilized to determine contaminant concentrations at the point of compliance shall be placed in the facility's official files prior to operation of the landfill.

(2) An alternative liner system to that required in subparagraph 114.26(1)*"d"*(2) may be approved by the director if the design of the liner system is equivalent to the soil liner required in subparagraph 114.26(1)*"d"*(2) in performance, longevity and protection of the groundwater; or, based on the specific type of waste to be disposed of, the design of the liner system offers equivalent protection of the groundwater. Undisturbed soil will not be allowed for use as liner material.

f. Diversion and drainage structures designed to prevent ponding, infiltration, inundation, erosion, slope failure and washout from surface runoff due to a 25-year, 24-hour rainfall event, as shown in the department of agriculture and land stewardship publication "Climatology of Iowa Series #2-1980."

g. A leachate collection, storage and treatment and disposal system designed to protect the soils, surface water, and groundwater from leachate contamination. This system shall be designed to operate during the active life of the site and during the postclosure period required by Iowa Code section 455B.304.

(1) The design and construction of the system must be in accordance with subrule 114.26(3) and be coordinated with the planned phase development of the site and the timing of leachate generation.

(2) The potential for leachate generation shall be evaluated in determining the design for the facility.

(3) The plan must include proposed quality assurance and quality control testing to be performed during installation and operation of the system. This plan shall include procedures that will be followed during installation of the leachate collection system and during normal landfill operations to ensure the system's integrity and design standards.

h. A drawing of the scheme of development including any excavation, trenching, and fill shown progressively with time. The methods to be used to ensure compliance with the scheme and to provide vertical and horizontal controls shall be described.

i. Cross-sectional drawings showing progressively with time the original and proposed elevation of excavating, trenching, and fill.

j. Evidence that the proposed plan has been reviewed by the local soil conservation district commissioner and that the technical assistance of the soil conservation district will be utilized to facilitate compliance with wind and water soil loss limit regulations provided for in Iowa Code sections 467A.42 to 467A.51.

k. An ultimate land use proposal, including intermediate stages, with time schedules indicating the total and complete land use. Final elevations, grades, permanent drainage structures, monitoring or treatment facilities and permanent improvements of the completed landfill shall be included. Any supporting drawings to the ultimate land use proposal shall be in appropriate scale.

l. Information describing:

(1) Source, volume, and characteristics of cover material;

(2) Area of site in acres;

(3) Areas to be used for salvaging and the burning of diseased trees.

m. A report consisting of information verifying that the portion of the site to be filled is:

(1) So situated as to obviate any predictable lateral movement of significant quantities of leachate from the site to standing or flowing surface water or to shallow aquifers that are in actual use or are deemed to be of potential use as a water resource.

(2) So situated that the base of the proposed site is at least 5 feet above the high water table unless a greater separation is required to ensure that there will be no significant adverse effect on groundwater or surface waters or a lesser separation is unlikely to have a significant adverse effect on groundwater and surface waters.

(3) Outside a flood plain or shoreland, unless proper engineering and sealing of the site will render it acceptable and prior approval of the department under Title V of these rules and, when necessary, the U.S. Corps of Engineers is obtained.

(4) So situated to ensure no adverse effect on any well within 1,000 feet of the site existing at the time of application for the original permit which is being used or could be used without major renovation for human or livestock consumption or at least 1,000 feet from any such well unless hydrologic conditions are such that a greater distance is required to ensure no adverse effect on the well.

(5) So situated to ensure no adverse effect on the source of any community water system in existence at the time of application for the original permit within one mile of the site or at least one mile from the source of any community water system in existence at the time of application for the original permit unless hydrologic conditions are such that a greater distance is required to ensure no adverse effect on the water system.

(6) At least 20 feet from the adjacent property line unless there is a written agreement with the owner of the abutting property. The report shall verify that the portion to be filled is at least 50 feet from the adjacent property line. The written agreement shall be filed with the county recorder and shall become a permanent record of the property.

(7) Beyond 500 feet from any existing habitable residence unless there is written agreement with the owner of the residence and the site is screened by natural objects, plantings, fences or by other appropriate means. The residence must be in existence on the date of application for the original permit from the department. The written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.

n. Should conditions in violation of 114.26(1)*"m"*(1), (2), (3), (4), or (5) exist, the original plan shall detail how the site is to be engineered to provide equivalent protection to the water resources. The applicant shall have the burden of showing that equivalent protection will be provided.

o. If sewage sludge is to be disposed of at the site, the characteristics of the sludge and the method of disposal shall be described. If sludge is to be utilized for land application, such utilization shall be in conformance with 567—Chapter 67.

p. The required soil and hydrogeologic design information specified in rules 114.14(455B) through 114.25(455B).

q. Such additional data and information as may be deemed necessary by the director to evaluate a proposed sanitary landfill.

r. When a new landfill or lateral expansion is located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any airport runway end used by only piston-type aircraft, the plan must contain a notice that the landfill's official files will include the following demonstration: that the site is designed and will be operated so that it does not pose a bird hazard to aircraft. For any new site or a lateral expansion within a five-mile radius of any airport runway end used for turbojet or piston-type aircraft, the plan must show that the Federal Aviation Administration has been notified. For existing landfills located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any runway end used by only piston-type aircraft, the owner or operator must prepare the demonstration required above in this paragraph and notify the director that it has been placed in the facility's official files.

s. When a new landfill or lateral expansion is located within 200 feet of a fault that has had displacement in Holocene time, the plan must contain a notice that the facility's official files will include the following demonstration: that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the site and will be protective of human health and the environment.

t. When a new landfill or a lateral expansion is located in seismic impact zones, the plan must contain a notice that the facility's official files will include the following demonstration: that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in the lithified earth material for the site.

u. When a new facility or lateral expansion is located in an unstable area, the plan must contain a notice that the facility's official files will include the following demonstration: that engineering measures have been incorporated into the site design to ensure that the integrity of the structural components of the

site will not be disrupted. The demonstration must consider the on-site or local soil conditions that may result in significant differential settling, on-site or local geologic or geomorphologic features, and on-site or local human-made features or events (both surface and subsurface). For existing facilities located in an unstable area, the owner or operator must prepare the above demonstration required in this paragraph and notify the director that it has been placed in the facility's official files.

114.26(2) *General operating requirements for all sanitary landfills.* All sanitary landfills shall be operated in conformance with this subrule. The plan submitted shall detail how the sanitary landfill will comply with these requirements.

a. Solid waste shall be unloaded at the operating area only when an operator is on duty at that area. Solid waste may be deposited in storage containers inside the site under the supervision of an attendant or operator.

b. Access to the site shall be restricted, and a gate shall be provided at the entrance to the site and shall be kept locked when an attendant or operator is not on duty.

c. A copy of the permit, engineering plans and reports shall be kept at the site at all times unless the applicant demonstrates to the department that, on the basis of the characteristics of the waste to be handled at the site and the times of operation of the site, such is unnecessary.

d. Sites not open to the public shall have a permanent sign posted at the site entrance specifying:

(1) Name of operation.

(2) The site permit number.

(3) That the site is not open to the public.

(4) The name and telephone number of the responsible official.

e. Solid waste shall not be deposited in such a manner that material or leaching therefrom may cause pollution of groundwater or surface waters.

f. Provision shall be made for an all-weather fill area which is accessible for solid waste disposal during all weather conditions under which solid waste is received and disposed of at the site. Such all-weather areas shall be operated at all times in accordance with Iowa Code chapter 455B and these rules.

g. Provisions shall be made to have cover material available for winter and wet weather operations.

h. Each site shall be graded and provided with drainage facilities to meet the requirements of 114.26(1)*"f"* to minimize flow of surface water onto and into the portion of the site being filled and to prevent soil erosion and ponding of water.

i. The finished surface of the site shall be repaired as required, covered with soil, and seeded with native grasses or other suitable vegetation immediately upon completion or promptly in the spring on areas terminated during winter conditions. If necessary, seeded slopes shall be covered with straw or similar material to prevent erosion.

j. Each sanitary landfill shall be staked as necessary and inspected annually, or as otherwise specified in the permit, by a professional engineer registered in Iowa. A brief report by the engineer indicating areas of conformance or nonconformance with the approved plans and specifications shall be submitted to the department by the permit holder within 30 days of the inspections. In specifying alternate inspection frequencies, the department shall consider the types and quantities of waste disposed of, the rate of development of the site, the degree of control over site development inherent in the design and topography of the site and the quality of prior operation.

k. If any pockets, seams or layers of sand or other highly permeable material are encountered at the sanitary landfill, the permit holder shall promptly notify the department and shall ensure that a professional engineer registered in Iowa has certified that all sands encountered were totally excavated or sealed off properly or otherwise handled as explicitly provided for in the permit before solid waste is disposed of in that area of the site.

l. The total volume of leachate collected for each month shall be recorded, and the elevation of leachate in the landfill shall be provided to the department in accordance with the schedule specified in the permit.

114.26(3) *Hydrologic monitoring system.* The owner or operator of a solid waste disposal facility shall operate and maintain a hydrologic monitoring system which includes a sufficient number of

groundwater monitoring wells and surface water monitoring points to determine the impact, if any, that the sanitary disposal project is having on the adjacent water. The hydrologic monitoring systems shall enable early detection of the escape of pollutants from a sanitary landfill.

The hydrologic monitoring system shall be planned, designed and constructed in accordance with the provisions of rules 114.14(455B) through 114.25(455B) and implemented in accordance with the following schedule:

a. A hydrologic monitoring system plan shall be submitted to the department for review and approval with any application for a new permit. Installation of the approved system shall be completed prior to the deposition of solid waste into the landfill.

b. A hydrologic monitoring system plan shall be submitted with applications for permit renewal, not later than the date of renewal, with completion of installation and operation within one year of approval of the plan. Installation of the plan shall be completed within one year of the date of department approval.

c. Upon notice by the department, a hydrologic monitoring system plan may be required to be submitted within six months of such notification, with completion of installation and operation of the approved plan within one year of the date of department approval.

114.26(4) *Hydrologic monitoring system operating requirements.*

a. *Operational sampling requirements.* All sampling shall be conducted in accordance with an approved sampling protocol, components of which are described in rule 114.20(455B).

b. *Groundwater levels.* The elevation of water in each monitoring well shall be measured monthly and recorded to the nearest 0.01 foot. Level measurements must be made before a well is evacuated for sample collection.

c. *Surface water levels.* The water level or flow rate of each surface water body sampled shall be measured and recorded at the time of sample collection.

d. *First-year water sampling.* During the first year of operation of the hydrologic monitoring system, a sample shall be collected quarterly from each groundwater monitoring well and surface water monitoring point. The purpose of this sample is to determine baseline water quality information and enable initial estimation of water quality variability. Each sample shall be analyzed for the following parameters in addition to the parameters listed in paragraph *"e"* of this subrule and any additional parameter deemed necessary by the department:

(1) Arsenic, dissolved.
(2) Barium, dissolved.
(3) Cadmium, dissolved.
(4) Chromium, total dissolved.
(5) Lead, dissolved.
(6) Mercury, dissolved.
(7) Magnesium, dissolved.
(8) Zinc, dissolved.
(9) Copper, dissolved.
(10) Benzene.
(11) Carbon tetrachloride.
(12) 1,2-Dichloroethane.
(13) Trichloroethylene.
(14) 1,1,1-Trichloroethane.
(15) 1,1-Dichloroethylene.
(16) Paradichlorobenzene.

e. *Routine semiannual water sampling.* After the first year, each monitoring point must be sampled semiannually as specified in the facility's operation permit and analyzed for the following parameters:

(1) Chloride.
(2) Specific conductance (field measurement).
(3) pH (field measurement).

(4) Ammonia nitrogen.
(5) Iron, dissolved.
(6) Chemical oxygen demand.
(7) Temperature (field measurement).
(8) Any additional parameters deemed necessary by the department.

f. *Routine annual water sampling.* One sample per year from each monitoring point collected in a quarter specified in the facility's operation permit must be analyzed for the following parameters:
(1) Total organic halogen.
(2) Phenols.
(3) Any additional parameters deemed necessary by the department.

114.26(5) *Laboratory procedures.* The owner or operator of the solid waste facility must have the groundwater and surface water samples analyzed only by laboratories that are certified by the state of Iowa. Until the department adopts rules regarding certification of laboratories, analyses shall be conducted at a laboratory that certifies to the department that the appropriate analytical procedure is utilized.

All analyses of parameters not covered in the Safe Drinking Water Act (SDWA) must be performed according to methods specified in SW-846 or approved by the United States Environmental Protection Agency. Any analytical method used on non-SDWA parameters deviating from those specified in SW-846 or approved by EPA must be approved by the department.

All analyses must be recorded on forms which, in addition to the analytical results, show the precision of the data set, bias, and limit of detection.

114.26(6) *Analysis of sampling data.* For each parameter analyzed during the first year of operation of the hydrologic monitoring system, as listed in paragraph 114.26(4)*"d"* above, the mean and standard deviation for each upgradient monitoring well shall be determined using the first year of data. For routine semiannual monitoring parameters, as listed in paragraph 114.26(4)*"e"* above, mean and standard deviation shall be recalculated annually using all available analytical data. If the analytical results for a downgradient monitoring point do not fall within the control limits of two standard deviations above the mean parameter(s) level in a corresponding upgradient monitoring point, the owner or operator shall submit this information to the department within 30 days of receipt of the analytical results. If the analytical results from an upgradient monitoring point do not fall within two standard deviations of the mean parameter(s) level for that monitoring point, the department shall also be notified within 30 days.

114.26(7) *Additional sampling.* The department will determine if additional sampling is warranted, after receipt of information indicating a possible release as required in subrule 114.26(6) above. The department may require any additional samples to be split and analyzed to determine if the values obtained outside the control limits were the result of laboratory or sampling error. Any additional analytical results shall be submitted to the department by the owner or operator within seven days of receipt. The department will review the information and determine if additional monitoring or preparation of a groundwater quality assessment plan, in accordance with subrule 114.26(9), is necessary.

114.26(8) *Record keeping and recording.*

a. The persons conducting the sampling must record the procedures, measurements, and observations at the time of sampling. The field records must be sufficient to document whether the procedures and requirements specified in the sampling protocol have been followed. The records must also contain the names of the persons conducting the sampling, the time and date each monitoring point was sampled, and the required field measurement or test result. The owner or operator must submit copies of these field records to the department if requested.

b. The owner or operator shall keep records of analyses and the associated groundwater surface elevations for the active life and postclosure period of the facility. These records shall be kept at the site or in the administrative files of the owner or operator and shall be available for review by the department upon request in the county in which the landfill is located.

c. The owner or operator shall provide the department with copies of the quarterly monitoring analytical results by the dates specified in the facility's operation permit.

d. An annual report summarizing the effect of the facility on groundwater and surface water quality shall be submitted to the department by November 30 each year. The summary is to be prepared by an engineer registered in the state of Iowa and incorporated in the November semiannual engineer inspection report. The contents of this summary are to include the following items:

(1) Amounts and kinds of wastes accepted under Special Waste Authorizations.

(2) A narrative describing the effects of the facility on surrounding surface water and groundwater quality and any changes made or maintenance needed in the monitoring network.

(3) Graphs showing concentrations versus time for all monitoring parameters for each well for as long as records exist for that parameter. Control limits (— two standard deviations from the initial background value) must be shown in each graph.

(4) Results of activities and tests required by the well maintenance and performance reevaluation plan described in rule 114.21(455B).

114.26(9) *Groundwater quality assessment plan.*

a. If leachate migration occurs, the owner or operator, as required by the department, shall develop and submit for approval a specific plan to conduct a groundwater quality assessment study at the facility to determine the rate of migration and the extent and constituent composition of the leachate release. At a minimum, the assessment monitoring plan must contain the following elements:

(1) Discussion of the hydrogeologic conditions at the site with an identification of potential contaminant pathways.

(2) Description of the present detection monitoring system.

(3) A description of the approach the owner or operator will take to substantiate any contention that the contamination may have been falsely indicated.

(4) Description of the investigatory approach used to characterize the rate and extent of leachate migration.

(5) Discussion of the number, location and depth of wells that will be initially installed as well as a strategy for installing more wells in subsequent investigatory phases.

(6) Information on well design and construction.

(7) Description of the sampling and analytical program used to obtain and analyze groundwater monitoring data.

(8) Description of data collection and analysis procedures.

(9) Schedule for the implementation of each phase of the assessment study.

b. After the plan has been approved by the department, the owner or operator shall implement the plan according to the schedule in the plan.

c. Within 90 days after the activities prescribed in the groundwater assessment plan have been completed, the owner or operator shall submit a written groundwater quality assessment report to the department.

d. If the department determines that no waste or waste constituents from the facility have entered the groundwater, the owner or operator shall reinstate the routine monitoring program.

If the department determines that waste or waste constituents have been released from the facility and have entered the groundwater, the owner or operator shall continue to make the determinations described by the assessment plan and develop a remedial action/mitigation plan to alleviate or reduce contamination to the fullest extent possible.

114.26(10) *Postclosure monitoring requirements.*

a. At least six months prior to closing the site, the owner or operator of a sanitary landfill shall submit a plan to the department for approval detailing a 30-year postclosure monitoring program.

b. The department will review the facility's postclosure monitoring records at five-year intervals to determine if changes in the monitoring frequencies or parameters are required.

c. The commission may adopt rules on a site-specific basis identifying additional monitoring requirements for sanitary landfills for which the postclosure monitoring period is to be extended.

114.26(11) *Leachate control systems for new landfills.* Every new landfill must have a leachate collection, storage, and treatment and discharge system in place prior to accepting waste. This system shall be operated in conformance with the approved design during the active life of the site and during the postclosure period.

a. Leachate collection system.

(1) The leachate collection system shall be designed to allow not more than 1 foot of head above the top of the landfill liner. The collection system must include a method for measuring the leachate head in the landfill at the lowest area(s) of the collection system.

(2) The landfill liner must be graded toward the leachate collection pipe at a slope greater than 2 percent, but not to exceed 10 percent. The side slopes of the landfill liner must be less than 25 percent.

(3) A drainage layer must be placed immediately above the landfill liner. This drainage layer shall consist of a minimum of 1 foot of soil with a coefficient of permeability of 1×10^{-3} cm/sec (2.8 ft/day) or greater.

(4) Leachate collection pipe shall be placed in a trench excavated a minimum of 18 inches into the liner. The liner system beneath the trench shall meet the applicable requirements specified under 114.26(1)*"d."*

(5) Leachate collection pipe shall be surrounded by a gravel protection and drainage layer, and by either a graded filter layer or by a geotextile filter fabric.

(6) The collection pipe must be covered with a filter material to encourage flow and to prevent infiltration of fine-grained materials into the pipe. The collection pipe must be perforated or slotted, of a sufficient diameter to handle the expected flow, but not less than 4 inches in inside diameter; capable of being cleaned throughout the active life of the site and during the postclosure period; chemically resistant to the wastes and the expected leachate; and of sufficient strength to support maximum static and dynamic loads imposed by the overlying wastes, cover materials, and equipment used during the construction and operation of the site. Documentation shall be submitted which includes methods and specifications for cleaning of the pipes, chemical compatibility of the pipes, and calculations and specifications for pipe strength.

(7) The leachate collection system shall be equipped with valves to enable the flow of leachate from the facility to be shut off during periods of maintenance.

(8) The leachate collection system shall be cleaned out once every three years, or more frequently if leachate head or the volume of leachate collected indicates cleanout is necessary. A report of the methods and results of the cleanout shall be submitted at the time of permit renewal.

b. Leachate storage system. The leachate storage system must be:

(1) Capable of storing at least seven days' accumulation of leachate based on mathematical simulated volume using average precipitation; and

(2) Constructed of materials which are compatible with the expected leachate; and

(3) Accessible at all times of the year and under all weather conditions.

c. Leachate treatment and disposal system.

(1) Leachate shall be treated by such physical, chemical or biological processes as necessary to meet the pretreatment limits, if any, imposed by a treatment agreement between the landfill and a publicly owned treatment works, or by the effluent discharge limitation established by an NPDES permit issued to the landfill.

(2) Leachate recirculation systems shall be designed to minimize detrimental effects to vegetative cover, to minimize erosion and damage to the soil cover, and to promote rapid stabilization of the waste. Such systems shall not be allowed for sites which do not satisfy all of the requirements of 114.26(11).

(3) All leachate treatment systems, except as described in (2) above, shall conform to wastewater treatment design standards as established by the department.

d. Inspection prior to start-up. The department shall be notified when the initial construction of the leachate collection, storage, and treatment and discharge system has been completed in order that an inspection may be made to determine that the leachate control system is constructed as designed. Prior to

this inspection, construction certification reports from the project engineer must be submitted discussing quality assurance and quality control testing done to ensure that all materials and equipment for the leachate control system have been placed in accordance with the approved engineering plans, reports and specifications. The results of all testing must be included, along with documentation of any failed tests, a description of the procedures used to correct the failures, and results of any retesting performed. This inspection may be incorporated with the inspection required by rule 114.12(455B).

114.26(12) *Leachate control systems for existing landfills.*

a. All existing landfills must submit a leachate control plan, as described in paragraph *"b"* below, when any of the following occur:

(1) At the time of permit renewal;

(2) When requesting a change in the existing permit for expansion or modification of the waste fill area;

(3) Within 180 days of notification by the department of the detection of any leachate seep or contamination of the groundwater or surface waters from leachate; or

(4) At least 180 days prior to landfill closure.

b. The design of the leachate control system must include leachate collection, storage, and treatment and disposal.

(1) New fill areas of a landfill that have not previously received waste must address the design standards of subrules 114.26(1) and 114.26(11).

(2) Existing fill areas must address the design standards of subrule 114.26(11), except paragraph *"a,"* subparagraphs (1) to (4). The leachate collection system must be designed to achieve the lowest possible leachate head above the landfill liner and must include a method of measuring the leachate head.

c. The leachate control plan must be implemented within one year of departmental approval of the leachate control plan.

114.26(13) *Closure requirements.* The owner or operator of the landfill must close the site in a manner that minimizes the potential for postclosure release of pollutants to the air, groundwater or surface waters.

a. A minimum of two permanent surveying monuments must be installed by a registered land surveyor from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the postclosure period.

b. The final cover of a nonmunicipal solid waste landfill shall consist of:

(1) Not less than 2 feet of compacted soil. The permeability must be 1×10^{-7} cm/sec or less as determined by appropriate laboratory analysis. The percent of standard or modified proctor density at moisture content consistent with expected field conditions and corresponding to a measured coefficient of permeability equal to or less than 1×10^{-7} cm/sec shall be determined in the laboratory. The soil shall be placed in lifts not to exceed 8 inches in thickness. A minimum of one field density test shall be performed per lift per acre to verify that the density determined by the laboratory analysis as correlated to permeability has been achieved. Results of field density tests shall be submitted to the department. The compacted soil shall be keyed into the bottom liner at the waste cell boundary.

(2) Not less than 2 feet of uncompacted soil, containing sufficient organic matter to support vegetation. The thickness of this soil layer must be at least the root depth of the planned vegetative cover to prevent root penetration into the underlying soil layers. This layer shall be placed as soon as possible to prevent desiccation, cracking and freezing of the compacted soil layer described in 114.26(13)*"b"*(1).

(3) A layer of compacted soil, incinerator ash, or similar material permitted by the department may be used to prepare the site for placement of the compacted soil layer described in 114.26(13)*"b"*(1). The use of such material will not serve as a replacement for the compacted soil layer described in 114.26(13)*"b"*(1).

(4) Alternate methods and materials may be permitted if shown to provide equal or superior performance.

c. The final cover for a municipal solid waste landfill shall consist of:

(1) An erosion layer underlaid by an infiltration layer. The infiltration layer must be comprised of a minimum of 18 inches of earthen material that has a permeability less than or equal to the permeability

of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less. The erosion layer must consist of a minimum of 6 inches of earthen material that is capable of sustaining native plant growth.

(2) The department may approve an alternate final cover design that includes an infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified above in subparagraph (1) and an erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified above in subparagraph (1).

d. Those portions of existing landfills demonstrating placement of final cover in conformance with previously approved plans and specifications or regulations in effect at the time of such approval shall not be required to apply additional cover solely to achieve compliance with 114.26(13)*"b"* and *"c."* Those areas of existing landfills which have not been completed in conformance with the exemptions provided herein prior to January 15, 2003, shall complete all such areas in conformance with an approved closure plan pursuant to subrule 114.13(10) which shall include compliance with the provisions of 114.26(13)*"b"* and *"c."* This paragraph shall not preclude a requirement to provide additional cover to such exempted areas as a result of the conclusions of a groundwater assessment or remedial action plan.

e. The final cover shall be designed and graded to meet the drainage requirements of 114.26(1)*"f."* The final cover must have a minimum slope of 5 percent, and shall not exceed a slope of 25 percent. Those portions of existing landfills demonstrating placement of final cover in conformance with previously approved plans and specifications shall not be required to reconstruct the cover to meet either the minimum or maximum slope established by this subrule. Those areas which have not been completed by placement of final cover pursuant to this exemption on January 15, 2003, shall be completed in conformance with an approved closure plan pursuant to subrule 114.13(10) and shall meet the minimum and maximum slope requirements stated herein. This subrule shall not preclude a requirement to modify the slope of any portion of the landfill as a result of the conclusion of a groundwater assessment or remedial action plan.

f. The final cover shall be seeded with native grasses or other suitable vegetation as soon as practical upon completion to prevent soil erosion. If seeding must be delayed due to summer or winter conditions, silt fences or other structures shall be used to minimize erosion of the final cover until the next season suitable for planting. The placement of cover in conformance with 114.26(13)*"b"* and *"c"* shall not be delayed due to season and shall be placed as soon as the solid waste has reached its maximum design elevation within the cell. Vegetation type shall be based on density and root depth, nutrient availability, soil thickness, and soil type. Alternatives to vegetative cover may be considered to control erosion and promote runoff.

g. An approved groundwater monitoring system as required by the closure permit and the rules must be in place and operating.

h. An approved leachate collection and treatment system as required by the closure permit and the rules must be in place and operating.

i. An approved landfill gas monitoring and collection or ventilation system as required by the closure permit and the rules must be in place and operating unless determined not to be necessary by the director.

j. An approved financial assurance instrument, adequate to cover costs of all postclosure activities as required by the closure plan and the closure permit, must be provided upon promulgation of the appropriate rules.

k. All requirements of the closure plan, the closure permit, and the rules must be satisfied.

114.26(14) *Postclosure requirements for 30 years following closure of the site.* The owner or operator of the site must comply with all postclosure requirements.

a. The diversion and drainage system as required in 114.26(1)*"f"* must be maintained to approved specifications to prevent run-on and runoff from eroding or otherwise damaging the final cover.

b. The integrity and effectiveness of the final cover must be maintained by making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events. If damage to the

compacted soil layer described in 114.26(13)*"b"*(1) occurs, repairs shall be made to correct the damage and return it to its original specifications.

c. The vegetative cover shall be reseeded as necessary to maintain good vegetative growth. Any invading vegetation whose root system could damage the compacted soil layer shall be removed or destroyed immediately.

d. The groundwater monitoring system shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

e. The leachate collection, removal and treatment systems shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

f. The landfill gas monitoring and collection systems shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

g. Semiannual reports shall be submitted to the department. These reports shall contain information concerning the general conditions at the site, groundwater monitoring results, amount of leachate collected and treated, information concerning the landfill gas monitoring and collection system, and other information as may be required by the closure permit. In addition, locations and elevations of all permanent monuments, required in 114.26(13)*"a,"* shall be determined at least once every three years or more frequently in the event of obvious disturbance of the monument. The reports are due by April 30 and October 31 for the preceding six-month period.

h. The permanent surveying monuments required in 114.26(13)*"a"* shall be maintained.

114.26(15) *Control of explosive gases.*

a. Owners or operators of all sanitary landfills must ensure that:

(1) The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane gas in facility structures (excluding gas control or recovery system components); and

(2) The concentration of methane gas does not exceed the lower explosive limit for methane gas at the facility property boundary.

b. Owners or operators of all sanitary landfills must monitor quarterly for compliance with paragraph *"a"* of this subrule. An annual report shall be submitted by November 30 summarizing the methane gas monitoring results and any action taken resulting from gas levels exceeding the limits during the previous year.

c. If methane gas levels exceeding the limits specified in paragraph *"a"* of this subrule are detected, the owner or operator must:

(1) Immediately take all necessary steps to ensure protection of human health and notify the director;

(2) Within seven days after detection, submit to the director a report stating the methane gas levels detected and a description of the steps taken to protect human health;

(3) Within 60 days of detection, implement a plan for remediation of the methane gas releases and send a copy of the remediation plan to the director. The plan shall describe the nature and extent of the problem and the proposed remedy.

567—114.27(455B) Operating requirements for all sanitary disposal projects. Every application for any permit issued by the department shall detail the means by which the applicant will comply with the following operating requirements. All sanitary disposal projects shall be operated in conformance with these requirements.

114.27(1) Open burning shall be prohibited except when permitted by 567—Chapter 23. Any burning to be conducted at the site shall be at a location that is separate and distinct from the operating area.

114.27(2) Litter shall be confined to the property on which the sanitary disposal project is located. At the conclusion of each day of operation, any litter strewn beyond the confines of the operating area shall be collected and stored in covered leakproof containers or properly disposed of.

114.27(3) Scavenging shall be prohibited. Any salvaging to be conducted must be described in the permit application, and all salvaged materials must be stored and removed from the sanitary disposal project site in conformance with the permit conditions.

114.27(4) Effective means shall be taken to control flies, other insects, rodents and other vermin.

114.27(5) Equipment designated in the plans and specifications or equivalent equipment shall be used to operate the site at all times.

114.27(6) The major internal roads shall be of all-weather construction and maintained in good condition. Dust shall be controlled on internal roads.

114.27(7) Sites open to the public shall have a permanent sign posted at the site entrance specifying:

a. Name of the operation.

b. The site permit number.

c. The hours and days the site is open to the public.

d. The categories of waste which will be accepted for disposal or, as an alternative, the identification of the categories of waste which are prohibited.

e. Telephone number of official responsible for the operation.

114.27(8) Free liquids or waste containing free liquids. No free liquids or waste containing free liquids shall be disposed of in a sanitary landfill.

114.27(9) General closure requirements.

a. The owner or operator shall notify the department in writing at least 180 days prior to closure of the facility or suspension of operations.

b. Notice of closure shall be posted at the facility at least 180 days prior to closure indicating the date of closure and alternative solid waste management facilities. Notice of closure shall also be published at least 180 days prior to closure in a newspaper of local circulation. This notice shall include the date of closure and alternative solid waste management facilities.

c. Implementation of the closure/postclosure plan shall be completed within 90 days of the closure of the facility. The owner and an engineer registered in Iowa shall certify that the closure/postclosure plan has been implemented in compliance with the rules, the closure/postclosure plan and the permit.

d. Upon completion of closure activities, the following documentation shall be submitted: as-built plans showing changes from the original design plans; test results indicating compliance with final cover as applicable, waste removal, equipment decontamination; a copy of the notation filed with the county recorder; and other forms of documentation as required.

567—114.28(455B) Specific requirements for a sanitary landfill proposing to accept only construction and demolition waste.

114.28(1) *Plan requirements.* The plans for sanitary landfills proposing to accept only construction and demolition waste shall include the following information in addition to that required by rules 114.2(455B) through 114.13(455B), 114.27(455B), 114.29(455B) and 114.30(455B) and subrule 114.26(1).

114.28(2) *Specific operating requirements for sanitary landfills proposing to accept only construction and demolition waste.* Sanitary landfills accepting only construction and demolition waste shall be operated in conformance with rules 114.2(455B) through 114.13(455B), 114.27(455B), 114.29(455B) and 114.30(455B), subrule 114.26(2), and this subrule. The plan submitted shall detail how the sanitary landfill will comply with these requirements.

a. Immediately after solid waste is deposited, it shall be uniformly distributed and compacted as densely as practical.

b. The waste shall be covered with a minimum of 1 foot of earth at least once every seven days of operation. The day during which cover will be applied shall be specified in the plan.

c. At least a 2-foot cover of compacted earth shall be applied to any area of the sanitary landfill which will not be utilized for further disposal of solid waste for more than two months. The cover shall be graded to allow surface water runoff.

d. The final cover shall be consistent with the proposed land use but in no event shall the cover be less than 2 feet.

567—114.29(455B) Operator certification. Sanitary landfill operators and solid waste incinerator operators shall be trained, tested, and certified by a department-approved certification program.

114.29(1) A sanitary landfill operator or a solid waste incinerator operator shall be on duty during all hours of operation of a sanitary landfill or solid waste incinerator, consistent with the respective certification.

114.29(2) To become a certified operator, an individual shall complete a basic operator training course that has been approved by the department or an alternative, equivalent training approved by the department and shall pass a departmental examination as specified by this rule. An operator certified by another state may have reciprocity subject to approval by the department.

114.29(3) A sanitary landfill operator certification or solid waste incinerator operator certification is valid until June 30 of the following even-numbered year.

114.29(4) Basic operator training course.

a. The required basic operator training course for a certified sanitary landfill operator will have at least 25 contact hours and will address the following areas, at a minimum:

(1) Description of types of wastes;
(2) Interpreting and using engineering plans;
(3) Construction surveying techniques;
(4) Waste decomposition processes;
(5) Geology and hydrology;
(6) Landfill design;
(7) Landfill operation;
(8) Environmental monitoring;
(9) Applicable laws and regulations;
(10) Permitting processes;
(11) Leachate control and treatment.

b. The required basic operator training course for a certified solid waste incinerator operator will have at least 12 contact hours and will address the following areas, at a minimum:

(1) Description of types of wastes;
(2) Incinerator design;
(3) Interpreting and using engineering plans;
(4) Incinerator operations;
(5) Environmental monitoring;
(6) Applicable laws and regulations;
(7) Permitting processes;
(8) Incinerator maintenance;
(9) Ash and residue disposal.

114.29(5) Alternate basic operator training must be approved by the department. It shall be the applicant's responsibility to submit any documentation the department may require to evaluate the equivalency of alternate training.

114.29(6) Fees.

a. The examination fee for each examination shall be $20.

b. The initial certification fee shall be $8 for each one-half year of a two-year period from the date of issuance to June 30 of the next even-numbered year.

c. The certification renewal shall be $24.

d. The penalty fee shall be $12.

114.29(7) Examinations.

a. The operator certification examinations will be based on the basic operator training course curriculum.

b. All persons wishing to take the examination required to become a certified operator of a sanitary landfill or a solid waste incinerator shall complete the Operator Certification Examination Application, Form 542-1354. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate the basic operator training course taken.

Evidence of training course completion must be submitted with the application for certification. The completed application and the application fee shall be sent to the director and addressed to the central office in Des Moines. Application for examination must be received by the department at least 30 days prior to the date of examination.

c. A properly completed application for examination will be valid for one year from the date the application is approved by the department.

d. Upon failure of the first examination, the applicant may be reexamined at the next scheduled examination. Upon failure of the second examination, the applicant shall be required to wait a period of 180 days between each subsequent examination.

e. Upon each reexamination when a valid application is on file, the applicant shall submit to the department the examination fee at least ten days prior to the date of examination.

f. Failure to successfully complete the examination within one year from the date of approval of the application shall invalidate the application.

g. Completed examinations will be retained by the director for a period of one year after which they will be destroyed.

h. Oral examinations may be given at the discretion of the department.

114.29(8) Certification.

a. All operators who passed the operator certification examination by July 1, 1991, are exempt from taking the required operator training course. Beginning July 1, 1991, all operators will be required to take the basic operator training course and pass the examination in order to become certified.

b. Application for certification must be received by the department within 30 days of the date the applicant receives notification of successful completion of the examination. All applications for certification shall be made on a form provided by the department and shall be accompanied by the certification fee.

c. Applications for certification by examination which are received more than 30 days but less than 60 days after notification of successful completion of the examination shall be accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days of notice of successful completion of the examination will not be certified on the basis of that examination.

d. For applicants who have been certified under other state mandatory certification programs, the equivalency of which has been previously reviewed and accepted by the department, certification without examination will be recommended.

e. For applicants who have been certified under voluntary certification programs in other states, certification will be considered. The applicant must have successfully completed a basic operator training course and an examination generally equivalent to the Iowa examination. The director may require the applicant to successfully complete the Iowa examination.

f. Applicants who seek Iowa certification pursuant to 114.29(8)*"d"* or *"e"* shall submit an application for examination accompanied by a letter requesting certification pursuant to those paragraphs. Application for certification pursuant to those paragraphs shall be received by the director in accordance with 114.29(8)*"a"* and *"b."*

114.29(9) Renewals. All certificates shall expire every two years, on even-numbered years, and must be renewed every two years to maintain certification. Application and fee are due prior to expiration of certification.

a. Late application for renewal of a certificate may be made provided that such late application shall be received by the director or postmarked within 30 days of the expiration of the certificate. Such late application shall be on forms provided by the department and accompanied by the penalty fee and the certification renewal fee.

b. If a certificate holder fails to apply for renewal within 30 days following expiration of the certificate, the right to renew the certificate automatically terminates. Certification may be allowed at any time following such termination, provided that the applicant successfully completes an examination. The applicant must then apply for certification in accordance with subrule 114.29(8).

c. An operator may not continue to operate a sanitary landfill or solid waste incinerator after expiration of a certificate without renewal thereof.

d. Continuing education must be earned during the two-year certification period. All certified operators must earn ten contact hours per certificate during each two-year period. The two-year period will begin upon issuance of certification.

e. Only those operators fulfilling the continuing education requirements before the end of each two-year period will be allowed to renew their certificates. The certificates of operators not fulfilling the continuing education requirements shall be void upon expiration, unless an extension is granted.

f. All activities for which continuing education credit will be granted must be related to the subject matter of the particular certificate to which the credit is being applied.

g. The director may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to three months within which the applicant may fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator which prevent attendance at the required activities. All requests for extensions must be made 60 days prior to expiration of certification.

h. The certified operator is responsible for notifying the department of the continuing education credit earned during the period. The continuing education credits earned during the period shall be shown on the application for renewal.

i. A certified operator shall be deemed to have complied with the continuing education requirements of this rule during periods that the operator serves honorably on active duty in the military service; or for periods that the operator is a resident of another state or district having a continuing education requirement for operators and meets all the requirements of that state or district for practice there; or for periods that the person is a government employee working as an operator and is assigned to duty outside of the United States; or for other periods of active practice and absence from the state as approved by the department.

114.29(10) Discipline of certified operators.

a. Disciplinary action may be taken on any of the following grounds:

(1) Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified operator. Duties of certified operators include compliance with rules and permit conditions applicable to landfill or incinerator operation.

(2) Failure to submit required records of operation or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

(3) Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

b. Disciplinary sanctions allowable are:

(1) Revocation of a certificate.

(2) Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional education or training or reexamination may be required as a condition of probation.

c. The procedure for discipline is as follows:

(1) The director shall initiate disciplinary action. The commission may direct that the director investigate any alleged factual situation that may be grounds for disciplinary action under 114.29(10)*"a"* and report the results of the investigation to the commission.

(2) A disciplinary action may be prosecuted by the director.

(3) Written notice shall be given to an operator against whom disciplinary action is being considered. The notice shall state the informal and formal procedures available for determining the matter. The operator shall be given 20 days to present any relevant facts and indicate the operator's position in the matter and to indicate whether informal resolution of the matter may be reached.

(4) An operator who receives notice shall communicate verbally, in writing, or in person with the director, and efforts shall be made to clarify the respective positions of the operator and director.

(5) The applicant's failure to communicate facts and position relevant to the matter by the required date may be considered when determining appropriate disciplinary action.

(6) If agreement as to appropriate disciplinary sanction, if any, can be reached with the operator and the commission concurs, a written stipulation and settlement between the department and the operator shall be entered. The stipulation and settlement shall recite the basic facts and violations alleged, any facts brought forth by the operator, and the reasons for the particular sanctions imposed.

(7) If an agreement as to appropriate disciplinary action, if any, cannot be reached, the director may initiate formal hearing procedures. Notice and formal hearing shall be in accordance with 567—Chapter 7 related to contested and certain other cases pertaining to license discipline.

114.29(11) Revocation of certificates. Upon revocation of a certificate, application for certification may be allowed after two years from the date of revocation. Any such applicant must successfully complete an examination and be certified in the same manner as a new applicant.

114.29(12) A temporary operator of a sanitary landfill or solid waste incinerator may be designated for a period of six months when an existing certified operator is no longer available to the facility. The facility must make application to the department, explain why a temporary certification is needed, identify the temporary operator, and identify the efforts which will be made to obtain a certified operator. A temporary operator designation shall not be approved for greater than a six-month period except for extenuating circumstances. In any event, not more than one six-month extension to the temporary operator designation may be granted. Approval of a temporary operator designation may be rescinded for cause as set forth in 114.29(10).

567—114.30(455B) Emergency response and remedial action plans.

114.30(1) *Purpose.* The purpose of this rule is to implement Iowa Code section 455B.306(6)*"d"* by providing the criteria for developing a detailed emergency response and remedial action plan (ERRAP) for permitted sanitary disposal projects.

114.30(2) *Applicability.* The requirements of this rule apply to the owners or operators of all sanitary landfills.

114.30(3) *Submittal requirements.*

a. The owner or operator of facilities that are subject to this rule and have been permitted prior to October 24, 2001, shall submit a complete detailed ERRAP that meets the requirements set forth in this rule no later than December 31, 2001.

b. Applications for a new permit after October 24, 2001, shall incorporate a complete detailed ERRAP that meets the requirements set forth in this rule.

c. An updated ERRAP that meets the requirements of this rule shall be submitted at the time of each permit renewal or permit reissuance application that is due after December 31, 2001.

d. An updated ERRAP shall be included with any request for permit modification to incorporate a facility expansion or significant changes in facility operation that require modification of the currently approved ERRAP.

e. Facilities that submitted an ERRAP meeting the requirements defined under Iowa Code section 455B.306(6)*"d"* by May 1, 2001, including regional collection centers that, prior to this date, have met the contingency plan submittal requirement described in 567—Chapter 211, and were approved by the department prior to October 24, 2001, are not required to submit an updated ERRAP that meets the requirements of this rule until the next permit renewal application due date after December 31, 2001.

f. Three sets of ERRAP documents shall be submitted for department approval.

114.30(4) *Content.* The content of ERRAP documents shall be concise and readily usable as a reference manual by facility managers and operators during emergency conditions. The ERRAP document content shall address at least the following primary issues in detail, unless project conditions render the specific issue as not applicable. The rationale for exclusion of any issue areas that are determined not to be applicable must be provided in either the body of the plan or as a supplement to facilitate department review. Additional emergency response and remedial action plan requirements unique to the facility shall be addressed, as applicable.

a. *Facility information.*

(1) Permitted agency.

(2) DNR permit number.

(3) Facility description.
(4) Responsible official and contact information.
(5) Project location.
(6) Site and environs map.
b. Regulatory requirements.
(1) Iowa Code section 455B.306(6)*"d"* criteria citation.
(2) Reference to provisions of the permit.
c. Emergency conditions—response activities—remedial action.
(1) Failure of utilities.
1. Short-term (48 hours or less).
2. Long-term (over 48 hours).
(2) Weather-related events.
1. Tornado.
2. Windstorms.
3. Intense rainstorms and erosion.
4. Lightning strikes.
5. Flooding.
6. Event and postevent conditions.
(3) Fire and explosions.
1. Waste materials.
2. Buildings and site.
3. Equipment.
4. Fuels.
5. Utilities.
6. Facilities.
7. Working area.
8. Hot loads.
9. Waste gases.
10. Evacuation.
(4) Regulated waste spills and releases.
1. Waste materials.
2. Leachate.
3. Waste gases.
4. Waste stockpiles and storage facilities.
5. Waste transport systems.
6. Litter and airborne particulates.
7. Site drainage systems.
8. Off-site releases.
(5) Hazardous material spills and releases.
1. Load check control points.
2. Mixed waste deliveries.
3. Fuels.
4. Waste gases.
5. Site drainage systems.
6. Off-site releases.
(6) Mass movement of land and waste.
1. Earthquakes.
2. Slope failure.
3. Waste shifts.
4. Waste subsidence.
(7) Emergency and release notifications and reporting.
1. Federal agencies.

2. State agencies.
3. County and city agencies.
4. News media.
5. Public and private facilities with special populations within five miles.
6. Emergency response agencies and contact information.
7. Reporting requirements and forms.

(8) Emergency waste management procedures.
1. Communications.
2. Temporary discontinuation of services—short- and long-term.
3. Facilities access and rerouting.
4. Waste acceptance.
5. Wastes in process.

(9) Primary emergency equipment inventory.
1. Major equipment.
2. Fire hydrants and water sources.
3. Off-site equipment resources.

(10) Emergency aid.
1. Responder contacts.
2. Medical services.
3. Contracts and agreements.

(11) ERRAP training requirements.
1. Training providers.
2. Employee orientation.
3. Annual training updates.
4. Training completion and record keeping.

(12) Reference tables, figures and maps.

567—114.31(455B) Construction and demolition wastes sanitary landfill financial assurance.

114.31(1) *Purpose.* The purpose of this rule is to implement Iowa Code sections 455B.304(8) and 455B.306(9) by providing the criteria for establishing financial assurance for closure, postclosure and corrective action at construction and demolition wastes sanitary landfills (CND landfills).

114.31(2) *Applicability.* The requirements of this rule apply to all owners and operators of CND landfills accepting waste as of October 31, 2007, except owners or operators that are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.

114.31(3) *Financial assurance for closure.* The owner or operator of a CND landfill must establish financial assurance for closure in accordance with the criteria in this rule. The owner or operator must provide continuous coverage for closure until released from this requirement by demonstrating compliance with subrules 114.26(13) and 114.13(10). Proof of compliance pursuant to paragraphs 114.31(3)*"a"* to *"e"* must be submitted by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit the current version of department Form 542-8090, Sanitary Landfill Financial Assurance Report Form, which contains, but is not limited to, the amount of the financial assurance, the annual financial statement required by Iowa Code sections 455B.306(9)*"e"* and 455B.306(7)*"c,"* and the current balances of the closure and postclosure accounts at the time of submittal as required by Iowa Code section 455B.306(9)*"b."*

b. The owner or operator shall submit a copy of the financial assurance instruments or the documents establishing the financial assurance instruments in an amount equal to or greater than the amount specified in subrule 114.31(9). Documentation for the mechanism(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in paragraphs 114.31(6)*"a"* to *"i."*

c. The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to close the CND landfill in

accordance with the closure plan as required by subrules 114.26(13) and 114.13(10). Such estimate must be available at any time during the active life of the landfill.

(1) The cost estimate must equal the cost of closing the CND landfill at any time during the permitted life of the facility when the extent and manner of its operation would make closure the most expensive.

(2) The costs contained in the third-party estimate for closure must be accurate and reasonable when compared to the cost estimates used by other similarly situated landfills in Iowa.

(3) During the active life of the landfill, the owner or operator must annually adjust the closure cost estimate for inflation.

(4) The owner or operator must, annually or at the time of application for a permit amendment that increases closure costs, whichever occurs first, increase the closure cost estimate and the amount of financial assurance provided if changes to the closure plan or CND landfill conditions increase the maximum cost of closure at any time during the remaining active life of the facility.

(5) The owner or operator may reduce the amount of financial assurance for closure if the most recent estimate of the maximum cost of closure at any time during the active life of the facility is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the closure cost estimate and the updated documentation required by paragraphs 114.31(3)*"a"* to *"e"* and receive department approval for the reduction. Approval or denial shall be issued within 30 days of receipt of the reduction request.

(6) The third-party estimate submitted to the department must include the site area subject to closure and must account for at least the following factors determined by the department to be minimal necessary costs for closure:

1. Closure and postclosure plan document revisions;
2. Site preparation, earthwork and final grading;
3. Drainage control culverts, piping and structures;
4. Erosion control structures, sediment ponds and terraces;
5. Final cap construction;
6. Cap vegetation soil placement;
7. Cap seeding, mulching and fertilizing;
8. Monitoring well, piezometer and gas control modifications;
9. Leachate system cleanout and extraction well modifications;
10. Monitoring well installations and abandonments;
11. Facility modifications to effect closed status;
12. Engineering and technical services;
13. Legal, financial and administrative services; and
14. Closure compliance certifications and documentation.

d. For publicly owned CND landfills, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa.

e. Privately held CND landfills shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by a certified public accountant to determine whether the privately owned landfill is in compliance with this rule. The affidavit shall state the name of the certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

114.31(4) *Financial assurance for postclosure.* The owner or operator of a CND landfill must establish financial assurance for the costs of postclosure in accordance with the criteria in this rule. The owner or operator must provide continuous coverage for postclosure until released from this requirement by demonstrating compliance with the postclosure plan and the closure permit. Proof of compliance pursuant to paragraphs 114.31(4)*"a"* to *"e"* must be submitted by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit the current version of department Form 542-8090, Sanitary Landfill Financial Assurance Report Form, which contains, but is not limited to, the amount of the

financial assurance, the annual financial statement required by Iowa Code sections 455B.306(9)*"e"* and 455B.306(7)*"c,"* and the current balances of the closure and postclosure accounts required by Iowa Code section 455B.306(9)*"b."*

b. The owner or operator shall submit a copy of the documents establishing a financial assurance instrument in an amount equal to or greater than the amount specified in subrule 114.31(9). Documentation for the mechanism(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in paragraphs 114.31(6)*"a"* to *"i."*

c. The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to conduct postclosure for the CND landfill in compliance with the postclosure plan developed pursuant to subrules 114.26(14) and 114.13(10). The cost estimate must account for the total cost of conducting postclosure, as described in the plan, for the entire postclosure period.

(1) The cost estimate for postclosure must be based on the most expensive costs during the entire postclosure period.

(2) The costs contained in the third-party estimate for postclosure must be accurate and reasonable when compared to the cost estimates used by other similarly situated landfills in Iowa.

(3) During the active life of the CND landfill and during the postclosure period, the owner or operator must annually adjust the postclosure cost estimate for inflation.

(4) The owner or operator must, annually or at the time of application for a permit amendment that increases postclosure costs, whichever occurs first, increase the estimate and the amount of financial assurance provided if changes in the postclosure plan or CND landfill conditions increase the maximum cost of postclosure.

(5) The owner or operator may reduce the amount of financial assurance for postclosure if the most recent estimate of the maximum cost of postclosure beginning at any time during the active life of the facility is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the postclosure cost estimate and the updated documentation required by paragraphs 114.31(4)*"a"* to *"e"* and must receive department approval for the reduction. Approval or denial shall be issued within 30 days of receipt of the reduction request.

(6) The third-party estimate submitted to the department must include the site area subject to postclosure and must account for at least the following factors determined by the department to be minimal necessary costs for postclosure:

1. General site facilities, access roads and fencing maintenance;
2. Cap and vegetative cover maintenance;
3. Drainage and erosion control systems maintenance;
4. Groundwater to waste separation systems maintenance;
5. Gas control systems maintenance;
6. Gas control systems monitoring and reports;
7. Groundwater and surface water monitoring systems maintenance;
8. Groundwater and surface water quality monitoring and reports;
9. Groundwater monitoring systems performance evaluations and reports;
10. Leachate control systems maintenance;
11. Leachate management, transportation and disposal;
12. Leachate control systems performance evaluations and reports;
13. Facility inspections and reports;
14. Engineering and technical services;
15. Legal, financial and administrative services; and
16. Financial assurance, accounting, audits and reports.

d. For publicly owned CND landfills, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa.

e. Privately held CND landfills shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by a certified public accountant to determine whether the privately owned landfill is in compliance with this rule. The affidavit shall state the name of the certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

114.31(5) *Financial assurance for corrective action.*

a. An owner or operator required to undertake corrective action pursuant to subrules 114.26(4) to 114.26(9), inclusive, must have a detailed written estimate prepared by an Iowa-licensed professional engineer, in current dollars, of the cost of hiring a third party to perform the required corrective action. The estimate must account for the total costs of the activities described in the approved corrective action plan for the entire corrective action period. The owner or operator must submit to the department the estimate and financial assurance documentation within 30 days of department approval of the corrective action plan.

(1) The owner or operator must annually adjust the estimate for inflation until the corrective action plan is completed.

(2) The owner or operator must increase the cost estimate and the amount of financial assurance provided if changes in the corrective action plan or CND landfill conditions increase the maximum cost of corrective action.

(3) The owner or operator may reduce the amount of the cost estimate and the amount of financial assurance provided if the estimate exceeds the maximum remaining costs of the remaining corrective action. The owner or operator must submit to the department the justification for the reduction of the cost estimate and documentation of financial assurance.

b. The owner or operator of a CND landfill required to undertake a corrective action plan must establish financial assurance for the most recent corrective action plan by one of the mechanisms prescribed in subrule 114.31(6). The owner or operator must provide continuous coverage for corrective action until released from financial assurance requirements by demonstrating compliance with the following:

(1) Upon completion of the remedy, the owner or operator must submit to the department a certification of compliance with the approved corrective action plan. The certification must be signed by the owner or operator and by an Iowa-licensed professional engineer.

(2) Upon department approval of completion of the corrective action remedy, the owner or operator shall be released from the requirements for financial assurance for corrective action.

114.31(6) *Allowable financial assurance mechanisms.* The mechanisms used to demonstrate financial assurance as required by Iowa Code section 455B.306(9)*"a"* must ensure that the funds necessary to meet the costs of closure, postclosure, and corrective action for known releases will be available whenever the funds are needed. Owners or operators must choose from options in paragraphs 114.31(6)*"a"* to *"i."*

a. Trust fund.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by establishing a trust fund which conforms to the requirements of this subrule. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. A copy of the trust agreement must be submitted pursuant to subrules 114.31(3), 114.31(4), and 114.31(5) and placed in the facility's official files.

(2) Payments into the trust fund must be made annually by the owner or operator over ten years or over the remaining life of the CND landfill, whichever is shorter, in the case of a trust fund for closure or postclosure; or over one-half of the estimated length of the corrective action plan in the case of a response to a known release. This period is referred to as the pay-in period.

(3) For a trust fund used to demonstrate financial assurance for closure and postclosure, the first payment into the fund must be at least equal to the amount specified in subrule 114.31(9) for closure or postclosure divided by the number of years in the pay-in period as defined in subparagraph 114.31(6)*"a"*(2). The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{CE - CB}{Y}$$

where CE is the amount specified in subrule 114.31(9) for closure or postclosure (updated for inflation or other changes), CB is the current balance of the trust fund, and Y is the number of years remaining in the pay-in period.

(4) For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action divided by the number of years in the corrective action pay-in period as defined in subparagraph 114.31(6)*"a"*(2). The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{RB - CV}{Y}$$

where RB is the most recent estimate of the required trust fund balance for corrective action, which is the total cost that will be incurred during the second half of the corrective action period, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(5) The initial payment into the trust fund must be made before the initial receipt of waste or within 30 days of close of the first fiscal year that begins after October 31, 2007, in the case of existing facilities; before the cancellation of an alternative financial assurance mechanism in the case of closure and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department.

(6) The owner or operator or another person authorized to conduct closure, postclosure, or corrective action activities may request reimbursement from the trustee for these expenditures, including partial closure, as the expenditures are incurred. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, postclosure, or corrective action and if justification and documentation of the costs are placed in the operating record. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that reimbursement has been received.

(7) The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternative financial assurance as specified in this rule or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

(8) After the pay-in period has been completed, the trust fund shall be adjusted annually to correct any deficiency of the fund with respect to the adjusted cost estimate and may be adjusted annually should the balance in the fund exceed the adjusted cost estimate.

b. Surety bond guaranteeing payment or performance.

(1) An owner or operator may demonstrate financial assurance for closure or postclosure by obtaining a payment or performance surety bond which conforms to the requirements of this subrule. An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond which conforms to the requirements of this subrule. The bond must be effective before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department. The owner or operator must submit a copy of the bond to the department and keep a copy in the facility's official files. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. The state shall not be considered a party to the surety bond.

(2) The penal sum of the bond must be in an amount at least equal to the amount specified in subrule 114.31(9) for closure and postclosure or corrective action, whichever is applicable.

(3) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond and also upon notice from the department pursuant to subparagraph 114.31(6)*"b"*(6).

(4) The owner or operator must establish a standby trust fund. The standby trust fund must meet the requirements of paragraph 114.31(6)*"a"* except the requirements for initial payment and subsequent annual payments specified in subparagraphs 114.31(6)*"a"*(2) to (5).

(5) Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund. Payments from the trust fund must be approved by the trustee and the department.

(6) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice from the surety of withdrawal of the cancellation, or proof of a deposit into the standby trust fund of a sum equal to the amount of the bond. If the owner or operator has not complied with this subparagraph within the 60-day time period, this shall constitute a failure to perform, and the department shall notify the surety, prior to the expiration of the 120-day notice period, that such a failure has occurred.

(7) The bond must be conditioned upon faithful performance by the owner or operator of all closure, postclosure, or corrective action requirements of the Code of Iowa and this rule. A failure to comply with subparagraph 114.31(6)*"b"*(6) shall also constitute a failure to perform under the terms of the bond.

(8) Liability under the bond shall be for the duration of the operation and the closure and postclosure periods.

(9) The owner or operator may cancel the bond only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

c. Letter of credit.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph. The letter of credit must be effective before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or no later than 120 days after the corrective action plan is approved by the department. The owner or operator must submit to the department a copy of the letter of credit and place a copy in the facility's official files. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year in an amount at least equal to the amount specified in subrule 114.31(9) for closure, postclosure, or corrective action, whichever is applicable. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into the closure and postclosure accounts established pursuant to Iowa Code section 455B.306(9)*"b."* If the owner or operator has not complied with this subparagraph within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the closure and postclosure accounts established by the owner or operator pursuant to Iowa Code section 455B.306(9)*"b."* The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

(4) The owner or operator may cancel the letter of credit only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

d. Insurance.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action by obtaining insurance which conforms to the requirements of this paragraph. The insurance must be effective before the initial receipt of waste or prior to cancellation of an alternative financial assurance, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department. At a minimum, the insurer must be licensed to transact the business of insurance or be eligible to provide insurance as an excess or surplus lines insurer in one or more states. The owner or operator must submit to the department a copy of the insurance policy and retain a copy in the facility's official files.

(2) The closure or postclosure insurance policy must guarantee that funds will be available to close the CND landfill whenever final closure occurs or to provide postclosure for the CND landfill whenever the postclosure period begins, whichever is applicable. The policy must also guarantee that once closure or postclosure begins, the insurer will be responsible for the paying out of funds to the owner or operator or another person authorized to conduct closure or postclosure, up to an amount equal to the face amount of the policy.

(3) The insurance policy must be issued for a face amount at least equal to the amount specified in subrule 114.31(9) for closure, postclosure, or corrective action, whichever is applicable. The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) An owner or operator or another person authorized to conduct closure or postclosure may receive reimbursements for closure or postclosure expenditures, including partial closure, as applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or postclosure, and if justification and documentation of the cost are placed in the operating record. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that the reimbursement has been received.

(5) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

(6) The insurance policy must provide that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice from the insurer of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the insurance coverage into the closure and postclosure accounts established pursuant to Iowa Code section 455B.306(9)*"b."* If the owner or operator has not complied with this subparagraph within the 60-day time period, this shall constitute a failure to perform and shall be a covered event pursuant to the terms of the insurance policy. A failure by the owner or operator to comply with this subparagraph within the 60-day period shall make the insurer liable for the closure and postclosure costs of the covered facility up to the amount of the policy limits, which shall be equal to the most recently submitted cost estimates.

(7) For insurance policies providing coverage for postclosure, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate

or of the equivalent coupon-issue yield announced by the U.S. Department of the Treasury for 26-week treasury securities.

(8) The owner or operator may cancel the insurance only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

e. Corporate financial test. An owner or operator that satisfies the requirements of this paragraph may demonstrate financial assurance up to the amount specified below:

(1) Financial component. The owner or operator must satisfy the requirements of numbered paragraphs 114.31(6)*"e"*(1)"1," "2," and "3" to meet the financial component of the corporate financial test.

1. The owner or operator must satisfy one of the following three conditions:

- A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or
- A ratio of less than 1.5 comparing total liabilities to net worth (net worth calculations may not include future permitted capacity of the subject landfill as an asset); or
- A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities;

2. The tangible net worth, excluding future permitted capacity of the subject landfill, of the owner or operator must be greater than:

- The sum of the current closure, postclosure, and corrective action cost estimates and any other environmental obligations, including guarantees, covered by this financial test plus $10 million except as provided in the second bulleted paragraph of numbered paragraph 114.31(6)*"e"*(1)"2"; or
- Net worth of $10 million, excluding future permitted capacity of the subject landfill, plus the amount of any guarantees that have not been recognized as liabilities on the financial statements, provided that all of the current closure, postclosure, and corrective action costs and any other environmental obligations covered by a financial test are recognized as liabilities on the owner's or operator's audited financial statements, and subject to the approval of the department; and

3. The owner or operator must have, located in the United States, assets, excluding future permitted capacity of the subject landfill, amounting to at least the sum of current closure, postclosure, and corrective action cost estimates and any other environmental obligations covered by a financial test as described in subparagraph 114.31(6)*"e"*(5).

(2) Record-keeping and reporting requirements. The owner or operator must submit the following records to the department and place a copy in the facility's official files prior to the initial receipt of solid waste or cancellation of an alternative financial assurance instrument, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department:

1. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a financial test including, but not limited to, cost estimates required by subrules 114.31(3) to 114.31(5); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
- Provides evidence demonstrating that the owner or operator meets the conditions of subparagraph 114.31(6)*"e"*(1).

2. A copy of the independent certified public accountant's unqualified opinion of the owner's or operator's financial statements for the latest completed fiscal year. To be eligible to use the financial test, the owner's or operator's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this mechanism. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the

corporate financial test, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

3. If the certified public accountant's letter providing evidence of financial assurance includes financial data which shows that the owner or operator satisfies subparagraph 114.31(6)*"e"*(1) but which differs from data in the audited financial statements referred to in numbered paragraph 114.31(6)*"e"*(2)"2," then a special report from the owner's or operator's independent certified public accountant to the owner or operator is required. The special report shall be based upon an agreed-upon procedures engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the certified public accountant's letter derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of that comparison, and the reasons for any differences.

4. If the certified public accountant's letter provides a demonstration that the owner or operator has assured for environmental obligations as provided in the second bulleted paragraph of numbered paragraph 114.31(6)*"e"*(2)"1," then the letter shall include a report from the independent certified public accountant that verifies that all of the environmental obligations covered by a financial test have been recognized as liabilities on the audited financial statements and that documents how these obligations have been measured and reported and verifies that the tangible net worth of the owner or operator is at least $10 million plus the amount of any guarantees provided.

(3) The owner or operator may cease the submission of the information required by paragraph 114.31(6)*"e"* only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

(4) The department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of subparagraph 114.31(6)*"e"*(1), require the owner or operator to provide reports of its financial condition in addition to or including current financial test documentation as specified in subparagraph 114.31(6)*"e"*(2). If the department finds that the owner or operator no longer meets the requirements of subparagraph 114.31(6)*"e"*(1), the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

(5) Calculation of costs to be assured. When calculating the current cost estimates for closure, postclosure, corrective action, or the sum of the combination of such costs to be covered, and any other environmental obligations assured by a financial test referred to in paragraph 114.31(6)*"e,"* the owner or operator must include cost estimates required for subrules 114.31(3) to 114.31(5); cost estimates for municipal solid waste management facilities pursuant to 40 CFR Section 258.74; and cost estimates required for the following environmental obligations, if the owner or operator assures those environmental obligations through a financial test: obligations associated with UIC facilities under 40 CFR Part 144, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265.

f. Local government financial test. An owner or operator that satisfies the requirements of this paragraph may demonstrate financial assurance up to the amount specified below:

(1) Financial component.

1. The owner or operator must satisfy one of the following requirements:

- If the owner or operator has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the owner or operator must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or
- The owner or operator must satisfy both of the following financial ratios based on the owner's or operator's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

2. The owner or operator must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state

of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

3. A local government is not eligible to assure its obligations in paragraph 114.31(6)*"f"* if it:

- Is currently in default on any outstanding general obligation bonds; or
- Has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or
- Operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or
- Receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement as required under numbered paragraph 114.31(6)*"f"*(1)"2." A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism.

4. The following terms used in this paragraph are defined as follows:

"Cash plus marketable securities" means all the cash plus marketable securities held by the local government on the last day of a fiscal year, excluding cash and marketable securities designated to satisfy past obligations such as pensions.

"Debt service" means the amount of principal and interest due on a loan in a given time period, typically the current year.

"Deficit" means total annual revenues minus total annual expenditures.

"Total expenditures" means all expenditures, excluding capital outlays and debt repayment.

"Total revenues" means revenues from all taxes and fees excluding revenue from funds managed by local government on behalf of a specific third party and does not include the proceeds from borrowing or asset sales.

(2) Public notice component. The local government owner or operator must include disclosure of the closure and postclosure costs assured through the financial test in its next annual audit report prior to the initial receipt of waste at the facility or prior to cancellation of an alternative financial assurance mechanism, whichever is later. A reference to corrective action costs must be placed in the next annual audit report after the corrective action plan is approved by the department. For the first year the financial test is used to assure costs at a particular facility, the reference may instead be placed in the facility's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure and postclosure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(3) Record-keeping and reporting requirements.

1. The local government owner or operator must submit to the department the following items:

- A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by a financial test, as described in subparagraph 114.31(6)*"f"*(4); that provides evidence and certifies that the local government meets the conditions of numbered paragraphs 114.31(6)*"f"*(1)"1," "2," and "3"; and that certifies that the local government meets the conditions of subparagraphs 114.31(6)*"f"*(2) and (4); and
- The local government's annual financial report indicating compliance with the financial ratios required by numbered paragraph 114.31(6)*"f"*(1)"1," second bulleted paragraph, if applicable, and the requirements of numbered paragraph 114.31(6)*"f"*(1)"2" and the third and fourth bulleted paragraphs of numbered paragraph 114.31(6)*"f"*(1)"3," and also indicating that the requirements of Governmental Accounting Standards Board Statement 18 have been met.

2. The items required in numbered paragraph 114.31(6)*"f"*(3)"1" must be submitted to the department and placed in the facility's official files prior to the receipt of waste or prior to the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or, in the case of corrective action, not later than 120 days after the corrective action plan is approved by the department

3. After the initial submission of the required items and their placement in the facility's official files, the local government owner or operator must update the information and place the updated

information in the facility's official files within 180 days following the close of the owner's or operator's fiscal year.

4. The owner or operator may cease the submission of the information required by paragraph 114.31(6)*"f"* only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

5. A local government must satisfy the requirements of the financial test at the close of each fiscal year. If the local government owner or operator no longer meets the requirements of the local government financial test, the local government must, within 180 days following the close of the owner's or operator's fiscal year, obtain alternative financial assurance that meets the requirements of this rule, place the required submissions for that assurance in the operating record, and notify the department that the owner or operator no longer meets the criteria of the financial test and that alternative financial assurance has been obtained.

6. The department, based on a reasonable belief that the local government owner or operator may no longer meet the requirements of the local government financial test, may require additional reports of financial conditions from the local government. If the department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of the local government financial test, the local government must provide alternative financial assurance in accordance with this rule.

(4) Calculation of costs to be assured. The portion of the closure, postclosure, and corrective action costs which an owner or operator may assure under this paragraph is determined as follows:

1. If the local government owner or operator does not assure other environmental obligations through a financial test, the owner or operator may assure closure, postclosure, and corrective action costs that equal up to 43 percent of the local government's total annual revenue.

2. If the local government assures other environmental obligations through a financial test, including those associated with UIC facilities under 40 CFR Section 144.62, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, the owner or operator must add those costs to the closure, postclosure, and corrective action costs it seeks to assure under this paragraph. The total that may be assured must not exceed 43 percent of the local government's total annual revenue.

3. The owner or operator must obtain an alternative financial assurance instrument for those costs that exceed the limits set in numbered paragraphs 114.31(6)*"f"*(4)"1" and "2."

g. Corporate guarantee.

(1) An owner or operator may meet the requirements of this paragraph by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator. The guarantor must meet the requirements for owners or operators in paragraph 114.31(6)*"e"* and must comply with the terms of the guarantee. A certified copy of the guarantee must be placed in the facility's operating record along with copies of the letter from a certified public accountant and the accountant's opinions. If the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the certified public accountant must describe the value received in consideration of the guarantee. If the guarantor is an owner or operator with a "substantial business relationship" with the owner or operator, this letter must describe this "substantial business relationship" and the value received in consideration of the guarantee.

(2) The guarantee must be effective and all required submissions made to the department prior to the initial receipt of waste or before cancellation of an alternative financial mechanism, in the case of closure and postclosure; or, in the case of corrective action, no later than 120 days after the corrective action plan has been approved by the department.

(3) The terms of the guarantee must provide that:

1. If the owner or operator fails to perform closure, postclosure, or corrective action of a facility covered by the guarantee, or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to numbered paragraphs 114.31(6)*"g"*(3)"2" and "3," the guarantor will:

- Perform, or pay a third party to perform, closure, postclosure, or corrective action as required (performance guarantee); or
- Establish a fully funded trust fund as specified in paragraph 114.31(6)*"a"* in the name of the owner or operator (payment guarantee); or
- Obtain alternative financial assurance as required by subparagraph 114.31(6)*"g"*(3)"3."

2. The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this rule unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

3. If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of the establishment of a fully funded trust fund pursuant to paragraph 114.31(6)*"a."* If the owner or operator fails to comply with the provisions of this numbered paragraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the corporate guarantee.

(4) If a corporate guarantor no longer meets the requirements of paragraph 114.31(6)*"e,"* the owner or operator must, within 90 days, obtain alternative financial assurance and submit proof of alternative financial assurance to the department. If the owner or operator fails to provide alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

(5) The owner or operator is no longer required to meet the requirements of paragraph 114.31(6)*"g"* upon the submission to the department of proof of the substitution of alternative financial assurance or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

h. Local government guarantee. An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E. The guarantor must meet the requirements of the local government financial test in paragraph 114.31(6)*"f"* and must comply with the terms of a written guarantee.

(1) Terms of the written guarantee. The guarantee must be effective before the initial receipt of waste or before the cancellation of alternative financial assurance, in the case of closure and postclosure; or no later than 120 days after the corrective action plan is approved by the department. The guarantee must provide that:

1. If the owner or operator fails to perform closure, postclosure, or corrective action of a facility covered by the guarantee or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to numbered paragraphs 114.31(6)*"h"*(1)"2" and "3," the guarantor will:

- Perform, or pay a third party to perform, closure, postclosure, or corrective action as required; or
- Establish a fully funded trust fund as specified in paragraph 114.31(6)*"a"* in the name of the owner or operator; or
- Obtain alternative financial assurance as required by numbered paragraph 114.31(6)*"h"*(1)"3."

2. The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

3. If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of the establishment of a fully funded trust fund pursuant to paragraph 114.31(6)*"a."* If the owner or operator fails to comply with the provisions of this numbered paragraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the guarantee.

(2) Record-keeping and reporting requirements.

1. The owner or operator must submit to the department a certified copy of the guarantee along with the items required under subparagraph 114.31(6)*"f"*(3) and place a copy in the facility's official files before the initial receipt of waste or before cancellation of alternative financial assurance, whichever is later, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department.

2. The owner or operator shall no longer be required to submit the items specified in numbered paragraph 114.31(6)*"h"*(2)"1" when proof of alternative financial assurance has been submitted to the department or the owner or operator is no longer required to provide financial assurance pursuant to this rule.

3. If a local government guarantor no longer meets the requirements of paragraph 114.31(6)*"f,"* the owner or operator must, within 90 days, submit to the department proof of alternative financial assurance. If the owner or operator fails to obtain alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

i. Local government dedicated fund. The owner or operator of a publicly owned CND landfill or a local government serving as a guarantor may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by establishing a dedicated fund or account that conforms to the requirements of this paragraph. A dedicated fund will be considered eligible if it complies with subparagraph 114.31(6)*"i"*(1) or (2) and all other provisions of this paragraph, and documentation of this compliance has been submitted to the department.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, or order to pay for closure, postclosure, or corrective action costs that arise from the operation of the CND landfill and shall be funded for the full amount of coverage or funded for part of the required amount of coverage and used in combination with another mechanism(s) that provides the remaining coverage.

(2) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, or order as a reserve fund and shall be funded for no less than the full amount of coverage or funded for part of the required amount of coverage and used in combination with another mechanism(s) that provides the remaining coverage.

(3) Payments into the dedicated fund must be made annually by the owner or operator for ten years or over the permitted life of the CND landfill, whichever is shorter, in the case of a dedicated fund for closure or postclosure; or over one-half of the estimated length of an approved corrective action plan in the case of a response to a known release. This is referred to as the pay-in period. The initial payment into the dedicated fund must be made before the initial receipt of waste in the case of closure and postclosure or no later than 120 days after the corrective action plan has been approved by the department.

(4) For a dedicated fund used to demonstrate financial assurance for closure and postclosure, the first payment into the dedicated fund must be at least equal to the amount specified in subrule 114.31(9), divided by the number of years in the pay-in period as defined in paragraph 114.31(6)*"i."* The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{CE - CB}{Y}$$

where CE is the total required financial assurance for the owner or operator, CB is the current balance of the fund, and Y is the number of years remaining in the pay-in period.

(5) For a dedicated fund used to demonstrate financial assurance for corrective action, the first payment into the dedicated fund must be at least one-half of the current cost estimate, divided by the number of years in the corrective action pay-in period as defined in paragraph 114.31(6)*"i."* The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{RB - CF}{Y}$$

where RB is the most recent estimate of the required dedicated fund balance, which is the total cost that will be incurred during the second half of the corrective action period, CF is the current amount in the dedicated fund, and Y is the number of years remaining in the pay-in period.

(6) The initial payment into the dedicated fund must be made before the initial receipt of waste or within 30 days of close of the first fiscal year that begins after October 31, 2007, in the case of existing facilities; before the cancellation of an alternative financial assurance mechanism in the case of closure and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department.

(7) After the pay-in period has been completed, the dedicated fund shall be adjusted annually to correct any deficiency of the fund with respect to the adjusted cost estimate and may be adjusted annually should the balance in the fund exceed the adjusted cost estimate.

114.31(7) *General requirements.*

a. Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this rule by establishing more than one financial mechanism per facility. The mechanisms must be a combination of those mechanisms outlined in this rule and must provide financial assurance for an amount at least equal to the current cost estimate for closure, postclosure, or corrective action, whichever is applicable. The financial test and a guarantee provided by a corporate parent, sibling or grandparent may not be combined if the financial statements of the two entities are consolidated.

b. Use of one mechanism for multiple facilities. An owner or operator may satisfy the requirements of this rule for multiple CND landfills by the use of one mechanism if the owner or operator ensures that the mechanism provides financial assurance for an amount at least equal to the current cost estimates for closure, postclosure, or corrective action, whichever is applicable, for all CND landfills covered.

c. Criteria. The language of the financial assurance mechanisms listed in this rule must ensure that the instruments satisfy the following criteria:

(1) The financial assurance mechanisms must ensure that the amount of funds assured is sufficient to cover the costs of closure, postclosure, or corrective action for known releases, whichever is applicable;

(2) The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed;

(3) The financial assurance mechanisms must be obtained by the owner or operator prior to the initial receipt of solid waste and no later than 120 days after the corrective action remedy has been approved by the department until the owner or operator is released from the financial assurance requirements; and

(4) The financial assurance mechanisms must be legally valid, binding, and enforceable under Iowa law.

d. No permit shall be issued by the department pursuant to Iowa Code section 455B.305 unless the applicant has demonstrated compliance with rule 114.31(455B).

114.31(8) *Closure and postclosure accounts.* The holder of a permit for a CND landfill shall maintain a separate account for closure and postclosure as required by Iowa Code section 455B.306(9)*"b."* The account shall be specific to a particular facility.

a. Definitions. For the purpose of this subrule, the following definitions shall apply:

"Account" means a formal separate set of records.

"Current balance" means cash in an account established pursuant to this subrule plus the current value of investments of moneys collected pursuant to subrule 114.31(8) and used to purchase one or more of the investments listed in Iowa Code section 12B.10(5).

"Current cost estimate" means the closure cost estimate prepared and submitted to the department pursuant to subrule 114.31(3) and the postclosure cost estimate prepared and submitted pursuant to subrule 114.31(4).

b. Moneys in the accounts shall not be assigned for the benefit of creditors except the state of Iowa.

c. Moneys in the accounts shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

d. Withdrawal of funds. Except as provided in paragraph 114.31(8)*"e,"* moneys in the accounts may be withdrawn without department approval only for the purpose of funding closure, including partial closure, or postclosure activities that are in conformance with a closure/postclosure plan which has been submitted pursuant to subrule 114.13(10). Withdrawals for activities not in conformance with a closure/postclosure plan must receive prior written approval from the department. Permit holders using a trust fund established pursuant to paragraph 114.31(6)*"a"* to satisfy the requirements of this rule must comply with the requirements of subparagraph 114.31(6)*"a"*(6) prior to withdrawal.

e. Excess funds. If the balance of a closure or postclosure account exceeds the current cost estimate for closure or postclosure at any time, the permit holder may withdraw the excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

f. Initial proof of establishment of account. A permit holder shall submit a statement of account, signed by the permit holder, to the department by April 1, 2008, that indicates that accounts have been established pursuant to this subrule. Permit holders for new CND landfills permitted after April 1, 2008, shall submit to the department, prior to the landfill's initial receipt of waste, a statement of account that is signed by the permit holder.

g. An account established pursuant to paragraph 114.31(6)*"a"* for trust funds or paragraph 114.31(6)*"i"* for local government dedicated funds also satisfies the requirements of this subrule, and the permit holder shall not be required to establish closure and postclosure accounts in addition to said financial assurance accounts.

Accounts established pursuant to paragraphs 114.31(6)*"a"* or 114.31(6)*"i,"* which are intended to satisfy the requirements of this subrule, must comply with Iowa Code section 455B.306(9)*"b."*

h. Yearly deposits. Deposits into the closure and postclosure accounts shall be made at least yearly in the amounts specified in this subrule beginning with the close of the facility's first fiscal year that begins after October 31, 2007. The deposits shall be made within 30 days of the close of each fiscal year. The minimum yearly deposit to the closure and postclosure accounts shall be determined using the following formula:

$$\frac{CE - CB}{RPC} \times TR = \text{yearly deposit to account}$$

Where:

"CE" means the current cost estimate of closure and postclosure costs.

"CB" means the current balance of the closure or postclosure accounts.

"RPC" means the remaining permitted capacity, in tons, of the landfill as of the start of the permit holder's fiscal year.

"TR" is the number of tons of solid waste disposed of at the facility in the prior year.

i. Closure and postclosure accounts may be commingled with other accounts so long as the amounts credited to each account balance are reported separately pursuant to paragraphs 114.31(3)*"a"* and 114.31(4)*"a."*

j. The department shall have full rights of access to all funds existing in a facility's closure or postclosure account, at the sole discretion of the department, if the permit holder fails to undertake

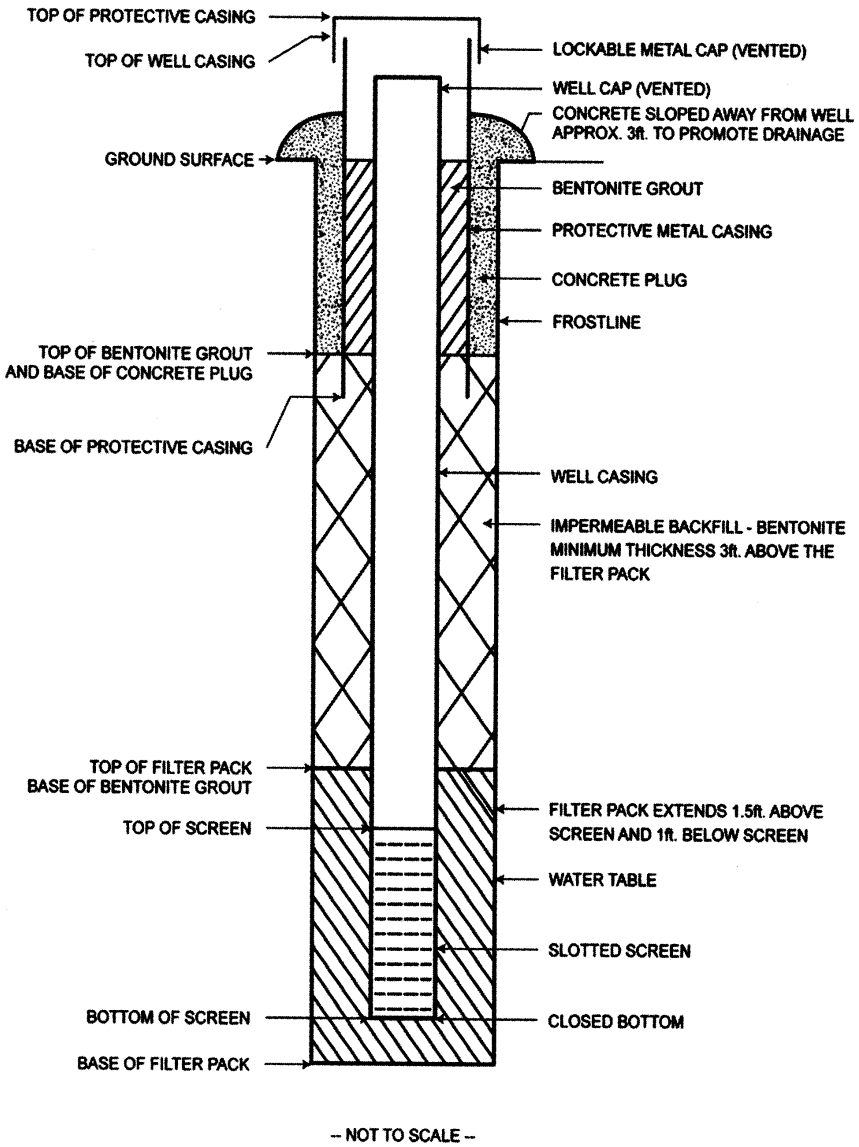
closure or postclosure activities after being directed to do so by a final agency action of the department. These funds shall be used only for the purposes of funding closure and postclosure activities at the site.

114.31(9) *Amount of required financial assurance.* A financial assurance mechanism established pursuant to subrule 114.31(6) shall be in the amount of the third-party cost estimates required by subrules 114.31(3), 114.31(4), and 114.31(5) except that the amount of the financial assurance may be reduced by the sum of the cash balance in a trust fund or local government dedicated fund established to comply with subrule 114.31(8) plus the current value of investments held by said trust fund or local government dedicated fund if invested in one or more of the investments listed in Iowa Code section 12B.10(5).

These rules are intended to implement Iowa Code section 455B.304.

Figure 1

Typical Monitoring Well Cross Section



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CHAPTER 115
SANITARY LANDFILLS: INDUSTRIAL MONOFILLS

[Prior to 12/11/02, see 567—Chs 102, 103, 110]

567—115.1(455B) Scope and applicability. This chapter details the plan and operating requirements for all sanitary landfills accepting only a specific type of industrial waste. All sanitary landfills accepting only a specific type of industrial waste must conform with the provisions of these rules. This chapter also pertains to the hydrologic monitoring system standards for these solid waste disposal facilities.

567—115.2(455B) Permit required. No public or private agency shall construct or operate a sanitary disposal project without first obtaining a permit from the director.

567—115.3(455B) Types of permits. There are four types of permits issued by the director.

115.3(1) *Sanitary disposal project permit.* This permit is issued by the director under the authority of Iowa Code section 455B.305 for sanitary disposal projects which comply with the requirements described in 567—Chapters 102 to 106, 109 to 116, and 118 to 122. Such permits are issued for a term of three years and are renewable for similar terms.

a. Applications for renewal must be received at the department office at least 90 days before the expiration date of the existing permit. For application forms, see 567—100.3(17A,455B).

b. The department shall conduct an inspection of the sanitary disposal project following receipt of the application for renewal. Following the inspection, the permit holder shall be notified of all measures needed to bring the sanitary disposal project into conformance with Iowa Code chapter 455B and these rules.

c. A permit shall be renewed when a properly completed application has been received and all corrective measures identified in 115.3(1)*"b"* have been completed.

115.3(2) *Temporary permit.* This permit is issued by the director under the authority of Iowa Code subsection 455B.307(1) for solid waste disposal sites which do not comply with the requirements of Iowa Code chapter 455B and these rules. Such permits are issued for a term of one year and are renewable. Temporary permits may be renewed if the director finds that the public interest will be best served by granting a renewal and the applicant has complied with the terms of the previous temporary permit.

a. Temporary permits shall incorporate as a condition a compliance schedule that specifies how and when the applicant will meet the requirements of Iowa Code chapter 455B and these rules.

b. The decision of the director whether to issue a temporary permit, which is discretionary, shall be a final decision. Once a temporary permit has been issued, it may be suspended or revoked only as provided in Iowa Code section 455B.305 and 567—Chapter 7.

115.3(3) *Developmental permit.* The director may issue a developmental permit for construction and operation of a sanitary disposal project which is not specifically described in these rules if the permit applicant demonstrates at a public hearing that the proposed project can provide satisfactory disposal of solid waste without adverse health-related or environmental effects.

a. No such permit shall be issued until the director, after public hearing, considers and approves the proposed project.

b. A developmental permit shall be issued for a term of no less than one year and no more than three years.

c. A developmental permit may be renewed if the director finds, following public hearing, that the sanitary disposal project provided satisfactory disposal of solid waste without adverse health-related or environmental effects over the term of the prior permit.

115.3(4) *Closure permit.* This permit is issued by the director under the authority of Iowa Code section 455B.305 for sanitary disposal projects which no longer accept solid waste. Such permits are issued for a term of 30 years. If the postclosure period is extended, the term of subsequent renewal of the permit will be determined on a site-specific basis. A sanitary disposal project shall require a closure permit until the department determines that postclosure maintenance, postclosure monitoring, and operation of the required leachate control system are no longer necessary.

a. Application shall be filed at the time of department notification of intended closure as required by this rule.

b. The application for issuance of this permit shall be based on a previously approved comprehensive plan and other rules adopted pursuant to the authority of Iowa Code section 455B.306.

c. This permit shall require submission of an annual audit report detailing the status of the financial instrument and other funds as required to guarantee completion of postclosure and monitoring requirements.

d. This permit may be modified by the issuance of an amendment by the department. Requests for permit amendments may be initiated by the department or by the permit holder.

e. At the end of the applicable postclosure period, and upon satisfactory completion of all required postclosure activities as established by Iowa Code chapter 455B, written notification shall be issued by the director stating that a permit is no longer required for the facility.

567—115.4(455B) Applications for permits.

115.4(1) *Application requirements for permits and renewals.* See 567—100.3(17A,455B).

115.4(2) *Time limit on submittal of information.*

a. Sanitary disposal project permit applications. If an application for a sanitary disposal project permit is found by the department to be incomplete, the applicant will be notified of that fact and of the specific deficiencies. Thirty days following such notification, the application may be returned by the department as incomplete without prejudice to the applicant's right to reapply. The applicant may be granted, upon request, an additional 30 days to complete the application.

b. Application for renewal or amendment of a sanitary disposal project. If an application for a sanitary disposal project permit renewal or amendment is found by the department to be incomplete, the applicant will be notified of that fact and of the specific deficiencies. Thirty days following such notification, the application may be denied by the department.

567—115.5(455B) Preparation of plans. All plans and specifications submitted in the application for a sanitary disposal project permit or a developmental permit shall be prepared in conformance with Iowa Code chapter 542B and shall be submitted in triplicate.

567—115.6(455B) Construction and operation. All sanitary disposal projects shall be constructed and operated according to the plans and specifications as approved by the department and the terms of the permit. The approved plans and specifications shall constitute a term of the permit.

567—115.7(455B) Compliance with rule changes.

115.7(1) *Design and construction.* Sanitary disposal projects designed and constructed in accordance with rules in effect at the time of construction shall not be required to be redesigned or reconstructed due to subsequent rule changes unless the department finds that such facilities are causing pollution. Such facilities shall be brought into compliance with rules in effect at the time of reconstructing, enlarging, or otherwise modifying the sanitary disposal project, or at the time of permit renewal.

115.7(2) *Operation.* If any new rule conflicts with an operating procedure prescribed in the engineering plans or the permit of a sanitary disposal project, the operation shall conform with the new rule.

567—115.8(455B) Amendments. Sanitary disposal project permits, temporary permits, and developmental permits may be modified by the issuance of an amendment by the department, except as provided in 115.7(1).

567—115.9(455B) Transfer of title and permit. If title to an operational sanitary disposal project is transferred, and the transferee desires to continue operation of the project, the transferee shall apply in writing to the department within 30 days of the transfer for a transfer of the permit.

115.9(1) The department shall transfer the permit when it determines that the sanitary disposal project is in compliance with Iowa Code chapter 455B and these rules and the terms of the permit, and that the transferee possesses the equipment and personnel to operate the project in conformance with Iowa Code chapter 455B and these rules and the terms of the permit.

115.9(2) No permit shall be valid after 60 days following transfer of title, unless the permit has been transferred by the department to the new titleholder pursuant to this rule.

567—115.10(455B) Permit conditions. Any permit may be issued subject to conditions specified in writing which are necessary to ensure that the sanitary disposal project can be constructed and operated in compliance with these rules.

567—115.11(455B) Effect of revocation. If a permit for a sanitary disposal project held by any public or private agency is revoked by the director, no new permit shall be issued to that agency for that disposal project for a period of one year from the date of revocation. Such revocation shall not prohibit the issuance of a permit for the disposal project to another public or private agency.

567—115.12(455B) Inspection prior to start-up. The department shall be notified when the initial construction of a sanitary disposal project has been completed in order that an inspection may be made to determine that the project is constructed as designed. No solid waste shall be accepted by a sanitary disposal project until that project has been inspected and approved by the department.

567—115.13(455B) Primary plan requirements for all sanitary disposal projects. Every application for any permit issued by the department shall include the following. In addition, every application shall include the particular information required by the chapter describing the type of project to be constructed.

115.13(1) The name, address and telephone number of:

a. Owner of site where project will be located.

b. Permit applicant.

c. Official responsible for operation of project.

d. Design engineer.

e. Agency to be served by the project, if any.

f. Responsible official of agency served, if any.

115.13(2) A legal description of the site.

115.13(3) A map or aerial photograph locating the boundaries of the site and identifying:

a. North or other principal compass points.

b. Zoning and land use within one-half mile.

c. Haul routes to and from the site with load limits or other restrictions.

d. Homes and buildings within one-half mile.

e. Section lines or other legal boundaries.

f. Any nearby runway used or planned to be used by turbojet or piston-type aircraft at FAA-certified airports.

115.13(4) Type, source, and expected volume or weight of waste to be handled per day, week or year.

115.13(5) An organizational chart.

115.13(6) A detailed description of the disposal process to be used.

115.13(7) A table listing the equipment to be used, its design capacities and expected loads.

115.13(8) A contingency plan detailing specific procedures to be followed in case of equipment breakdown, maintenance downtime, or fire in equipment or vehicles, including methods to be used to remove or dispose of accumulated waste.

115.13(9) Proof of the applicant's ownership of the site or legal entitlement to use the site for the disposal of solid waste for the term of the permit for which application is made.

115.13(10) Closure/postclosure plan.

a. A closure/postclosure plan shall be submitted which:

(1) Details how and when the facility will be closed in accordance with applicable requirements of this chapter.

(2) Describes the proposed groundwater monitoring plan, leachate control system, and site inspection and maintenance activities necessary to comply with this chapter.

(3) States the name, address and telephone number of the person or office to serve as a contact with regard to the facility during the postclosure period.

b. The closure/postclosure plan shall be submitted at the time of the first permit renewal after January 15, 2003, but not less than 180 days prior to closure.

115.13(11) Such other information as may be required by the director.

567—115.14(455B) Hydrologic monitoring system planning requirements.

115.14(1) All plans, specifications and other documentation required herein must be developed by an engineer registered in Iowa.

115.14(2) All sanitary disposal projects shall conduct a soil and hydrogeologic investigation which conforms to the requirements of this chapter. The purpose of soil and hydrogeologic investigation is to obtain data to determine potential routes of contaminant migration from a site via groundwater. The rules that follow set forth minimum requirements for such investigations. Additional work and use of other methods (e.g., geophysical techniques) are encouraged.

567—115.15(455B) Soil investigation.

115.15(1) *Soil borings.*

a. *Number of borings.* A sufficient number of soil borings shall be made to accurately identify the hydrogeologic variations of the site. For new sites, the minimum number of borings required is 10 for sites of less than 10 acres, 20 for sites of 10 to 50 acres, and 20 plus an additional boring for every 10 acres above 50 acres for sites larger than 50 acres. Fewer borings may be needed for existing sites, depending on previous work done at the site. Also, no borings will be required in existing fill areas. The department may require additional borings based on the geological complexity of the site.

b. *Depth of borings.* All borings must extend a minimum of 25 feet deep and at least 10 feet deep below the water table. However, borings in proposed fill areas shall be terminated 10 feet above the uppermost aquifer or be grouted to provide such separation. At least half the borings located outside the existing or proposed fill area shall extend 10 feet into the uppermost aquifer, 50 feet below the water table, or 10 feet into bedrock. At least one boring shall extend 10 feet into bedrock or 100 feet below the lowest ground surface elevation.

c. *Boring method.* Borings shall comply with the applicable portions of rule 115.23(455B). The preferred boring method is hollow stem auger, although it may be necessary to use other methods at greater depths and in bedrock. When wet drilling methods are used for boring in which monitoring wells or piezometers are installed, the drilling fluid and methods and development procedures shall be approved by and documented with the department.

d. *Assurance that soil boring samples have been taken at the site.* The soil boring samples must be kept by the permit applicant until the permit is issued and must be made available to the department if the department requests them.

115.15(2) *Soil samples.* Samples shall be collected at 5-foot intervals and at every change in stratum. These samples shall be obtained using a split spoon sampler and the procedures of the standard penetration test, conducted in accordance with American Society of Testing and Materials (ASTM) Standard D1586. This test simply counts the blows of a 140-pound hammer falling 30 inches on the sampler per foot penetration of the sampler. A minimum of one undisturbed Shelby tube sample shall be obtained in the uppermost cohesive stratum at or below the lowest depth at which solid waste will be disposed of. Shelby tube sampling shall be in accordance with ASTM Standard D1587. Samples shall be clearly marked, preserved, and maintained for future inspection. Samples selected for laboratory analysis shall be preserved and transported to the laboratory in accordance with ASTM Standard D422.

115.15(3) *Laboratory test of discrete soil samples.* Laboratory tests of discrete soil samples shall be conducted to correlate strata between soil borings, obtain permeability data on each stratum, and design monitoring wells.

a. *Permeability tests.* Permeability tests using a constant-head or falling-head permeameter shall be run on a minimum of one sample from each Shelby tube sample. Each sample shall be from a different soil boring representing a different area of the site.

b. *Grain size distribution.* Grain size distribution tests shall be conducted on a minimum of one sample from each distinct stratum. Analysis shall be conducted in accordance with ASTM Standards D422 and D1140. Estimates of permeability shall be developed for each sample tested based on grain size distribution and standard penetration blow counts.

567—115.16(455B) Hydrogeologic investigation.

115.16(1) *Groundwater level measurements.* The elevation of the water table shall be determined at or near the location of each soil boring which penetrates the water table. The water table may be determined using a completed water table monitoring well, or piezometer. The bottom of a piezometer used to measure water table elevation shall be no more than 5 feet below the water table. The apparent horizontal groundwater flow direction shall be determined based on water table measurements. Vertical groundwater flow shall then be assessed in at least two profiles approximately parallel to the apparent horizontal flow direction. Vertical groundwater flow shall be assessed using at least two well clusters per profile. Each well cluster shall contain a water table monitoring well or piezometer and additional water level monitoring points based on site conditions as follows:

a. If the water table is in the uppermost aquifer, one additional water level monitoring point shall be located near the base of the aquifer or at least 20 feet below the base of the water table monitoring point. This additional monitoring point may not be required if the aquifer is less than 20 feet thick.

b. If the uppermost aquifer is less than 50 feet below the water table, an additional water level monitoring point shall be located at the top of the aquifer.

c. If the uppermost aquifer is more than 50 feet below the water table, additional water level monitoring points shall be placed at depths of 30 feet and 50 feet below the water table.

d. If required, the one deeper soil boring into bedrock shall be used as a site for one well cluster. Water table monitoring points in this cluster shall correspond to the other well cluster used for a profile. In addition, water level monitoring points shall be placed at the bottom of the boring and, if possible, at the top and bottom of the uppermost aquifer. Groundwater level measurements shall be made after the water levels have stabilized in the monitoring point; at least 24 hours after completion and bailing of the monitoring well, or installation of the piezometer. The water level in existing wells shall be observed and recorded prior to bailing. Each set of water level measurements shall be made in as short a time frame as possible not to exceed 8 hours.

115.16(2) *In-situ permeability tests.* In-situ permeability tests shall be conducted on each monitoring well and piezometer in each well cluster.

a. *Pumping test.* If more than one monitoring point is located in the uppermost aquifer, a pumping test shall be conducted at one or more upper aquifer monitoring points. A pumping test involves pumping at a constant rate from one well while observing water levels in other wells. The pumping rate shall be as high as possible without dewatering the well. Water level measurements in other uppermost aquifer wells shall be measured at frequent intervals near the start of the test and then at progressively longer intervals (e.g., 1-minute intervals to 10 minutes, 5-minute intervals to an hour, 15-minute intervals to 2 hours, and half-hour intervals thereafter). Continuous water level recording is preferable.

Water levels in wells not located in the uppermost aquifer shall be recorded throughout the test at regular intervals (e.g., every half hour). Water levels in all wells shall be measured 24 hours prior to the test and just before the test. The test duration shall be at least 4 hours and continue until a stabilized drawdown condition is observed. Longer tests may be necessary if other uppermost aquifer monitoring points are slow to respond. Water level readings shall be recorded through the recovery phase of the water table.

b. Bail and slug tests. Monitoring wells and piezometers located in materials with low permeabilities shall be tested using bail or slug tests. These tests involve rapidly removing or adding a known volume of water to a well and then recording water levels in the well as the well recovers to its original level. Typically, the necessary frequency of measurements will be similar to that required of pumping tests. In materials of very low permeability, less frequent measurements are necessary. In materials of higher permeability, more frequent measurements may be necessary.

567—115.17(455B) Hydrologic monitoring system planning report requirements. The hydrologic monitoring system planning report shall contain a description of field investigations and presentation of results including a description of the field and laboratory testing methods; a presentation of the test results and field measurements; documentation of a reasonable effort to inventory all active, unused, and abandoned wells within one mile of the facility; and the identification of all public water supply wells and wells with water withdrawal permits pursuant to 567—Chapters 50 to 52 within three miles of the facility. Well logs, other available information on well construction, static water levels, and usage shall be obtained. The well inventory shall be based on thorough reviews of state and local collections of well logs and, when possible, interviews or surveys of well owners. Also to be included are maps showing the location of soil borings, other field tests/measurements, and existing wells.

567—115.18(455B) Evaluation of hydrogeologic conditions.

115.18(1) Based on soil boring and other available information, a description of the site geology shall be made. This description shall include preparation of geologic cross sections of sufficient number and spacing (no fewer than four at every site) to adequately define all areas of the site and of sufficient detail to adequately depict major stratigraphic and structural trends and reflect geologic structural features in relation to groundwater flow. Each pair of cross sections must be as near to perpendicular as possible to adequately portray the site geology.

115.18(2) A description of the hydrogeologic unit(s) within the saturated zone shall be made including thickness; depth; hydraulic properties, such as transmissivity and storage coefficient or specific yield; description of the role of each as confining bed, aquifer, or perched saturated zone and its actual or potential use as a water supply aquifer.

115.18(3) All groundwater flow paths from the site shall be identified, including both horizontal and vertical components of flow. A contour map of the water table shall be presented showing horizontal flow paths. A potentiometric surface map of the uppermost aquifer showing horizontal flow paths shall also be presented, if different from the water table. Vertical flow paths shall be shown in at least two profiles approximately parallel to the direction of horizontal flow. Vertical flow paths shall be determined by water level measurements from clustered wells at different depths, if possible. An evaluation of vertical groundwater flow based on the hydrologic properties of the various strata encountered at the site, estimated groundwater flow and recharge rates, and known information on hydraulic head shall also be made.

115.18(4) The seasonal, temporal and artificially induced variations in groundwater flow shall be evaluated. Temporal variations occur due to natural events, such as rainfall. The addition of tile lines, removal of overburden, or deposition of wastes would constitute artificially induced variations.

115.18(5) Surface water flow paths from the site shall be identified on topographic contour maps.

567—115.19(455B) Monitoring system plan. A hydrologic monitoring system shall be designed to intercept the groundwater and surface water flow paths from the site. The plan shall include proposed locations and depths for monitoring wells in accordance with monitoring well siting criteria in rule 115.22(455B). Monitoring wells shall be designed in accordance with rule 115.23(455B). The surface water monitoring plan shall include monitoring points on all standing and flowing bodies of water which will receive surface runoff or groundwater discharge from the site. For streams, sampling points upstream and downstream of areas of potential impact from the site shall be selected.

567—115.20(455B) Sampling protocol. At a minimum, the sampling protocol must include the following:

1. Order in which monitoring points are to be sampled, all tests and procedures needed at each monitoring point and the order in which these procedures will be carried out, equipment and containers to be used, procedures and precautions for their use; precautions to avoid introducing contaminants from outside sources into monitoring wells or samples; and how equipment must be cleaned between uses;
2. Procedures for evacuating each monitoring well prior to each water quality sampling;
3. Procedures for handling field blanks and other quality assurance samples at the facility and in transit to and from the laboratory;
4. Procedures for field filtration of samples, if required;
5. Procedures for sample preservation;
6. Procedures for sample collection, labeling and handling at the facility and during transport to the laboratory;
7. Procedures for recording field observations and measurements;
8. Procedures for records maintenance and data analysis; and
9. Procedures for sampling surface water monitoring points including exact sampling locations and depths.

567—115.21(455B) Monitoring well maintenance and performance reevaluation plan.

115.21(1) A monitoring well maintenance and performance reevaluation plan shall be included as part of the hydrologic monitoring system plan. The plan shall ensure that all monitoring points remain reliable.

115.21(2) The plan shall provide for the following:

a. A biennial examination of high and low water levels accompanied by a discussion of the acceptability of well location (vertically and horizontally) and exposure of the screened interval to the atmosphere.

b. A biennial evaluation of water level conditions in the monitoring wells to ensure that the effects of waste disposal or well operation have not resulted in changes in the hydrologic setting and resultant flow paths.

c. Annual measurement of well depths to ensure that wells are physically intact and not filling with sediment.

d. Every five years conduct in-situ permeability tests on monitoring wells to compare test data with those collected originally to determine if well deterioration is occurring.

567—115.22(455B) Monitoring well siting requirements.

115.22(1) *Downgradient monitoring wells.* Downgradient monitoring wells must be located to provide a high level of certainty that releases of contaminants from the site can be promptly detected. Downgradient monitoring wells shall be placed along the site perimeter, within 50 feet of the planned liner or waste boundary unless site conditions dictate otherwise, downgradient of the facility with respect to the hydrologic unit being monitored. For those facilities which are long-term, multiphase operations, the department may establish temporary waste boundaries in order to define locations for monitoring wells. The convergence of groundwater paths to minimize the overall length of the downgradient dimension may be taken into consideration in the placement of downgradient monitoring wells.

115.22(2) *Water table wells.* At least three downgradient water table monitoring wells shall be installed at each facility. The maximum spacing between wells shall be 600 feet.

115.22(3) *Uppermost aquifer monitoring wells.* If different from water table monitoring wells, at least three uppermost aquifer monitoring wells shall be installed at each facility. Uppermost aquifer monitoring wells shall be spaced no more than 600 feet apart. If the uppermost aquifer is located more than 50 feet below the water table, this requirement may be relaxed, although at least one downgradient uppermost aquifer monitoring well will be required.

115.22(4) *Other downgradient monitoring wells.* Additional downgradient monitoring wells will be required if the water table and uppermost aquifer monitoring wells do not intercept most vertical flow paths from the site. In such situations, monitoring wells shall be placed at the appropriate depths to intercept the remaining flow paths and shall be spaced at no more than 600 feet apart.

115.22(5) *Upgradient monitoring wells.* Upgradient monitoring wells shall not be affected by the site. At least one upgradient monitoring well shall be installed into each stratum being monitored by downgradient monitoring wells. If it is not possible to actually locate a monitoring well upgradient of the site, the well shall be placed as near the site as feasible without being affected by the site.

115.22(6) *Monitoring point identification system.* The various types of monitoring points shall be identified as follows:

a. Monitoring Well	MW# _____
b. Surface Water Monitoring Point	SW# _____
c. Piezometer	PZ# _____

Each monitoring point must have a unique number, regardless of the type of monitoring point, and that number must never change.

567—115.23(455B) Monitoring well/soil boring construction standards.

115.23(1) *General considerations.*

a. Contractors involved in construction of monitoring wells and piezometers and soil boring activities shall be registered with the department as required in 567—Chapter 82.

b. To the extent possible, all monitoring well construction materials must not absorb, desorb, react or otherwise alter the screened soil stratum or the quality of the groundwater being sampled. Galvanized metal, glues, welding solvents, pipe thread lubricants and other foreign substances must not be used.

c. All monitoring well construction materials must be protected from contamination prior to installation.

d. A typical cross section of a properly constructed monitoring well is shown in Figure 1 at the end of this chapter.

115.23(2) *Casings.*

a. As a minimum, the diameter of the inner casing (see Figure 1) of a monitoring well must be at least 2 inches.

b. Plastic cased wells must be constructed of materials with threaded, nonglued joints which do not allow water infiltration under natural subsurface pressure conditions or when the well is evacuated for sampling.

c. Well casings must provide structural stability to prevent casing collapse during installation as well as drill hole integrity when installed. Flush joint casing is required for small diameter wells installed through hollow stem augers.

d. Well casings must be constructed of inert materials such as polytetrafluorethylene, stainless steel or polyvinyl chloride. The department may approve other casing materials if the owner or operator can demonstrate that the material has a low potential for biasing the water quality parameters of samples. The department may approve the construction of composite well casings (casings with less inert materials in the unsaturated zone).

115.23(3) *Well screens.*

a. Slot size will be based on sieve analysis of the sand and gravel stratum or filter pack. The slot size must hold out 35 percent to 60 percent of the formation material and not less than 90 percent of the filter pack.

b. Slot configuration and open area must permit effective development of the well.

c. Screen length. Maximum screen length shall be 10 feet except for water table wells in which the screen must be of sufficient length to accommodate expected seasonal fluctuations of the water table. The screen shall be placed 5 feet above and below the observed water table, unless local conditions are

known to produce greater fluctuations. Screen length for piezometers shall be 2 feet or less. Multiple screened single-cased wells are prohibited.

115.23(4) *Filter pack.*

a. To prevent other materials from coming in contact with the well screen, the filter pack shall extend 18 inches above and 12 inches below the well screen.

b. Size must be based on sieve analysis of sand and gravel stratum. The filter pack material must be 2.5 to 3 times larger than 50 percent grain size of the zone being monitored.

115.23(5) *Grouting.*

a. The annular space above the filter pack must be sealed with expanding cement or bentonite grout. The vertical dimension of this seal must be a minimum of 3 feet.

b. The annular space between the seal and to just below the frostline must be backfilled with an impervious material such as bentonite grout or expanding cement.

c. The remaining annular space must be sealed with bentonite grout to the ground surface.

d. Grouting materials must be installed from the top of the filter pack up in one continuous operation with a tremie tube.

115.23(6) *Well protection.*

a. Plastic cased wells. A protective metal casing must be installed around the well casing. The inside diameter of the protective metal casing shall be at least 2 inches larger than the outside diameter of the well casing. The protective metal casing shall extend from a minimum of 1 foot below the frostline to slightly above the well casing top. The protective casing shall be shortened or omitted if it covers part of the well screen. The protective casing shall be sealed or immobilized with a concrete plug around the outside. The bottom of the concrete plug must extend at least 1 foot below the frostline. The concrete plug shall be shortened if it covers part of the well screen. The top of the plug shall extend approximately 3 to 6 inches above the ground surface and shall slope away from the well approximately 3 feet. Soil may be placed above the plug. The inside of the protective casing shall be sealed with a bentonite grout. A vented cap shall be placed on the well casing and a protective locking cap on the metal casing. The lockable cap must be kept locked when the well is not in use.

b. Metal cased wells. The concrete plug shall extend from at least 1 foot below the frostline to approximately 3 to 6 inches above the ground surface and shall slope away from the well approximately 3 feet. Soil may be placed on top of the concrete plug. A vented, locking cap shall be placed on the casing. The lockable cap must be kept locked when the well is not in use. See Figure 1.

c. To protect against accidental damage, a ring of brightly colored posts or other protective devices must be installed around all wells.

115.23(7) *Well drilling.*

a. The owner or operator must ensure that in all phases of drilling, well installation and completion, the methods and materials used do not introduce substances that may alter the results of water quality analyses.

b. Well drilling equipment coming into contact with contaminants in the borehole or aboveground must be thoroughly cleaned to avoid spreading contamination to other depths or locations. Contaminated materials or leachate from wells must not be discharged onto the ground surface or into ponds or streams so as to cause environmental harm in the processes of drilling or well development.

c. The owner or operator must ensure that, at a minimum, the following well design and construction log information be retained at the site and a copy of this information be sent to the department:

(1) Date/time of construction;
(2) Name and address of the driller;
(3) Drilling method and drilling fluid used;
(4) Soil sampling methods;
(5) Surveyed location (±0.5 ft.);
(6) Soil and rock classifications;
(7) Field observations;
(8) Well name/number;

(9) Borehole diameter and well casing diameter;
(10) Well depth (±0.1 ft.);
(11) Water level measurements;
(12) Drilling and lithologic logs;
(13) Casing materials, inside diameter and weight or wall thickness;
(14) Screen materials;
(15) Casing and screen joint type;
(16) Screen slot size/length;
(17) Filter pack material/size (depths from ___ to ___);
(18) Filter pack volume;
(19) Filter pack replacement method;
(20) Sealant materials (depths from ___ to ___);
(21) Sealant volume;
(22) Sealant placement method;
(23) Grouting schedule and materials;
(24) Surface seal design/construction (depths from ___ to ___);
(25) Type of protection well cap;
(26) Ground surface elevation (±0.1 ft.);
(27) Well cap elevation (±0.01 ft.);
(28) Top of casing elevation (±0.01 ft.); and
(29) Detailed drawing of well (including dimensions).

115.23(8) *Well development.* Prior to use of the monitoring well for water quality monitoring purposes, well development is required to ensure the collection of representative groundwater samples. Procedures used in well development involve using a surge block, bailing or surging by pumping of compressed inert gas to produce a movement of water at alternately high and low velocities into and out of the well screen and gravel pack in order to loosen and remove fine materials. Development of low hydraulic conductivity wells may require the circulation of water down the well casing, out through the screen and gravel pack, and up the open borehole prior to the placement of grout or seal in the annulus. Any additional water used must be of a quality so as not to interfere with future groundwater quality determinations. Following surging, the well is pumped until the water does not contain significant quantities of suspended solids.

567—115.24(455B) Sealing abandoned wells and boreholes. Boreholes, piezometers and observation wells not used for groundwater monitoring must be sealed. The location of the abandoned well or borehole shall be documented in writing with reference to the landfill's coordinate system and method of sealing. The document must be retained at the landfill with a copy sent to the department.

115.24(1) *Sealing boreholes.* The borehole shall be filled by extending a tremie tube to the bottom of the hole. Bentonite or expanding cement grout shall be applied through the tube to the bottom of the hole and the tremie tube shall be raised as the hole is filled from the bottom upward. The end of the tremie tube shall be submerged in the grout while filling. The borehole shall be filled from the base of the boring all the way to the ground surface.

115.24(2) *Sealing abandoned monitoring wells.*

a. Well is known to be constructed properly with impermeable grout that was installed from the bottom up using a tremie tube. Any existing protective metal casing shall be removed by vertically pulling it off the well. With a tremie tube, the inner well casing shall be filled with an impermeable grout slurry from the bottom to ground surface. After 24 hours, the grout shall be retopped if it has settled below the existing ground surface.

b. Well construction is improper or undocumented. An attempt should be made to remove the well casing. If the well casing cannot be removed, the well casing shall either be drilled around with a hollow stem auger of large inside diameter or shall be drilled out with a standard casing bit or solid stem auger with a boring diameter greater than the initial diameter of the hole. Drilling shall be to to the maximum depth of the previously drilled boring. The drilling debris shall be cleaned from the interior

of the auger or borehole. The borehole shall be sealed with an impermeable grout using a tremie tube. If the soil conditions permit the sealing to be conducted in a continuous operation, the tremie tube shall be submerged in the grout at all times. After 24 hours, the grout shall be retopped if it has settled below the ground surface.

c. Monitoring wells in future fill areas. The well shall be removed and sealed as described in the procedures for sealing boreholes in 115.24(1).

567—115.25(455B) Variance from design, construction, and operation standards. Pursuant to the authority of Iowa Code section 455B.303, a variance from the specific requirements of rules 115.14(455B) to 115.25(455B) may be issued, modified, or denied by the director. The request shall also include any supporting information to be considered by the director in the formulation of a decision.

567—115.26(455B) General requirements for all sanitary landfills.

115.26(1) *Plan requirements.* The plans for all sanitary landfills shall include the following:

a. The map and aerial photograph required in subrule 115.13(3) of sufficient scale to show all homes, buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads and other applicable details including topography and drainage patterns. All wells shall be identified on the map or aerial photograph and a bench mark shall be indicated.

b. A plot drawing in appropriate scale of the site and the immediately adjacent area showing dimensions, topography with appropriate contour intervals, drainage patterns, known existing drainage tiles, locations where any geologic samples were taken, all water wells with their uses, and present and planned pertinent features including but not limited to roads, fencing, and cover stockpiles.

c. Detailed engineering drawing of the site showing all initial and permanent roads, buildings and equipment to be installed; unloading and holding areas; fences and gates; landscaping and screening devices; personnel and maintenance facilities; and sewer and water lines.

d. A liner system that meets the following requirements, depending upon the type of waste material disposed of:

(1) Municipal solid waste landfills (MSWLFs) shall have a composite liner system consisting of two components. The upper component must consist of a minimum 30-mil flexible membrane liner (FML), and the lower component must consist of at least a two-foot layer of compacted soil as specified in subparagraph 115.26(1)*"d"*(2). FML components consisting of high-density polyethylene (HDPE) shall be at least 60-mil thick. The FML must be installed in direct and uniform contact with the compacted soil component. The requirements for MSWLF facilities under this subparagraph were effective November 13, 1996, and apply to liner and cover systems that had not been installed by that date.

(2) Nonmunicipal solid waste landfills may utilize a liner system meeting 115.26(1)*"d"*(1) or shall have a soil liner consisting of at least four feet of recompacted soil. The description, source and volume of the material to be used for the landfill liner, including the method of installation, must be provided. The coefficient of permeability must be 1×10^{-7} cm/sec (0.00028 ft/day) or less as determined by appropriate laboratory analysis. The percent of standard or modified proctor density at moisture contents consistent with expected field conditions and corresponding to a measured coefficient of permeability equal to or less than 1×10^{-7} cm/sec shall be determined in the laboratory. The soil shall be placed in lifts not to exceed 8 inches in thickness. A minimum of one field density test shall be performed per lift per acre to verify that the density determined by the laboratory analysis as correlated to permeability has been achieved. Results of field density tests shall be submitted to the department prior to the placement of solid waste.

e. Alternative liner systems.

(1) The department may approve an alternative to the liner system specified in subparagraph 115.26(1)*"d"*(1) provided that the alternative liner system design has included certification by a professional engineer registered in Iowa stating that the proposed alternative liner system will ensure that the contaminant concentration values listed in federal regulations under 40 CFR 258, Subpart D, Table 1, will not be exceeded in the uppermost aquifer at the designated monitoring points of compliance as specified by the department.

This point of compliance shall be no more than 150 meters from the waste management boundary. This point of compliance is to be utilized for the purpose of certifying the alternative design only. All operational issues related to monitoring systems, compliance determinations, groundwater assessments, and remedial measures are governed by the appropriate relevant rules in this chapter and 567—Chapter 111. The certification shall be on a form furnished by the department which shall include space for identification of the sources of data utilized; formulas, models, tests or other methods utilized to determine contaminant concentrations at the points of compliance; and all references or guidance documents relied upon for the techniques or methods applied. A copy of all data utilized, formulas, models, tests or other methods utilized to determine contaminant concentrations at the point of compliance shall be placed in the facility's official files prior to operation of the landfill.

(2) An alternative liner system to that required in subparagraph 115.26(1)*"d"*(2) may be approved by the director if the design of the liner system is equivalent to the soil liner required in subparagraph 115.26(1)*"d"*(2) in performance, longevity and protection of the groundwater; or based on the specific type of waste to be disposed of, the design of the liner system offers equivalent protection of the groundwater. Undisturbed soil will not be allowed for use as liner material.

f. Diversion and drainage structures designed to prevent ponding, infiltration, inundation, erosion, slope failure and washout from surface runoff due to a 25-year, 24-hour rainfall event, as shown in the department of agriculture and land stewardship publication "Climatology of Iowa Series #2-1980."

g. A leachate collection, storage and treatment and disposal system designed to protect the soils, surface water, and groundwater from leachate contamination. This system shall be designed to operate during the active life of the site and during the postclosure period required by Iowa Code section 455B.304.

(1) The design and construction of the system must be in accordance with subrule 115.26(3) and be coordinated with the planned phase development of the site and the timing of leachate generation.

(2) The potential for leachate generation shall be evaluated in determining the design for the facility.

(3) The plan must include proposed quality assurance and quality control testing to be performed during installation and operation of the system. This plan shall include procedures that will be followed during installation of the leachate collection system and during normal landfill operations to ensure the system's integrity and design standards.

h. A drawing of the scheme of development including any excavation, trenching, and fill shown progressively with time. The methods to be used to ensure compliance with the scheme and to provide vertical and horizontal controls shall be described.

i. Cross-sectional drawings showing progressively with time the original and proposed elevation of excavating, trenching, and fill.

j. Evidence that the proposed plan has been reviewed by the local soil conservation district commissioner and that the technical assistance of the soil conservation district will be utilized to facilitate compliance with wind and water soil loss limit regulations provided for in Iowa Code sections 467A.42 to 467A.51.

k. An ultimate land use proposal, including intermediate stages, with time schedules indicating the total and complete land use. Final elevations, grades, permanent drainage structures, monitoring or treatment facilities and permanent improvements of the completed landfill shall be included. Any supporting drawings to the ultimate land use proposal shall be in appropriate scale.

l. Information describing:

(1) Source, volume, and characteristics of cover material;

(2) Area of site in acres;

(3) Areas to be used for salvaging and the burning of diseased trees.

m. A report consisting of information verifying that the portion of the site to be filled is:

(1) So situated as to obviate any predictable lateral movement of significant quantities of leachate from the site to standing or flowing surface water or to shallow aquifers that are in actual use or are deemed to be of potential use as a water resource.

(2) So situated that the base of the proposed site is at least 5 feet above the high water table unless a greater separation is required to ensure that there will be no significant adverse effect on groundwater

or surface waters or a lesser separation is unlikely to have a significant adverse effect on groundwater and surface waters.

(3) Outside a flood plain or shoreland, unless proper engineering and sealing of the site will render it acceptable and prior approval of the department under Title V of these rules and, when necessary, the U.S. Corps of Engineers is obtained.

(4) So situated to ensure no adverse effect on any well within 1,000 feet of the site existing at the time of application for the original permit which is being used or could be used without major renovation for human or livestock consumption or at least 1,000 feet from any such well unless hydrologic conditions are such that a greater distance is required to ensure no adverse effect on the well.

(5) So situated to ensure no adverse effect on the source of any community water system in existence at the time of application for the original permit within one mile of the site or at least one mile from the source of any community water system in existence at the time of application for the original permit unless hydrologic conditions are such that a greater distance is required to ensure no adverse effect on the water system.

(6) At least 20 feet from the adjacent property line unless there is a written agreement with the owner of the abutting property. The report shall verify that the portion to be filled is at least 50 feet from the adjacent property line. The written agreement shall be filed with the county recorder and shall become a permanent record of the property.

(7) Beyond 500 feet from any existing habitable residence unless there is written agreement with the owner of the residence and the site is screened by natural objects, plantings, fences or by other appropriate means. The residence must be in existence on the date of application for the original permit from the department. The written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.

n. Should conditions in violation of 115.26(1)*"m"*(1), (2), (3), (4), or (5) exist, the original plan shall detail how the site is to be engineered to provide equivalent protection to the water resources. The applicant shall have the burden of showing that equivalent protection will be provided.

o. If sewage sludge is to be disposed of at the site, the characteristics of the sludge and the method of disposal shall be described. If sludge is to be utilized for land application, such utilization shall be in conformance with 567—Chapter 67.

p. The required soil and hydrogeologic design information specified in rules 115.14(455B) through 115.25(455B).

q. Such additional data and information as may be deemed necessary by the director to evaluate a proposed sanitary landfill.

r. When a new landfill or lateral expansion is located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any airport runway end used by only piston-type aircraft, the plan must contain a notice that the landfill's official files will include the following demonstration: that the site is designed and will be operated so that it does not pose a bird hazard to aircraft. For any new site or a lateral expansion within a five-mile radius of any airport runway end used for turbojet or piston-type aircraft, the plan must show that the Federal Aviation Administration has been notified. For existing landfills located within 10,000 feet of any airport runway end used by turbojet aircraft or within 5,000 feet of any runway end used by only piston-type aircraft, the owner or operator must prepare the demonstration required above in this paragraph and notify the director that it has been placed in the facility's official files.

s. When a new landfill or lateral expansion is located within 200 feet of a fault that has had displacement in Holocene time, the plan must contain a notice that the facility's official files will include the following demonstration: that an alternative setback distance of less than 200 feet will prevent damage to the structural integrity of the site and will be protective of human health and the environment.

t. When a new landfill or a lateral expansion is located in seismic impact zones, the plan must contain a notice that the facility's official files will include the following demonstration: that all containment structures, including liners, leachate collection systems, and surface water control systems, are designed to resist the maximum horizontal acceleration in the lithified earth material for the site.

u. When a new facility or lateral expansion is located in an unstable area, the plan must contain a notice that the facility's official files will include the following demonstration: that engineering measures have been incorporated into the site design to ensure that the integrity of the structural components of the site will not be disrupted. The demonstration must consider the on-site or local soil conditions that may result in significant differential settling, on-site or local geologic or geomorphologic features, and on-site or local human-made features or events (both surface and subsurface). For existing facilities located in an unstable area, the owner or operator must prepare the above demonstration required in this paragraph and notify the director that it has been placed in the facility's official files.

115.26(2) *General operating requirements for all sanitary landfills.* All sanitary landfills shall be operated in conformance with this subrule. The plan submitted shall detail how the sanitary landfill will comply with these requirements.

a. Solid waste shall be unloaded at the operating area only when an operator is on duty at that area. Solid waste may be deposited in storage containers inside the site under the supervision of an attendant or operator.

b. Access to the site shall be restricted and a gate shall be provided at the entrance to the site and shall be kept locked when an attendant or operator is not on duty.

c. A copy of the permit, engineering plans and reports shall be kept at the site at all times unless the applicant demonstrates to the department that, on the basis of the characteristics of the waste to be handled at the site and the times of operation of the site, such is unnecessary.

d. Sites not open to the public shall have a permanent sign posted at the site entrance specifying:

(1) Name of operation.

(2) The site permit number.

(3) That the site is not open to the public.

(4) The name and telephone number of the responsible official.

e. Solid waste shall not be deposited in such a manner that material or leaching therefrom may cause pollution of groundwater or surface waters.

f. Provision shall be made for an all-weather fill area which is accessible for solid waste disposal during all weather conditions under which solid waste is received and disposed of at the site. Such all-weather areas shall be operated at all times in accordance with Iowa Code chapter 455B and these rules.

g. Provisions shall be made to have cover material available for winter and wet weather operations.

h. Each site shall be graded and provided with drainage facilities to meet the requirements of 115.26(1)*"f"* to minimize flow of surface water onto and into the portion of the site being filled, and to prevent soil erosion and ponding of water.

i. The finished surface of the site shall be repaired as required, covered with soil, and seeded with native grasses or other suitable vegetation immediately upon completion or promptly in the spring on areas terminated during winter conditions. If necessary, seeded slopes shall be covered with straw or similar material to prevent erosion.

j. Each sanitary landfill shall be staked as necessary and inspected annually, or as otherwise specified in the permit, by a professional engineer registered in Iowa. A brief report by the engineer indicating areas of conformance or nonconformance with the approved plans and specifications shall be submitted to the department by the permit holder within 30 days of the inspections. In specifying alternate inspection frequencies, the department shall consider the types and quantities of waste disposed of, the rate of development of the site, the degree of control over site development inherent in the design and topography of the site and the quality of prior operation.

k. If any pockets, seams or layers of sand or other highly permeable material are encountered at the sanitary landfill, the permit holder shall promptly notify the department and shall ensure that a professional engineer registered in Iowa has certified that all sands encountered were totally excavated or sealed off properly or otherwise handled as explicitly provided for in the permit before solid waste is disposed of in that area of the site.

l. The total volume of leachate collected for each month shall be recorded, and the elevation of leachate in the landfill shall be provided to the department in accordance with the schedule specified in the permit.

115.26(3) *Hydrologic monitoring system.* The owner or operator of a solid waste disposal facility shall operate and maintain a hydrologic monitoring system which includes a sufficient number of groundwater monitoring wells and surface water monitoring points to determine the impact, if any, that the sanitary disposal project is having on the adjacent water.

The hydrologic monitoring systems shall enable early detection of the escape of pollutants from a sanitary landfill. The hydrologic monitoring system shall be planned, designed and constructed in accordance with the provisions of rules 115.14(455B) through 115.25(455B), and implemented in accordance with the following schedule:

a. A hydrologic monitoring system plan shall be submitted to the department for review and approval with any application for a new permit. Installation of the approved system shall be completed prior to the deposition of solid waste into the landfill.

b. A hydrologic monitoring system plan shall be submitted with applications for permit renewal, not later than the date of renewal, with completion of installation and operation within one year of approval of the plan. Installation of the plan shall be completed within one year of the date of department approval.

c. Upon notice by the department, a hydrologic monitoring system plan may be required to be submitted within six months of such notification, with completion of installation and operation of the approved plan within one year of the date of department approval.

115.26(4) *Hydrologic monitoring system operating requirements.*

a. *Operational sampling requirements.* All sampling shall be conducted in accordance with an approved sampling protocol, components of which are described in rule 115.20(455B).

b. *Groundwater levels.* The elevation of water in each monitoring well shall be measured monthly and recorded to the nearest 0.01 foot. Level measurements must be made before a well is evacuated for sample collection.

c. *Surface water levels.* The water level or flow rate of each surface water body sampled shall be measured and recorded at the time of sample collection.

d. *First-year water sampling.* During the first year of operation of the hydrologic monitoring system, a sample shall be collected quarterly from each groundwater monitoring well and surface water monitoring point. The purpose of this sample is to determine baseline water quality information and enable initial estimation of water quality variability. Each sample shall be analyzed for the following parameters in addition to the parameters listed in paragraph *"e"* of this subrule and any additional parameter deemed necessary by the department.

(1) Arsenic, dissolved.
(2) Barium, dissolved.
(3) Cadmium, dissolved.
(4) Chromium, total dissolved.
(5) Lead, dissolved.
(6) Mercury, dissolved.
(7) Magnesium, dissolved.
(8) Zinc, dissolved.
(9) Copper, dissolved.
(10) Benzene.
(11) Carbon tetrachloride.
(12) 1,2-Dichloroethane.
(13) Trichloroethylene.
(14) 1,1,1-Trichloroethane.
(15) 1,1-Dichloroethylene.
(16) Paradichlorobenzene.

e. Routine semiannual water sampling. After the first year, each monitoring point must be sampled semiannually as specified in the facility's operation permit and analyzed for the following parameters.

(1) Chloride.
(2) Specific conductance (field measurement).
(3) pH (field measurement).
(4) Ammonia nitrogen.
(5) Iron, dissolved.
(6) Chemical oxygen demand.
(7) Temperature (field measurement).
(8) Any additional parameters deemed necessary by the department.

f. Routine annual water sampling. One sample per year from each monitoring point collected in a quarter specified in the facility's operation permit must be analyzed for the following parameters.

(1) Total organic halogen.
(2) Phenols.
(3) Any additional parameters deemed necessary by the department.

115.26(5) *Laboratory procedures.* The owner or operator of the solid waste facility must have the groundwater and surface water samples analyzed only by laboratories that are certified by the state of Iowa. Until the department adopts rules regarding certification of laboratories, analyses shall be conducted at a laboratory that certifies to the department that the appropriate analytical procedure is utilized.

All analyses of parameters not covered in the Safe Drinking Water Act (SDWA) must be performed according to methods specified in SW-846 or approved by the United States Environmental Protection Agency. Any analytical method used on non-SDWA parameters deviating from those specified in SW-846 or approved by EPA must be approved by the department.

All analyses must be recorded on forms which, in addition to the analytical results, show the precision of the data set, bias, and limit of detection.

115.26(6) *Analysis of sampling data.* For each parameter analyzed during the first year of operation of the hydrologic monitoring system, as listed in paragraph 115.26(4)*"d"* above, the mean and standard deviation for each upgradient monitoring well shall be determined using the first year of data. For routine semiannual monitoring parameters, as listed in paragraph 115.26(4)*"e"* above, mean and standard deviation shall be recalculated annually using all available analytical data. If the analytical results for a downgradient monitoring point do not fall within the control limits of two standard deviations above the mean parameter(s) level in a corresponding upgradient monitoring point, the owner or operator shall submit this information to the department within 30 days of receipt of the analytical results. If the analytical results from an upgradient monitoring point do not fall within two standard deviations of the mean parameter(s) level for that monitoring point, the department shall also be notified within 30 days.

115.26(7) *Additional sampling.* The department will determine if additional sampling is warranted, after receipt of information indicating a possible release as required in subrule 115.26(6) above. The department may require any additional samples to be split and analyzed to determine if the values obtained outside the control limits were the result of laboratory or sampling error. Any additional analytical results shall be submitted to the department by the owner or operator within seven days of receipt. The department will review the information and determine if additional monitoring or preparation of a groundwater quality assessment plan, in accordance with subrule 115.26(9), is necessary.

115.26(8) *Record keeping and recording.*

a. The persons conducting the sampling must record the procedures, measurements, and observations at the time of sampling. The field records must be sufficient to document whether the procedures and requirements specified in the sampling protocol have been followed. The records must also contain the names of the persons conducting the sampling, the time and date each monitoring point

was sampled, the required field measurement or test result. The owner or operator must submit copies of these field records to the department if requested.

b. The owner or operator shall keep records of analyses and the associated groundwater surface elevations for the active life and postclosure period of the facility. These records shall be kept at the site or in the administrative files of the owner or operator, and shall be available for review by the department upon request in the county in which the landfill is located.

c. The owner or operator shall provide the department with copies of the quarterly monitoring analytical results by the dates specified in the facility's operation permit.

d. An annual report summarizing the effect of the facility on groundwater and surface water quality shall be submitted to the department by November 30 each year. The summary is to be prepared by an engineer registered in the state of Iowa and incorporated in the November semiannual engineer inspection report. The contents of this summary are to include the following items:

(1) Amounts and kinds of wastes accepted under Special Waste Authorizations.

(2) A narrative describing the effects of the facility on surrounding surface water and groundwater quality and any changes made or maintenance needed in the monitoring network.

(3) Graphs showing concentrations versus time for all monitoring parameters for each well for as long as records exist for that parameter. Control limits (— two standard deviations from the initial background value) must be shown in each graph.

(4) Results of activities and tests required by the well maintenance and performance reevaluation plan described in rule 115.21(455B).

115.26(9) *Groundwater quality assessment plan.*

a. If leachate migration occurs, the owner or operator, as required by the department, shall develop and submit for approval a specific plan to conduct a groundwater quality assessment study at the facility to determine the rate of migration and the extent and constituent composition of the leachate release. At a minimum, the assessment monitoring plan must contain the following elements:

(1) Discussion of the hydrogeologic conditions at the site with an identification of potential contaminant pathways.

(2) Description of the present detection monitoring system.

(3) A description of the approach the owner or operator will take to substantiate any contention that the contamination may have been falsely indicated.

(4) Description of the investigatory approach used to characterize the rate and extent of leachate migration.

(5) Discussion of the number, location and depth of wells that will be initially installed as well as a strategy for installing more wells in subsequent investigatory phases.

(6) Information on well design and construction.

(7) Description of the sampling and analytical program used to obtain and analyze groundwater monitoring data.

(8) Description of data collection and analysis procedures.

(9) Schedule for the implementation of each phase of the assessment study.

b. After the plan has been approved by the department, the owner or operator shall implement the plan according to the schedule in the plan.

c. Within 90 days after the activities prescribed in the groundwater assessment plan have been completed, the owner or operator shall submit a written groundwater quality assessment report to the department.

d. If the department determines that no waste or waste constituents from the facility have entered the groundwater, the owner or operator shall reinstate the routine monitoring program.

If the department determines that waste or waste constituents have been released from the facility and have entered the groundwater, the owner or operator shall continue to make the determinations described by the assessment plan and develop a remedial action/mitigation plan to alleviate or reduce contamination to the fullest extent possible.

115.26(10) *Postclosure monitoring requirements.*

a. At least six months prior to closing the site, the owner or operator of a sanitary landfill shall submit a plan to the department for approval detailing a 30-year postclosure monitoring program.

b. The department will review the facility's postclosure monitoring records at five-year intervals to determine if changes in the monitoring frequencies or parameters are required.

c. The commission may adopt rules on a site-specific basis identifying additional monitoring requirements for sanitary landfills for which the postclosure monitoring period is to be extended.

115.26(11) *Leachate control systems for new landfills.* Every new landfill must have a leachate collection, storage, and treatment and discharge system in place prior to accepting waste. This system shall be operated in conformance with the approved design during the active life of the site and during the postclosure period.

a. Leachate collection system.

(1) The leachate collection system shall be designed to allow not more than 1 foot of head above the top of the landfill liner. The collection system must include a method for measuring the leachate head in the landfill at the lowest area(s) of the collection system.

(2) The landfill liner must be graded toward the leachate collection pipe at a slope greater than 2 percent, but not to exceed 10 percent. The side slopes of the landfill liner must be less than 25 percent.

(3) A drainage layer must be placed immediately above the landfill liner. This drainage layer shall consist of a minimum of 1 foot of soil with a coefficient of permeability of 1×10^{-3} cm/sec (2.8 ft/day) or greater.

(4) Leachate collection pipe shall be placed in a trench excavated a minimum of 18 inches into the liner. The liner system beneath the trench shall meet the applicable requirements specified under 115.26(1)*"d."*

(5) Leachate collection pipe shall be surrounded by a gravel protection and drainage layer, and by either a graded filter layer or by a geotextile filter fabric.

(6) The collection pipe must be covered with a filter material to encourage flow and to prevent infiltration of fine-grained materials into the pipe. The collection pipe must be perforated or slotted, of a sufficient diameter to handle the expected flow, but not less than 4 inches in inside diameter; capable of being cleaned throughout the active life of the site and during the postclosure period; chemically resistant to the wastes and the expected leachate; and of sufficient strength to support maximum static and dynamic loads imposed by the overlying wastes, cover materials, and equipment used during the construction and operation of the site. Documentation shall be submitted which includes methods and specifications for cleaning of the pipes, chemical compatibility of the pipes, and calculations and specifications for pipe strength.

(7) The leachate collection system shall be equipped with valves to enable the flow of leachate from the facility to be shut off during periods of maintenance.

(8) The leachate collection system shall be cleaned out once every three years, or more frequently if leachate head or the volume of leachate collected indicates cleanout is necessary. A report of the methods and results of the cleanout shall be submitted at the time of permit renewal.

b. Leachate storage system. The leachate storage system must be:

(1) Capable of storing at least seven days' accumulation of leachate based on mathematical simulated volume using average precipitation;

(2) Constructed of materials which are compatible with the expected leachate; and

(3) Accessible at all times of the year and under all weather conditions.

c. Leachate treatment and disposal system.

(1) Leachate shall be treated by such physical, chemical or biological processes as necessary to meet the pretreatment limits, if any, imposed by a treatment agreement between the landfill and a publicly owned treatment works, or by the effluent discharge limitation established by an NPDES permit issued to the landfill.

(2) Leachate recirculation systems shall be designed to minimize detrimental effects to vegetative cover, to minimize erosion and damage to the soil cover, and to promote rapid stabilization of the waste. Such systems shall not be allowed for sites which do not satisfy all of the requirements of 115.26(11).

(3) All leachate treatment systems, except as described in (2) above, shall conform to wastewater treatment design standards as established by the department.

d. Inspection prior to start-up. The department shall be notified when the initial construction of the leachate collection, storage, and treatment and discharge system has been completed in order that an inspection may be made to determine that the leachate control system is constructed as designed. Prior to this inspection, construction certification reports from the project engineer must be submitted discussing quality assurance and quality control testing done to ensure that all materials and equipment for the leachate control system have been placed in accordance with the approved engineering plans, reports and specifications. The results of all testing must be included, along with documentation of any failed tests, a description of the procedures used to correct the failures, and results of any retesting performed. This inspection may be incorporated with the inspection required by rule 115.12(455B).

115.26(12) *Leachate control systems for existing landfills.*

a. All existing landfills must submit a leachate control plan, as described in paragraph *"b"* below, when any of the following occur:

(1) At the time of permit renewal;

(2) When requesting a change in the existing permit for expansion or modification of the waste fill area;

(3) Within 180 days of notification by the department of the detection of any leachate seep or contamination of the groundwater or surface waters from leachate; or

(4) At least 180 days prior to landfill closure.

b. The design of the leachate control system must include leachate collection storage, and treatment and disposal.

(1) New fill areas of a landfill that have not previously received waste must address the design standards of subrules 115.26(1) and 115.26(11).

(2) Existing fill areas must address the design standards of subrule 115.26(11), except paragraph *"a,"* subparagraphs (1) to (4). The leachate collection system must be designed to achieve the lowest possible leachate head above the landfill liner, and must include a method of measuring the leachate head.

c. The leachate control plan must be implemented within one year of department approval of the leachate control plan.

115.26(13) *Closure requirements.* The owner or operator of the landfill must close the site in a manner that minimizes the potential for postclosure release of pollutants to the air, groundwater or surface waters.

a. A minimum of two permanent surveying monuments must be installed by a registered land surveyor from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the postclosure period.

b. The final cover of a nonmunicipal solid waste landfill shall consist of:

(1) Not less than 2 feet of compacted soil. The permeability must be 1×10^{-7} cm/sec or less as determined by appropriate laboratory analysis. The percent of standard or modified proctor density at moisture content consistent with expected field conditions and corresponding to a measured coefficient of permeability equal to or less than 1×10^{-7} cm/sec shall be determined in the laboratory. The soil shall be placed in lifts not to exceed 8 inches in thickness. A minimum of one field density test shall be performed per lift per acre to verify that the density determined by the laboratory analysis as correlated to permeability has been achieved. Results of field density tests shall be submitted to the department. The compacted soil shall be keyed into the bottom liner at the waste cell boundary.

(2) Not less than 2 feet of uncompacted soil, containing sufficient organic matter to support vegetation. The thickness of this soil layer must be at least the root depth of the planned vegetative cover to prevent root penetration into the underlying soil layers. This layer shall be placed as soon as possible to prevent desiccation, cracking and freezing of the compacted soil layer described in 115.26(13)*"b"*(1).

(3) A layer of compacted soil, incinerator ash, or similar material permitted by the department may be used to prepare the site for placement of the compacted soil layer described in 115.26(13)*"b"*(1).

The use of such material will not serve as a replacement for the compacted soil layer described in 115.26(13)*"b"*(1).

(4) Alternate methods and materials may be permitted if shown to provide equal or superior performance.

c. The final cover for a municipal solid waste landfill shall consist of:

(1) An erosion layer underlaid by an infiltration layer. The infiltration layer must be comprised of a minimum of 18 inches of earthen material that has a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present, or a permeability no greater than 1×10^{-5} cm/sec, whichever is less. The erosion layer must consist of a minimum of 6 inches of earthen material that is capable of sustaining native plant growth.

(2) The department may approve an alternate final cover design that includes an infiltration layer that achieves an equivalent reduction in infiltration as the infiltration layer specified above in subparagraph (1) and an erosion layer that provides equivalent protection from wind and water erosion as the erosion layer specified above in subparagraph (1).

d. Those portions of existing landfills demonstrating placement of final cover in conformance with previously approved plans and specifications or regulations in effect at the time of such approval shall not be required to apply additional cover solely to achieve compliance with 115.26(13)*"b"* and *"c."* Those areas of existing landfills which have not been completed in conformance with the exemptions provided herein prior to January 15, 2003, shall complete all such areas in conformance with an approved closure plan pursuant to subrule 115.13(10) which shall include compliance with the provisions of 115.26(13)*"b"* and *"c."* This paragraph shall not preclude a requirement to provide additional cover to such exempted areas as a result of the conclusions of a groundwater assessment or remedial action plan.

e. The final cover shall be designed and graded to meet the drainage requirements of 115.26(1)*"f."* The final cover must have a minimum slope of 5 percent, and shall not exceed a slope of 25 percent. Those portions of existing landfills demonstrating placement of final cover in conformance with previously approved plans and specifications shall not be required to reconstruct the cover to meet either the minimum or maximum slope established by this subrule. Those areas which have not been completed by placement of final cover pursuant to this exemption on January 15, 2003, shall be completed in conformance with an approved closure plan pursuant to subrule 115.13(10) and shall meet the minimum and maximum slope requirements stated herein. This subrule shall not preclude a requirement to modify the slope of any portion of the landfill as a result of the conclusion of a groundwater assessment or remedial action plan.

f. The final cover shall be seeded with native grasses or other suitable vegetation as soon as practical upon completion to prevent soil erosion. If seeding must be delayed due to summer or winter conditions, silt fences or other structures shall be used to minimize erosion of the final cover until the next season suitable for planting. The placement of cover in conformance with 115.26(13)*"b"* and *"c"* shall not be delayed due to season and shall be placed as soon as the solid waste has reached its maximum design elevation within the cell. Vegetation type shall be based on density and root depth, nutrient availability, soil thickness, and soil type. Alternatives to vegetative cover may be considered to control erosion and promote runoff.

g. An approved groundwater monitoring system as required by the closure permit and the rules must be in place and operating.

h. An approved leachate collection and treatment system as required by the closure permit and the rules must be in place and operating.

i. An approved landfill gas monitoring and collection or ventilation system as required by the closure permit and the rules must be in place and operating unless determined not to be necessary by the director.

j. An approved financial assurance instrument, adequate to cover costs of all postclosure activities as required by the closure plan and the closure permit, must be provided upon promulgation of the appropriate rules.

k. All requirements of the closure plan, the closure permit, and the rules must be satisfied.

115.26(14) *Postclosure requirements for 30 years following closure of the site.* The owner or operator of the site must comply with all postclosure requirements.

a. The diversion and drainage system as required in 115.26(1)*"f"* must be maintained to approved specifications to prevent run-on and runoff from eroding or otherwise damaging the final cover.

b. The integrity and effectiveness of the final cover must be maintained by making repairs as necessary to correct the effects of settling, subsidence, erosion, or other events. If damage to the compacted soil layer described in 115.26(13)*"b"*(1) occurs, repairs shall be made to correct the damage and return it to its original specifications.

c. The vegetative cover shall be reseeded as necessary to maintain good vegetative growth. Any invading vegetation whose root system could damage the compacted soil layer shall be removed or destroyed immediately.

d. The groundwater monitoring system shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

e. The leachate collection, removal and treatment systems shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

f. The landfill gas monitoring and collection systems shall be operated and maintained and shall comply with all applicable rules and closure permit requirements.

g. Semiannual reports shall be submitted to the department. These reports shall contain information concerning the general conditions at the site, groundwater monitoring results, amount of leachate collected and treated, information concerning the landfill gas monitoring and collection system, and other information as may be required by the closure permit. In addition, locations and elevations of all permanent monuments, required in 115.26(13)*"a,"* shall be determined at least once every three years or more frequently in the event of obvious disturbance of the monument. The reports are due by April 30 and October 31 for the preceding six-month period.

h. The permanent surveying monuments required in 115.26(13)*"a"* shall be maintained.

115.26(15) *Control of explosive gases.*

a. Owners or operators of all sanitary landfills must ensure that:

(1) The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane gas in facility structures (excluding gas control or recovery system components); and

(2) The concentration of methane gas does not exceed the lower explosive limit for methane gas at the facility property boundary.

b. Owners or operators of all sanitary landfills must monitor quarterly for compliance with paragraph *"a"* of this subrule. An annual report shall be submitted by November 30 summarizing the methane gas monitoring results and any action taken resulting from gas levels exceeding the limits during the previous year.

c. If methane gas levels exceeding the limits specified in paragraph *"a"* of this subrule are detected, the owner or operator must:

(1) Immediately take all necessary steps to ensure protection of human health and notify the director;

(2) Within seven days after detection, submit to the director a report stating the methane gas levels detected and a description of the steps taken to protect human health;

(3) Within 60 days of detection, implement a plan for remediation of the methane gas releases and send a copy of the remediation plan to the director. The plan shall describe the nature and extent of the problem and the proposed remedy.

567—115.27(455B) Operating requirements for all sanitary disposal projects. Every application for any permit issued by the department shall detail the means by which the applicant will comply with the operating requirements. All sanitary disposal projects shall be operated in conformance with these requirements.

115.27(1) Open burning shall be prohibited except when permitted by 567—Chapter 23. Any burning to be conducted at the site shall be at a location that is separate and distinct from the operating area.

115.27(2) Litter shall be confined to the property on which the sanitary disposal project is located. At the conclusion of each day of operation, any litter strewn beyond the confines of the operating area shall be collected and stored in covered leakproof containers or properly disposed of.

115.27(3) Scavenging shall be prohibited. Any salvaging to be conducted must be described in the permit application, and all salvaged materials must be stored and removed from the sanitary disposal project site in conformance with the permit conditions.

115.27(4) Effective means shall be taken to control flies, other insects, rodents and other vermin.

115.27(5) Equipment designated in the plans and specifications or equivalent equipment shall be used to operate the site at all times.

115.27(6) The major internal roads shall be of all-weather construction and maintained in good condition. Dust shall be controlled on internal roads.

115.27(7) Sites open to the public shall have a permanent sign posted at the site entrance specifying:

a. Name of the operation.

b. The site permit number.

c. The hours and days the site is open to the public.

d. The categories of waste which will be accepted for disposal or, as an alternative, the identification of the categories of waste which are prohibited.

e. Telephone number of official responsible for the operation.

115.27(8) Free liquids or waste containing free liquids. No free liquids or waste containing free liquids shall be disposed of in a sanitary landfill.

115.27(9) General closure requirements.

a. The owner or operator shall notify the department in writing at least 180 days prior to closure of the facility or suspension of operations.

b. Notice of closure shall be posted at the facility at least 180 days prior to closure indicating the date of closure and alternative solid waste management facilities. Notice of closure shall also be published at least 180 days prior to closure in a newspaper of local circulation. This notice shall include the date of closure and alternative solid waste management facilities.

c. Implementation of the closure/postclosure plan shall be completed within 90 days of the closure of the facility. The owner and an engineer registered in Iowa shall certify that the closure/postclosure plan has been implemented in compliance with the rules, the closure/postclosure plan and the permit.

d. Upon completion of closure activities, the following documentation shall be submitted: as-built plans showing changes from the original design plans; test results indicating compliance with final cover as applicable, waste removal, equipment decontamination; a copy of the notation filed with the county recorder; and other forms of documentation as required.

567—115.28(455B) Specific requirements for a sanitary landfill proposing to accept a specific type of solid waste.

115.28(1) *Plan requirements.* The plans for sanitary landfills proposing to accept only a specific type of solid waste shall include the following information in addition to that required by rules 115.2(455B) through 115.13(455B), 115.27(455B), 115.29(455B), and 115.30(455B) and subrule 115.26(1).

a. The source of the solid waste and a description of the process which produces it.

b. A detailed analysis of the solid waste to be deposited at the site, including such tests as may be required by the department to evaluate the potential impact of disposal of the solid waste on the environment if it is disposed of in the manner described in the plans.

c. Engineering detailing how the site will be designed, constructed, and operated to protect groundwater and surface water resources.

d. If the information submitted in 115.28(1)*"b"* indicates that no danger of contamination of groundwater or surface waters exists, the director may waive any rule requiring analysis and definition of subsurface geology.

115.28(2) *Specific operating requirements for sanitary landfills proposing to accept a specific type of solid waste.* The operating requirements for a sanitary landfill accepting a specific type of solid waste will necessarily vary with the nature of the solid waste. Accordingly, no single standard of operation is practical. The applicant shall submit a plan of operation which incorporates the requirements of rules 115.2(455B) through 115.13(455B), 115.27(455B), 115.29(455B), and 115.30(455B) and subrule 115.26(2), and which proposes minimum standards to be maintained at the site for the following operating procedures. The department shall approve the proposed standards if it finds they will provide adequate protection of the environment. The sanitary landfill shall be operated in conformance with rules 115.2(455B) through 115.13(455B), 115.27(455B), 115.29(455B), and 115.30(455B), subrule 115.26(2), and the standards approved by the department.

a. Daily, intermediate, and final cover.

b. Number and duties of personnel.

c. Storage and preliminary processing of solid waste.

d. Safety procedures and equipment.

e. Operating equipment.

f. Buildings and shelter.

567—115.29(455B) Operator certification. Sanitary landfill operators and solid waste incinerator operators shall be trained, tested, and certified by a department-approved certification program.

115.29(1) A sanitary landfill operator or a solid waste incinerator operator shall be on duty during all hours of operation of a sanitary landfill or solid waste incinerator, consistent with the respective certification.

115.29(2) To become a certified operator, an individual shall complete a basic operator training course that has been approved by the department or an alternative, equivalent training approved by the department and shall pass a departmental examination as specified by this rule. An operator certified by another state may have reciprocity subject to approval by the department.

115.29(3) A sanitary landfill operator certification or solid waste incinerator operator certification is valid until June 30 of the following even-numbered year.

115.29(4) Basic operator training course.

a. The required basic operator training course for a certified sanitary landfill operator will have at least 25 contact hours and will address the following areas, at a minimum:

(1) Description of types of wastes;

(2) Interpreting and using engineering plans;

(3) Construction surveying techniques;

(4) Waste decomposition processes;

(5) Geology and hydrology;

(6) Landfill design;

(7) Landfill operation;

(8) Environmental monitoring;

(9) Applicable laws and regulations;

(10) Permitting processes;

(11) Leachate control and treatment;

b. The required basic operator training course for a certified solid waste incinerator operator will have at least 12 contact hours and will address the following areas, at a minimum:

(1) Description of types of wastes;

(2) Incinerator design;

(3) Interpreting and using engineering plans;

(4) Incinerator operations;

(5) Environmental monitoring;

(6) Applicable laws and regulations;

(7) Permitting processes;

(8) Incinerator maintenance;

(9) Ash and residue disposal.

115.29(5) Alternate basic operator training must be approved by the department. It shall be the applicant's responsibility to submit any documentation the department may require to evaluate the equivalency of alternate training.

115.29(6) Fees.

a. The examination fee for each examination shall be $20.

b. The initial certification fee shall be $8 for each one-half year of a two-year period from the date of issuance to June 30 of the next even-numbered year.

c. The certification renewal shall be $24.

d. The penalty fee shall be $12.

115.29(7) Examinations.

a. The operator certification examinations will be based on the basic operator training course curriculum.

b. All persons wishing to take the examination required to become a certified operator of a sanitary landfill or a solid waste incinerator shall complete the Operator Certification Examination Application, Form 542-1354. A listing of dates and locations of examinations is available from the department upon request. The application form requires the applicant to indicate the basic operator training course taken. Evidence of training course completion must be submitted with the application for certification. The completed application and the application fee shall be sent to the director and addressed to the central office in Des Moines. Application for examination must be received by the department at least 30 days prior to the date of examination.

c. A properly completed application for examination will be valid for one year from the date the application is approved by the department.

d. Upon failure of the first examination, the applicant may be reexamined at the next scheduled examination. Upon failure of the second examination, the applicant shall be required to wait a period of 180 days between each subsequent examination.

e. Upon each reexamination when a valid application is on file, the applicant shall submit to the department the examination fee at least ten days prior to the date of examination.

f. Failure to successfully complete the examination within one year from the date of approval of the application shall invalidate the application.

g. Completed examinations will be retained by the director for a period of one year after which they will be destroyed.

h. Oral examinations may be given at the discretion of the department.

115.29(8) Certification.

a. All operators who passed the operator certification examination by July 1, 1991, are exempt from taking the required operator training course. Beginning July 1, 1991, all operators will be required to take the basic operator training course and pass the examination in order to become certified.

b. Application for certification must be received by the department within 30 days of the date the applicant receives notification of successful completion of the examination. All applications for certification shall be made on a form provided by the department and shall be accompanied by the certification fee.

c. Applications for certification by examination which are received more than 30 days but less than 60 days after notification of successful completion of the examination shall be accompanied by the certification fee and the penalty fee. Applicants who do not apply for certification within 60 days of notice of successful completion of the examination will not be certified on the basis of that examination.

d. For applicants who have been certified under other state mandatory certification programs, the equivalency of which has been previously reviewed and accepted by the department, certification without examination will be recommended.

e. For applicants who have been certified under voluntary certification programs in other states, certification will be considered. The applicant must have successfully completed a basic operator training course and an examination generally equivalent to the Iowa examination. The director may require the applicant to successfully complete the Iowa examination.

f. Applicants who seek Iowa certification pursuant to 115.29(8)*"d"* or *"e"* shall submit an application for examination accompanied by a letter requesting certification pursuant to those paragraphs. Application for certification pursuant to those paragraphs shall be received by the director in accordance with 115.29(8)*"a"* and *"b."*

115.29(9) Renewals. All certificates shall expire every two years, on even-numbered years, and must be renewed every two years to maintain certification. Application and fee are due prior to expiration of certification.

a. Late application for renewal of a certificate may be made provided that such late application shall be received by the director or postmarked within 30 days of the expiration of the certificate. Such late application shall be on forms provided by the department and accompanied by the penalty fee and the certification renewal fee.

b. If a certificate holder fails to apply for renewal within 30 days following expiration of the certificate, the right to renew the certificate automatically terminates. Certification may be allowed at any time following such termination, provided that the applicant successfully completes an examination. The applicant must then apply for certification in accordance with subrule 115.29(8).

c. An operator may not continue to operate a sanitary landfill or solid waste incinerator after expiration of a certificate without renewal thereof.

d. Continuing education must be earned during the two-year certification period. All certified operators must earn ten contact hours per certificate during each two-year period. The two-year period will begin upon issuance of certification.

e. Only those operators fulfilling the continuing education requirements before the end of each two-year period will be allowed to renew their certificates. The certificates of operators not fulfilling the continuing education requirements shall be void upon expiration, unless an extension is granted.

f. All activities for which continuing education credit will be granted must be related to the subject matter of the particular certificate to which the credit is being applied.

g. The director may, in individual cases involving hardship or extenuating circumstances, grant an extension of time of up to three months within which the applicant may fulfill the minimum continuing education requirements. Hardship or extenuating circumstances include documented health-related confinement or other circumstances beyond the control of the certified operator which prevent attendance at the required activities. All requests for extensions must be made 60 days prior to expiration of certification.

h. The certified operator is responsible for notifying the department of the continuing education credit earned during the period. The continuing education credits earned during the period shall be shown on the application for renewal.

i. A certified operator shall be deemed to have complied with the continuing education requirements of this rule during periods that the operator serves honorably on active duty in the military service; or for periods that the operator is a resident of another state or district having a continuing education requirement for operators and meets all the requirements of that state or district for practice there; or for periods that the person is a government employee working as an operator and is assigned to duty outside of the United States; or for other periods of active practice and absence from the state approved by the department.

115.29(10) Discipline of certified operators.

a. Disciplinary action may be taken on any of the following grounds:

(1) Failure to use reasonable care or judgment or to apply knowledge or ability in performing the duties of a certified operator. Duties of certified operators include compliance with rules and permit conditions applicable to landfill or incinerator operation.

(2) Failure to submit required records of operation or other reports required under applicable permits or rules of the department, including failure to submit complete records or reports.

(3) Knowingly making any false statement, representation, or certification on any application, record, report or document required to be maintained or submitted under any applicable permit or rule of the department.

b. Disciplinary sanctions allowable are:

(1) Revocation of a certificate.

(2) Probation under specified conditions relevant to the specific grounds for disciplinary action. Additional education or training or reexamination may be required as a condition of probation.

c. The procedure for discipline is as follows:

(1) The director shall initiate disciplinary action. The commission may direct that the director investigate any alleged factual situation that may be grounds for disciplinary action under 115.29(10)*"a"* and report the results of the investigation to the commission.

(2) A disciplinary action may be prosecuted by the director.

(3) Written notice shall be given to an operator against whom disciplinary action is being considered. The notice shall state the informal and formal procedures available for determining the matter. The operator shall be given 20 days to present any relevant facts and indicate the operator's position in the matter and to indicate whether informal resolution of the matter may be reached.

(4) An operator who receives notice shall communicate verbally, in writing, or in person with the director, and efforts shall be made to clarify the respective positions of the operator and director.

(5) The applicant's failure to communicate facts and position relevant to the matter by the required date may be considered when determining appropriate disciplinary action.

(6) If agreement as to appropriate disciplinary sanction, if any, can be reached with the operator and the commission concurs, a written stipulation and settlement between the department and the operator shall be entered. The stipulation and settlement shall recite the basic facts and violations alleged, any facts brought forth by the operator, and the reasons for the particular sanctions imposed.

(7) If an agreement as to appropriate disciplinary action, if any, cannot be reached, the director may initiate formal hearing procedures. Notice and formal hearing shall be in accordance with 567—Chapter 7 related to contested and certain other cases pertaining to license discipline.

115.29(11) Revocation of certificates. Upon revocation of a certificate, application for certification may be allowed after two years from the date of revocation. Any such applicant must successfully complete an examination and be certified in the same manner as a new applicant.

115.29(12) A temporary operator of a sanitary landfill or solid waste incinerator may be designated for a period of six months when an existing certified operator is no longer available to the facility. The facility must make application to the department, explain why a temporary certification is needed, identify who the temporary operator will be, and identify the efforts which will be made to obtain a certified operator. A temporary operator designation shall not be approved for greater than a six-month period except for extenuating circumstances. In any event, not more than one six-month extension to the temporary operator designation may be granted. Approval of a temporary operator designation may be rescinded for cause as set forth in 115.29(10).

567—115.30(455B) Emergency response and remedial action plans.

115.30(1) *Purpose.* The purpose of this rule is to implement Iowa Code section 455B.306(6)*"d"* by providing the criteria for developing a detailed emergency response and remedial action plan (ERRAP) for permitted sanitary disposal projects.

115.30(2) *Applicability.* The requirements of this rule apply to the owners or operators of all sanitary landfills.

115.30(3) *Submittal requirements.*

a. The owner or operator of facilities that are subject to this rule and have been permitted prior to October 24, 2001, shall submit a complete detailed ERRAP that meets the requirements set forth in this rule no later than December 31, 2001.

b. Applications for a new permit after October 24, 2001, shall incorporate a complete detailed ERRAP that meets the requirements set forth in this rule.

c. An updated ERRAP that meets the requirements of this rule shall be submitted at the time of each permit renewal or permit reissuance application that is due after December 31, 2001.

d. An updated ERRAP shall be included with any request for permit modification to incorporate a facility expansion or significant changes in facility operation that require modification of the currently approved ERRAP.

e. Facilities that submitted an ERRAP meeting the requirements defined under Iowa Code section 455B.306(6)*"d"* by May 1, 2001, including regional collection centers that, prior to this date, have met the contingency plan submittal requirement described in 567—Chapter 211, and were approved by the department prior to October 24, 2001, are not required to submit an updated ERRAP that meets the requirements of this rule until the next permit renewal application due date after December 31, 2001.

f. Three sets of ERRAP documents shall be submitted for department approval.

115.30(4) *Content.* The content of ERRAP documents shall be concise and readily usable as a reference manual by facility managers and operators during emergency conditions. The ERRAP document content shall address at least the following primary issues in detail, unless project conditions render the specific issue as not applicable. The rationale for exclusion of any issue areas that are determined not to be applicable must be provided in either the body of the plan or as a supplement to facilitate department review. Additional emergency response and remedial action plan requirements unique to the facility shall be addressed, as applicable.

a. Facility information.

(1) Permitted agency.

(2) DNR permit number.

(3) Facility description.

(4) Responsible official and contact information.

(5) Project location.

(6) Site and environs map.

b. Regulatory requirements.

(1) Iowa Code section 455B.306(6)*"d"* criteria citation.

(2) Reference to provisions of the permit.

c. Emergency conditions—response activities—remedial action.

(1) Failure of utilities.

1. Short-term (48 hours or less).
2. Long-term (over 48 hours).

(2) Weather-related events.

1. Tornado.
2. Windstorms.
3. Intense rainstorms and erosion.
4. Lightning strikes.
5. Flooding.
6. Event and postevent conditions.

(3) Fire and explosions.

1. Waste materials.
2. Buildings and site.
3. Equipment.
4. Fuels.
5. Utilities.
6. Facilities.
7. Working area.
8. Hot loads.
9. Waste gases.
10. Evacuation.

(4) Regulated waste spills and releases.

1. Waste materials.
2. Leachate.
3. Waste gases.
4. Waste stockpiles and storage facilities.
5. Waste transport systems.
6. Litter and airborne particulates.

7. Site drainage systems.
8. Off-site releases.
(5) Hazardous material spills and releases.
1. Load check control points.
2. Mixed waste deliveries.
3. Fuels.
4. Waste gases.
5. Site drainage systems.
6. Off-site releases.
(6) Mass movement of land and waste.
1. Earthquakes.
2. Slope failure.
3. Waste shifts.
4. Waste subsidence.
(7) Emergency and release notifications and reporting.
1. Federal agencies.
2. State agencies.
3. County and city agencies.
4. News media.
5. Public and private facilities with special populations within five miles.
6. Emergency response agencies and contact information.
7. Reporting requirements and forms.
(8) Emergency waste management procedures.
1. Communications.
2. Temporary discontinuation of services—short- and long-term.
3. Facilities access and rerouting.
4. Waste acceptance.
5. Wastes in process.
(9) Primary emergency equipment inventory.
1. Major equipment.
2. Fire hydrants and water sources.
3. Off-site equipment resources.
(10) Emergency aid.
1. Responder contacts.
2. Medical services.
3. Contracts and agreements.
(11) ERRAP training requirements.
1. Training providers.
2. Employee orientation.
3. Annual training updates.
4. Training completion and record keeping.
(12) Reference tables, figures and maps.

567—115.31(455B) Industrial monofill sanitary landfill financial assurance.

115.31(1) *Purpose.* The purpose of this rule is to implement Iowa Code sections 455B.304(8) and 455B.306(9) by providing the criteria for establishing financial assurance for closure, postclosure, and corrective action at industrial monofill landfills (IMF landfills).

115.31(2) *Applicability.* The requirements of this rule apply to all owners and operators of IMF landfills accepting waste as of October 31, 2007, except owners or operators that are state or federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States.

115.31(3) *Financial assurance for closure.* The owner or operator of an IMF landfill must establish financial assurance for closure in accordance with the criteria in this rule. The owner or operator

must provide continuous coverage for closure until released from this requirement by demonstrating compliance with subrules 115.26(13) and 115.13(10). Proof of compliance pursuant to paragraphs 115.31(3)*"a"* to *"e"* must be submitted by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit the current version of department Form 542-8090, Sanitary Landfill Financial Assurance Report Form, which contains, but is not limited to, the amount of the financial assurance, the annual financial statement required by Iowa Code sections 455B.306(9)*"e"* and 455B.306(7)*"c,"* and the current balances of the closure and postclosure accounts at the time of submittal as required by Iowa Code section 455B.306(9)*"b."*

b. The owner or operator shall submit a copy of the financial assurance instruments or the documents establishing the financial assurance instruments in an amount equal to or greater than the amount specified in subrule 115.31(8). Documentation for the mechanism(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in paragraphs 115.31(6)*"a"* to *"i."*

c. The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to close the IMF landfill in accordance with the closure plan as required by subrules 115.26(13) and 115.13(10). Such estimate must be available at any time during the active life of the landfill.

(1) The cost estimate must equal the cost of closing the IMF landfill at any time during the permitted life of the facility when the extent and manner of its operation would make closure the most expensive.

(2) The costs contained in the third-party estimate for closure must be accurate and reasonable when compared to the cost estimates used by other similarly situated landfills in Iowa.

(3) During the active life of the landfill, the owner or operator must annually adjust the closure cost estimate for inflation.

(4) The owner or operator must, annually or at the time of application for a permit amendment that increases closure costs, whichever occurs first, increase the closure cost estimate and the amount of financial assurance provided if changes to the closure plan or IMF landfill conditions increase the maximum cost of closure at any time during the remaining active life of the facility.

(5) The owner or operator may reduce the amount of financial assurance for closure if the most recent estimate of the maximum cost of closure at any time during the active life of the facility is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the closure cost estimate and the updated documentation required by paragraphs 115.31(3)*"a"* to *"e"* and receive department approval for the reduction. Approval or denial shall be issued within 30 days of receipt of the reduction request.

(6) The third-party estimate submitted to the department must include the site area subject to closure and account for at least the following factors determined by the department to be minimal necessary costs for closure:

1. Closure and postclosure plan document revisions;
2. Site preparation, earthwork and final grading;
3. Drainage control culverts, piping and structures;
4. Erosion control structures, sediment ponds and terraces;
5. Final cap construction;
6. Cap vegetation soil placement;
7. Cap seeding, mulching and fertilizing;
8. Monitoring well, piezometer and gas control modifications;
9. Leachate system cleanout and extraction well modifications;
10. Monitoring well installations and abandonments;
11. Facility modifications to effect closed status;
12. Engineering and technical services;
13. Legal, financial and administrative services; and
14. Closure compliance certifications and documentation.

d. For publicly owned IMF landfills, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa.

e. Privately held IMF landfills shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by a certified public accountant to determine whether the privately owned landfill is in compliance with this rule. The affidavit shall state the name of the certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

115.31(4) *Financial assurance for postclosure.* The owner or operator of an IMF landfill must establish financial assurance for the costs of postclosure in accordance with the criteria in this rule. The owner or operator must provide continuous coverage for postclosure until released from this requirement by demonstrating compliance with the postclosure plan and the closure permit. Proof of compliance pursuant to paragraphs 115.31(4)*"a"* to *"e"* must be submitted by the owner or operator yearly by April 1 and approved by the department.

a. The owner or operator shall submit the current version of department Form 542-8090, Sanitary Landfill Financial Assurance Report Form, which contains, but is not limited to, the amount of the financial assurance, the annual financial statement required by Iowa Code sections 455B.306(9)*"e"* and 455B.306(7)*"c,"* and the current balances of the closure and postclosure accounts required by Iowa Code section 455B.306(9)*"b."*

b. The owner or operator shall submit a copy of the documents establishing a financial assurance instrument in an amount equal to or greater than the amount specified in subrule 115.31(8). Documentation for the mechanism(s) used to demonstrate financial assurance shall contain, at a minimum, the items required to be submitted as specified in paragraphs 115.31(6)*"a"* to *"i."*

c. The owner or operator shall submit a detailed written estimate, in current dollars, certified by an Iowa-licensed professional engineer, of the cost of hiring a third party to conduct postclosure for the IMF landfill in compliance with the postclosure plan developed pursuant to subrules 115.26(14) and 115.13(10). The cost estimate must account for the total cost of conducting postclosure, as described in the plan, for the entire postclosure period.

(1) The cost estimate for postclosure must be based on the most expensive costs of postclosure during the entire postclosure period.

(2) The costs contained in the third-party estimate for postclosure must be accurate and reasonable when compared to the cost estimates used by other similarly situated landfills in Iowa.

(3) During the active life of the IMF landfill and during the postclosure period, the owner or operator must annually adjust the postclosure cost estimate for inflation.

(4) The owner or operator must, annually or at the time of application for a permit amendment that increases postclosure costs, whichever occurs first, increase the estimate and the amount of financial assurance provided if changes in the postclosure plan or IMF landfill conditions increase the maximum cost of postclosure.

(5) The owner or operator may reduce the amount of financial assurance for postclosure if the most recent estimate of the maximum cost of postclosure beginning at any time during the active life of the facility is less than the amount of financial assurance currently provided. Prior to the reduction, the owner or operator must submit to the department the justification for the reduction of the postclosure cost estimate and the updated documentation required by paragraphs 115.31(4)*"a"* to *"e"* and must receive department approval for the reduction. Approval or denial shall be issued within 30 days of receipt of the reduction request.

(6) The third-party estimate submitted to the department must include the site area subject to postclosure and account for at least the following factors determined by the department to be minimal necessary costs for postclosure:

1. General site facilities, access roads and fencing maintenance;
2. Cap and vegetative cover maintenance;
3. Drainage and erosion control systems maintenance;
4. Groundwater to waste separation systems maintenance;

5. Gas control systems maintenance;
6. Gas control systems monitoring and reports;
7. Groundwater and surface water monitoring systems maintenance;
8. Groundwater and surface water quality monitoring and reports;
9. Groundwater monitoring systems performance evaluations and reports;
10. Leachate control systems maintenance;
11. Leachate management, transportation and disposal;
12. Leachate control systems performance evaluations and reports;
13. Facility inspections and reports;
14. Engineering and technical services;
15. Legal, financial and administrative services; and
16. Financial assurance, accounting, audits and reports.

d. For publicly owned IMF landfills, the owner or operator shall submit to the department a copy of the owner's or operator's most recent annual audit report in the form prescribed by the office of the auditor of the state of Iowa.

e. Privately held IMF landfills shall submit an affidavit from the owner or operator indicating that a yearly review has been performed by a certified public accountant to determine whether the privately owned landfill is in compliance with this rule. The affidavit shall state the name of the certified public accountant, the dates and conclusions of the review, and the steps taken to rectify any deficiencies identified by the accountant.

115.31(5) *Financial assurance for corrective action.*

a. An owner or operator required to undertake corrective action pursuant to subrules 115.26(4) to 115.26(9) must have a detailed written estimate, in current dollars, prepared by an Iowa-licensed professional engineer, of the cost of hiring a third party to perform the required corrective action. The estimate must account for the total costs of the activities described in the approved corrective action plan for the entire corrective action period. The owner or operator must submit to the department the estimate and financial assurance documentation within 30 days of department approval of the corrective action plan.

(1) The owner or operator must annually adjust the estimate for inflation until the corrective action plan is completed.

(2) The owner or operator must increase the cost estimate and the amount of financial assurance provided if changes in the corrective action plan or IMF landfill conditions increase the maximum cost of corrective action.

(3) The owner or operator may reduce the amount of the cost estimate and the amount of financial assurance provided if the estimate exceeds the maximum remaining costs of the remaining corrective action. The owner or operator must submit to the department the justification for the reduction of the cost estimate and documentation of financial assurance.

b. The owner or operator of an IMF landfill required to undertake a corrective action plan must establish financial assurance for the most recent corrective action plan by one of the mechanisms prescribed in subrule 115.31(6). The owner or operator must provide continuous coverage for corrective action until released from financial assurance requirements by demonstrating compliance with the following:

(1) Upon completion of the remedy, the owner or operator must submit to the department a certification of compliance with the approved corrective action plan. The certification must be signed by the owner or operator and by an Iowa-licensed professional engineer.

(2) Upon department approval of completion of the corrective action remedy, the owner or operator shall be released from the requirements for financial assurance for corrective action.

115.31(6) *Allowable financial assurance mechanisms.* The mechanisms used to demonstrate financial assurance as required by Iowa Code section 455B.306(9)*"a"* must ensure that the funds necessary to meet the costs of closure, postclosure, and corrective action for known releases will be available whenever the funds are needed. Owners or operators must choose from options in paragraphs 115.31(6)*"a"* to *"i."*

a. Trust fund.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by establishing a trust fund which conforms to the requirements of this subrule. The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. A copy of the trust agreement must be submitted pursuant to subrules 115.31(3), 115.31(4), and 115.31(5) and placed in the facility's official files.

(2) Payments into the trust fund must be made annually by the owner or operator over ten years or over the remaining life of the IMF landfill, whichever is shorter, in the case of a trust fund for closure or postclosure; or over one-half of the estimated length of the corrective action plan in the case of a response to a known release. This period is referred to as the pay-in period.

(3) For a trust fund used to demonstrate financial assurance for closure and postclosure, the first payment into the fund must be at least equal to the amount specified in subrule 115.31(8) for closure or postclosure divided by the number of years in the pay-in period as defined in subparagraph 115.31(6)*"a"*(2). The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{CE - CB}{Y}$$

where CE is the amount specified in subrule 115.31(8) for closure or postclosure (updated for inflation or other changes), CB is the current balance of the trust fund, and Y is the number of years remaining in the pay-in period.

(4) For a trust fund used to demonstrate financial assurance for corrective action, the first payment into the trust fund must be at least equal to one-half of the current cost estimate for corrective action divided by the number of years in the corrective action pay-in period as defined in subparagraph 115.31(6)*"a"*(2). The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{RB - CV}{Y}$$

where RB is the most recent estimate of the required trust fund balance for corrective action, which is the total cost that will be incurred during the second half of the corrective action period, CV is the current value of the trust fund, and Y is the number of years remaining in the pay-in period.

(5) The initial payment into the trust fund must be made before the initial receipt of waste or within 30 days of close of the first fiscal year that begins after October 31, 2007, in the case of existing facilities; before the cancellation of an alternative financial assurance mechanism in the case of closure and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department.

(6) The owner or operator or another person authorized to conduct closure, postclosure, or corrective action activities may request reimbursement from the trustee for these expenditures, including partial closure, as the expenditures are incurred. Requests for reimbursement will be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure, postclosure, or corrective action and if justification and documentation of the costs are placed in the operating record. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that reimbursement has been received.

(7) The trust fund may be terminated by the owner or operator only if the owner or operator substitutes alternative financial assurance as specified in this rule or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

(8) After the pay-in period has been completed, the trust fund shall be adjusted annually to correct any deficiency of the fund with respect to the adjusted cost estimate and may be adjusted annually should the balance in the fund exceed the adjusted cost estimate.

b. Surety bond guaranteeing payment or performance.

(1) An owner or operator may demonstrate financial assurance for closure or postclosure by obtaining a payment or performance surety bond which conforms to the requirements of this subrule. An owner or operator may demonstrate financial assurance for corrective action by obtaining a performance bond which conforms to the requirements of this subrule. The bond must be effective before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department. The owner or operator must submit a copy of the bond to the department and keep a copy in the facility's official files. The surety company issuing the bond must, at a minimum, be among those listed as acceptable sureties on federal bonds in Circular 570 of the U.S. Department of the Treasury. The state shall not be considered a party to the surety bond.

(2) The penal sum of the bond must be in an amount at least equal to the amount specified in subrule 115.31(8) for closure and postclosure or corrective action, whichever is applicable.

(3) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond and also upon notice from the department pursuant to subparagraph 115.31(6)*"b"*(6).

(4) The owner or operator must establish a standby trust fund. The standby trust fund must meet the requirements of paragraph 115.31(6)*"a"* except the requirements for initial payment and subsequent annual payments specified in subparagraphs 115.31(6)*"a"*(2) to (5).

(5) Payments made under the terms of the bond will be deposited by the surety directly into the standby trust fund. Payments from the trust fund must be approved by the trustee and the department.

(6) Under the terms of the bond, the surety may cancel the bond by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice from the surety of withdrawal of the cancellation, or proof of a deposit into the standby trust fund of a sum equal to the amount of the bond. If the owner or operator has not complied with this subparagraph within the 60-day time period, this shall constitute a failure to perform, and the department shall notify the surety, prior to the expiration of the 120-day notice period, that such a failure has occurred.

(7) The bond must be conditioned upon faithful performance by the owner or operator of all closure, postclosure, or corrective action requirements of the Code of Iowa and this rule. A failure to comply with subparagraph 115.31(6)*"b"*(6) shall also constitute a failure to perform under the terms of the bond.

(8) Liability under the bond shall be for the duration of the operation and the closure and postclosure periods.

(9) The owner or operator may cancel the bond only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

c. Letter of credit.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by obtaining an irrevocable standby letter of credit which conforms to the requirements of this paragraph. The letter of credit must be effective before the initial receipt of waste or before the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or no later than 120 days after the corrective action plan is approved by the department. The owner or operator must submit to the department a copy of the letter of credit and place a copy in the facility's official files. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year in an amount at least equal to the amount specified in subrule 115.31(8) for closure, postclosure, or corrective action, whichever is applicable. The letter of credit must provide that the expiration date will

be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a standby trust fund established pursuant to paragraph 115.31(6)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the standby trust fund established by the owner or operator. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

(4) The owner or operator may cancel the letter of credit only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

d. Insurance.

(1) An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action by obtaining insurance which conforms to the requirements of this paragraph. The insurance must be effective before the initial receipt of waste or prior to cancellation of an alternative financial assurance, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department. At a minimum, the insurer must be licensed to transact the business of insurance or be eligible to provide insurance as an excess or surplus lines insurer in one or more states. The owner or operator must submit to the department a copy of the insurance policy and retain a copy in the facility's official files.

(2) The closure or postclosure insurance policy must guarantee that funds will be available to close the IMF landfill whenever final closure occurs or to provide postclosure for the IMF landfill whenever the postclosure period begins, whichever is applicable. The policy must also guarantee that once closure or postclosure begins, the insurer will be responsible for the paying out of funds to the owner or operator or another person authorized to conduct closure or postclosure, up to an amount equal to the face amount of the policy.

(3) The insurance policy must be issued for a face amount at least equal to the amount specified in subrule 115.31(8) for closure, postclosure, or corrective action, whichever is applicable. The term "face amount" means the total amount the insurer is obligated to pay under the policy. Actual payments by the insurer will not change the face amount, although the insurer's future liability will be lowered by the amount of the payments.

(4) An owner or operator or another person authorized to conduct closure or postclosure may receive reimbursements for closure or postclosure expenditures, including partial closure, as applicable. Requests for reimbursement will be granted by the insurer only if the remaining value of the policy is sufficient to cover the remaining costs of closure or postclosure, and if justification and documentation of the cost are placed in the operating record. The owner or operator must submit to the department documentation of the justification for reimbursement and verification that the reimbursement has been received.

(5) Each policy must contain a provision allowing assignment of the policy to a successor owner or operator. Such assignment may be conditional upon consent of the insurer, provided that such consent is not unreasonably refused.

(6) The insurance policy must provide that the insurer may not cancel, terminate or fail to renew the policy except for failure to pay the premium. The automatic renewal of the policy must, at a minimum, provide the insured with the option of renewal at the face amount of the expiring policy. If there is a failure to pay the premium, the insurer may cancel the policy by sending notice of cancellation by certified mail to the owner or operator and to the department 120 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice from the insurer of withdrawal of cancellation, or proof

of a deposit of a sum equal to the amount of the insurance coverage into a standby trust fund established pursuant to paragraph 115.31(6)*"a."* If the owner or operator has not complied with this subparagraph within the 60-day time period, this shall constitute a failure to perform and shall be a covered event pursuant to the terms of the insurance policy. A failure by the owner or operator to comply with this subparagraph within the 60-day period shall make the insurer liable for the closure and postclosure costs of the covered facility up to the amount of the policy limits, which shall be equal to the most recently submitted cost estimates.

(7) For insurance policies providing coverage for postclosure, commencing on the date that liability to make payments pursuant to the policy accrues, the insurer will thereafter annually increase the face amount of the policy. Such increase must be equivalent to the face amount of the policy, less any payments made, multiplied by an amount equivalent to 85 percent of the most recent investment rate or of the equivalent coupon-issue yield announced by the U.S. Department of the Treasury for 26-week treasury securities.

(8) The owner or operator may cancel the insurance only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

e. Corporate financial test. An owner or operator that satisfies the requirements of this paragraph may demonstrate financial assurance up to the amount specified below:

(1) Financial component. The owner or operator must satisfy the requirements of numbered paragraphs 115.31(6)*"e"*(1)"1," "2," and "3" to meet the financial component of the corporate financial test.

1. The owner or operator must satisfy one of the following three conditions:

- A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or
- A ratio of less than 1.5 comparing total liabilities to net worth (net worth calculations may not include future permitted capacity of the subject landfill as an asset); or
- A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities;

2. The tangible net worth, excluding future permitted capacity of the subject landfill, of the owner or operator must be greater than:

- The sum of the current closure, postclosure, and corrective action cost estimates and any other environmental obligations, including guarantees, covered by this financial test plus $10 million except as provided in the second bulleted paragraph in numbered paragraph 115.31(6)*"e"*(1)"2"; or
- Net worth of $10 million, excluding future permitted capacity of the subject landfill, plus the amount of any guarantees that have not been recognized as liabilities on the financial statements, provided that all of the current closure, postclosure, and corrective action costs and any other environmental obligations covered by a financial test are recognized as liabilities on the owner's or operator's audited financial statements and are subject to the approval of the department; and

3. The owner or operator must have, located in the United States, assets, excluding future permitted capacity of the subject landfill, amounting to at least the sum of current closure, postclosure, and corrective action cost estimates and any other environmental obligations covered by a financial test as described in subparagraph 115.31(6)*"e"*(5).

(2) Record-keeping and reporting requirements. The owner or operator must submit the following records to the department and place a copy in the facility's official files prior to the initial receipt of solid waste or cancellation of an alternative financial assurance instrument, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department:

1. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a financial test including, but not limited to, cost estimates required by subrules 115.31(3) to 115.31(5); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities

under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and

- Provides evidence demonstrating that the owner or operator meets the conditions of subparagraph 115.31(6)*"e"*(1).

2. A copy of the independent certified public accountant's unqualified opinion of the owner's or operator's financial statements for the latest completed fiscal year. To be eligible to use the financial test, the owner's or operator's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this mechanism. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate financial test, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

3. If the certified public accountant's letter providing evidence of financial assurance includes financial data which shows that the owner or operator satisfies subparagraph 115.31(6)*"e"*(1) but which differs from data in the audited financial statements referred to in numbered paragraph 115.31(6)*"e"*(2)"2," then a special report from the owner's or operator's independent certified public accountant to the owner or operator is required. The special report shall be based upon an agreed-upon procedures engagement in accordance with professional auditing standards and shall describe the procedures performed in comparing the data in the certified public accountant's letter derived from the independently audited, year-end financial statements for the latest fiscal year with the amounts in such financial statements, the findings of that comparison, and the reasons for any differences.

4. If the certified public accountant's letter provides a demonstration that the owner or operator has assured for environmental obligations as provided in the second bulleted paragraph of numbered paragraph 115.31(6)*"e"*(2)"1," then the letter shall include a report from the independent certified public accountant that verifies that all of the environmental obligations covered by a financial test have been recognized as liabilities on the audited financial statements and that documents how these obligations have been measured and reported and verifies that the tangible net worth of the owner or operator is at least $10 million plus the amount of any guarantees provided.

(3) The owner or operator may cease the submission of the information required by paragraph 115.31(6)*"e"* only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

(4) The department may, based on a reasonable belief that the owner or operator may no longer meet the requirements of subparagraph 115.31(6)*"e"*(1), require the owner or operator to provide reports of its financial condition in addition to or including current financial test documentation as specified in subparagraph 115.31(6)*"e"*(2). If the department finds that the owner or operator no longer meets the requirements of subparagraph 115.31(6)*"e"*(1), the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

(5) Calculation of costs to be assured. When calculating the current cost estimates for closure, postclosure, corrective action, or the sum of the combination of such costs to be covered, and any other environmental obligations assured by a financial test referred to in paragraph 115.31(6)*"e,"* the owner or operator must include cost estimates required for subrules 115.31(3) to 115.31(5); cost estimates for municipal solid waste management facilities pursuant to 40 CFR Section 258.74; and cost estimates required for the following environmental obligations, if the owner or operator assures those environmental obligations through a financial test: obligations associated with UIC facilities under 40 CFR Part 144, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265.

f. Local government financial test. An owner or operator that satisfies the requirements of this paragraph may demonstrate financial assurance up to the amount specified below:

(1) Financial component.

1. The owner or operator must satisfy one of the following requirements:

- If the owner or operator has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the owner or operator must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or
- The owner or operator must satisfy each of the following financial ratios based on the owner's or operator's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

2. The owner or operator must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

3. A local government is not eligible to assure its obligations in paragraph 115.31(6)*"f"* if it:

- Is currently in default on any outstanding general obligation bonds; or
- Has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or
- Operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or
- Receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement as required under numbered paragraph 115.31(6)*"f"*(1)"2." A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism.

4. The following terms used in this paragraph are defined as follows:

"Cash plus marketable securities" means all the cash plus marketable securities held by the local government on the last day of a fiscal year, excluding cash and marketable securities designated to satisfy past obligations such as pensions.

"Debt service" means the amount of principal and interest due on a loan in a given time period, typically the current year.

"Deficit" means total annual revenues minus total annual expenditures.

"Total expenditures" means all expenditures, excluding capital outlays and debt repayment.

"Total revenues" means revenues from all taxes and fees excluding revenue from funds managed by local government on behalf of a specific third party and does not include the proceeds from borrowing or asset sales.

(2) Public notice component. The local government owner or operator must include disclosure of the closure and postclosure costs assured through the financial test in its next annual audit report prior to the initial receipt of waste at the facility or prior to cancellation of an alternative financial assurance mechanism, whichever is later. A reference to corrective action costs must be placed in the next annual audit report after the corrective action plan is approved by the department. For the first year the financial test is used to assure costs at a particular facility, the reference may instead be placed in the facility's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure and postclosure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(3) Record-keeping and reporting requirements.

1. The local government owner or operator must submit to the department the following items:

- A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by a financial test, as described in subparagraph 115.31(6)*"f"*(4); that provides evidence and certifies that the local government meets the conditions of numbered paragraphs 115.31(6)*"f"*(1)"1," "2," and "3"; and that certifies that the local government meets the conditions of subparagraphs 115.31(6)*"f"*(2) and (4); and

● The local government's annual financial report indicating compliance with the financial ratios required by numbered paragraph 115.31(6)*"f"*(1)"1," second bulleted paragraph, if applicable, and the requirements of numbered paragraph 115.31(6)*"f"*(1)"2" and the third and fourth bulleted paragraphs of numbered paragraph 115.31(6)*"f"*(1)"3"; and also indicating that the requirements of Governmental Accounting Standards Board Statement 18 have been met.

2. The items required in numbered paragraph 115.31(6)*"f"*(3)"1" must be submitted to the department and placed in the facility's official files prior to the receipt of waste or prior to the cancellation of an alternative financial assurance mechanism, in the case of closure and postclosure; or, in the case of corrective action, not later than 120 days after the corrective action plan is approved by the department.

3. After the initial submission of the required items and their placement in the facility's official files, the local government owner or operator must update the information and place the updated information in the facility's official files within 180 days following the close of the owner's or operator's fiscal year.

4. The owner or operator may cease the submission of the information required by paragraph 115.31(6)*"f"* only if alternative financial assurance is substituted prior to cancellation or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

5. A local government must satisfy the requirements of the financial test at the close of each fiscal year. If the local government owner or operator no longer meets the requirements of the local government financial test, the local government must, within 180 days following the close of the owner's or operator's fiscal year, obtain alternative financial assurance that meets the requirements of this rule, place the required submissions for that assurance in the operating record, and notify the department that the owner or operator no longer meets the criteria of the financial test and that alternative financial assurance has been obtained.

6. The department, based on a reasonable belief that the local government owner or operator may no longer meet the requirements of the local government financial test, may require additional reports of financial conditions from the local government. If the department finds, on the basis of such reports or other information, that the owner or operator no longer meets the requirements of the local government financial test, the local government must provide alternative financial assurance in accordance with this rule.

(4) Calculation of costs to be assured. The portion of the closure, postclosure, and corrective action costs which an owner or operator may assure under this paragraph is determined as follows:

1. If the local government owner or operator does not assure other environmental obligations through a financial test, the owner or operator may assure closure, postclosure, and corrective action costs that equal up to 43 percent of the local government's total annual revenue.

2. If the local government assures other environmental obligations through a financial test, including those associated with UIC facilities under 40 CFR Section 144.62, petroleum underground storage tank facilities under 40 CFR Part 280, PCB storage facilities under 40 CFR Part 761, and hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, the owner or operator must add those costs to the closure, postclosure, and corrective action costs it seeks to assure under this paragraph. The total that may be assured must not exceed 43 percent of the local government's total annual revenue.

3. The owner or operator must obtain an alternative financial assurance instrument for those costs that exceed the limits set in numbered paragraphs 115.31(6)*"f"*(4)"1" and "2."

g. Corporate guarantee.

(1) An owner or operator may meet the requirements of this paragraph by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator. The guarantor must meet the requirements for owners or operators in paragraph 115.31(6)*"e"* and must comply with the terms of the guarantee. A certified copy of the guarantee must be placed in the facility's operating record along with copies of the letter from a certified public accountant and the accountant's opinions. If

the guarantor's parent corporation is also the parent corporation of the owner or operator, the letter from the certified public accountant must describe the value received in consideration of the guarantee. If the guarantor is an owner or operator with a ``substantial business relationship" with the owner or operator, this letter must describe this ``substantial business relationship" and the value received in consideration of the guarantee.

(2) The guarantee must be effective and all required submissions made to the department prior to the initial receipt of waste or before cancellation of an alternative financial mechanism, in the case of closure and postclosure; or, in the case of corrective action, no later than 120 days after the corrective action plan has been approved by the department.

(3) The terms of the guarantee must provide that:

1. If the owner or operator fails to perform closure, postclosure, or corrective action of a facility covered by the guarantee, or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to numbered paragraphs 115.31(6)*"g"*(3)"2" and "3," the guarantor will:

- Perform, or pay a third party to perform, closure, postclosure, or corrective action as required (performance guarantee); or
- Establish a fully funded trust fund as specified in paragraph 115.31(6)*"a"* in the name of the owner or operator (payment guarantee); or
- Obtain alternative financial assurance as required by numbered paragraph 115.31(6)*"g"*(3)"3."

2. The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements of this rule unless the guarantor sends prior notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

3. If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of the establishment of a fully funded trust fund pursuant to paragraph 115.31(6)*"a."* If the owner or operator fails to comply with the provisions of this numbered paragraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the corporate guarantee.

(4) If a corporate guarantor no longer meets the requirements of paragraph 115.31(6)*"e,"* the owner or operator must, within 90 days, obtain alternative financial assurance and submit proof of alternative financial assurance to the department. If the owner or operator fails to provide alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

(5) The owner or operator is no longer required to meet the requirements of paragraph 115.31(6)*"g"* upon the submission to the department of proof of the substitution of alternative financial assurance or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

h. Local government guarantee. An owner or operator may demonstrate financial assurance for closure, postclosure, or corrective action by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E. The guarantor must meet the requirements of the local government financial test in paragraph 115.31(6)*"f"* and must comply with the terms of a written guarantee.

(1) Terms of the written guarantee. The guarantee must be effective before the initial receipt of waste or before the cancellation of alternative financial assurance, in the case of closure and postclosure; or no later than 120 days after the corrective action plan is approved by the department. The guarantee must provide that:

1. If the owner or operator fails to perform closure, postclosure, or corrective action of a facility covered by the guarantee or fails to obtain alternative financial assurance within 90 days of notice of intent to cancel pursuant to numbered paragraphs 115.31(6)*"h"*(1)"2" and "3," the guarantor will:

- Perform, or pay a third party to perform, closure, postclosure, or corrective action as required; or
- Establish a fully funded trust fund as specified in paragraph 115.31(6)*"a"* in the name of the owner or operator; or
- Obtain alternative financial assurance as required by numbered paragraph 115.31(6)*"h"*(1)"3."

2. The guarantee will remain in force for as long as the owner or operator must comply with the applicable financial assurance requirements unless the guarantor sends notice of cancellation by certified mail to the owner or operator and to the department. Cancellation may not occur, however, during the 120 days beginning on the date of receipt of the notice of cancellation by both the owner or operator and the department, as evidenced by the return receipts.

3. If notice of cancellation is given, the owner or operator must, within 90 days following receipt of the cancellation notice by the owner or operator and the department, provide to the department adequate proof of alternative financial assurance, notice from the guarantor of withdrawal of the cancellation, or proof of the establishment of a fully funded trust fund pursuant to paragraph 115.31(6)*"a."* If the owner or operator fails to comply with the provisions of this numbered paragraph within the 90-day period, the guarantor must provide that alternative financial assurance prior to cancellation of the guarantee.

(2) Record-keeping and reporting requirements.

1. The owner or operator must submit to the department a certified copy of the guarantee along with the items required under subparagraph 115.31(6)*"f"*(3) and place a copy in the facility's official files before the initial receipt of waste or before cancellation of alternative financial assurance, whichever is later, in the case of closure and postclosure; or no later than 120 days after the corrective action plan has been approved by the department.

2. The owner or operator shall no longer be required to submit the items specified in numbered paragraph 115.31(6)*"h"*(2)"1" when proof of alternative financial assurance has been submitted to the department or the owner or operator is no longer required to provide financial assurance pursuant to this rule.

3. If a local government guarantor no longer meets the requirements of paragraph 115.31(6)*"f,"* the owner or operator must, within 90 days, submit to the department proof of alternative financial assurance. If the owner or operator fails to obtain alternative financial assurance within the 90-day period, the guarantor must provide that alternative financial assurance within the next 30 days.

i. Local government dedicated fund. The owner or operator of a publicly owned IMF landfill or a local government serving as a guarantor may demonstrate financial assurance for closure, postclosure, or corrective action, whichever is applicable, by establishing a dedicated fund or account that conforms to the requirements of this subrule. A dedicated fund will be considered eligible if it complies with subparagraph 115.31(6)*"i"*(1) or (2) and all other provisions of this paragraph, and if documentation of this compliance has been submitted to the department.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, or order to pay for closure, postclosure, or corrective action costs that arise from the operation of the IMF landfill and shall be funded for the full amount of coverage or funded for part of the required amount of coverage and used in combination with another mechanism(s) that provides the remaining coverage.

(2) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, or order as a reserve fund and shall be funded for no less than the full amount of coverage or funded for part of the required amount of coverage and used in combination with another mechanism(s) that provides the remaining coverage.

(3) Payments into the dedicated fund must be made annually by the owner or operator for ten years or over the permitted life of the IMF landfill, whichever is shorter, in the case of a dedicated fund for closure or postclosure; or over one-half of the estimated length of an approved corrective action plan in the case of a response to a known release. This is referred to as the pay-in period. The initial payment into the dedicated fund must be made before the initial receipt of waste in the case of closure and postclosure or no later than 120 days after the corrective action plan has been approved by the department.

(4) For a dedicated fund used to demonstrate financial assurance for closure and postclosure, the first payment into the dedicated fund must be at least equal to the amount specified in subrule 115.31(8), divided by the number of years in the pay-in period as defined in paragraph 115.31(6)*"i."* The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{CE - CB}{Y}$$

where CE is the total required financial assurance for the owner or operator, CB is the current balance of the fund, and Y is the number of years remaining in the pay-in period.

(5) For a dedicated fund used to demonstrate financial assurance for corrective action, the first payment into the dedicated fund must be at least one-half of the current cost estimate, divided by the number of years in the corrective action pay-in period as defined in paragraph 115.31(6)*"i."* The amount of subsequent payments must be determined by the following formula:

$$\text{Payment} = \frac{RB - CF}{Y}$$

where RB is the most recent estimate of the required dedicated fund balance, which is the total cost that will be incurred during the second half of the corrective action period, CF is the current amount in the dedicated fund, and Y is the number of years remaining in the pay-in period.

(6) The initial payment into the dedicated fund must be made before the initial receipt of waste or within 30 days of close of the first fiscal year that begins after October 31, 2007, in the case of existing facilities; before the cancellation of an alternative financial assurance mechanism in the case of closure and postclosure; or no later than 120 days after the corrective action remedy has been approved by the department.

(7) After the pay-in period has been completed, the dedicated fund shall be adjusted annually to correct any deficiency of the fund with respect to the adjusted cost estimate and may be adjusted annually should the balance in the fund exceed the adjusted cost estimate.

115.31(7) *General requirements.*

a. Use of multiple financial mechanisms. An owner or operator may satisfy the requirements of this rule by establishing more than one financial mechanism per facility. The mechanisms must be a combination of those mechanisms outlined in this rule and must provide financial assurance for an amount at least equal to the current cost estimate for closure, postclosure, or corrective action, whichever is applicable. The financial test and a guarantee provided by a corporate parent, sibling or grandparent may not be combined if the financial statements of the two entities are consolidated.

b. Use of one mechanism for multiple facilities. An owner or operator may satisfy the requirements of this rule for multiple IMF landfills by the use of one mechanism if the owner or operator ensures that the mechanism provides financial assurance for an amount at least equal to the current cost estimates for closure, postclosure, or corrective action, whichever is applicable, for all IMF landfills covered.

c. Criteria. The language of the financial assurance mechanisms listed in this rule must ensure that the instruments satisfy the following criteria:

(1) The financial assurance mechanisms must ensure that the amount of funds assured is sufficient to cover the costs of closure, postclosure, or corrective action for known releases, whichever is applicable;

(2) The financial assurance mechanisms must ensure that funds will be available in a timely fashion when needed;

(3) The financial assurance mechanisms must be obtained by the owner or operator prior to the initial receipt of solid waste and no later than 120 days after the corrective action remedy has been approved by the department until the owner or operator is released from the financial assurance requirements; and

(4) The financial assurance mechanisms must be legally valid, binding, and enforceable under Iowa law.

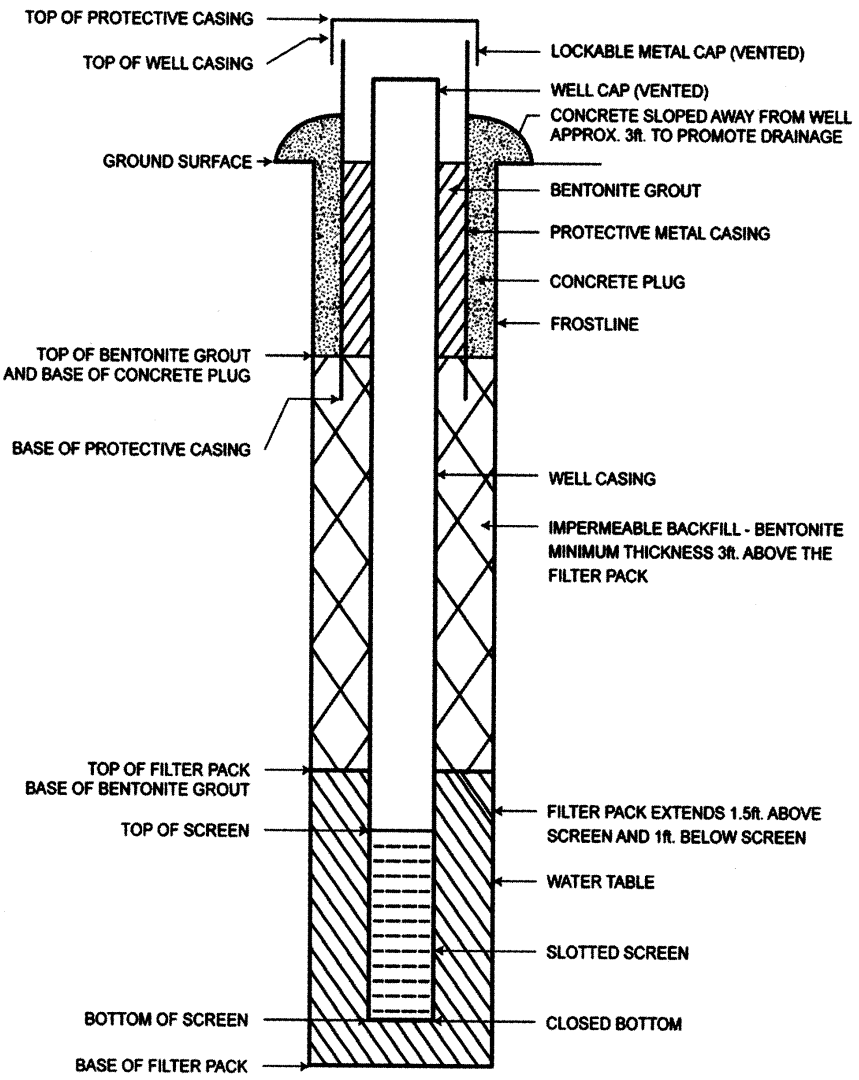
d. No permit shall be issued by the department pursuant to Iowa Code section 455B.305 unless the applicant has demonstrated compliance with rule 115.31(455B).

115.31(8) *Amount of required financial assurance.* A financial assurance mechanism established pursuant to subrule 115.31(6) shall be in the amount of the third-party cost estimates required by subrules 115.31(3), 115.31(4), and 115.31(5) except that the amount of the financial assurance may be reduced by the sum of the cash balance in a trust fund or local government dedicated fund established to comply with subrule 115.31(8) plus the current value of investments held by said trust fund or local government dedicated fund if invested in one or more of the investments listed in Iowa Code section 12B.10(5).

These rules are intended to implement Iowa Code section 455B.304.

Figure 1

Typical Monitoring Well Cross Section



-- NOT TO SCALE --

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CHAPTER 116
REGISTRATION OF WASTE TIRE HAULERS
[Prior to 7/10/02, see 721—Chapter 44]

567—116.1(455B,455D) Purpose. The purpose of this chapter is to establish guidelines for the registration of waste tire haulers that provide waste tire collection and hauling services for a fee. The registration process shall ensure the proper management of waste tires collected by a waste tire hauler. This chapter shall not exempt a waste tire hauler from compliance with other applicable statutes or requirements regarding waste tires that are hauled to or from other states.

567—116.2(455B,455D) Definitions. As used in this chapter:

"Passenger tire equivalent" means a conversion measurement that is used to estimate waste tire weights and volume amounts and in which one passenger car tire with a rim diameter of 17 inches or less is equal to 20 pounds. One cubic yard of volume shall contain 15 passenger tire equivalents. Tires larger than a passenger car tire shall be evaluated for volume using this conversion measurement.

"Permit" means a permit issued by the department to establish, construct, modify, own, or operate a waste tire storage or processing site.

"Processing" means producing or manufacturing usable materials from waste tires.

"Processing site" means a site which is used for the processing of waste tires and which is owned or operated by a tire processor who has a permit for the site.

"Tire collector" means a permitted person or business that owns or operates a site used for the storage, collection, or deposit of more than 500 waste tires or an authorized vehicle recycler who is licensed by the department of transportation pursuant to Iowa Code section 321H.4 and who owns or operates a site used for the storage, collection, or deposit of more than 3,500 waste tires.

"Tire processor" means a permitted individual or business that processes tires through grinding, shredding, or other means, thereby producing a material that is readily suitable for marketing into product manufacturing, energy recovery, or other beneficial reuse markets. "Tire processor" does not mean a person who retreads tire casings or who collects and stores tires.

"Waste tire," as defined in Iowa Code section 455D.11, means a tire that is no longer suitable for its originally intended purpose due to wear, damage, or defect. This definition shall include a tire mounted on a rim, but not on a vehicle. "Waste tire" does not include a nonpneumatic tire.

"Waste tire hauler" means a person who transports for hire more than 40 waste tires in a single load. This definition includes persons and businesses that collect fees to provide hauling and pick-up services for the disposal or removal of tires from other persons or businesses.

"Waste tire stockpile" means a permitted site that is used for the storage, collection, or deposit of waste tires or tire bales, including indoor, outdoor, and underground storage.

567—116.3(455B,455D) Registration requirement. A waste tire hauler shall register with and obtain a certificate of registration from the department in accordance with this chapter before hauling waste tires in Iowa. Waste tire haulers that pick up tires within Iowa or that bring waste tires to Iowa for disposal, storage, or processing shall be required to register.

116.3(1) *Registration exemption.* A waste tire hauler shall not be required to register under the following circumstances:

a. The waste tire hauler only travels through the state with waste tires as a part of interstate commerce and does not pick up, deposit, transfer, store, or dispose of any waste tires in Iowa.

b. The waste tire hauler is a municipal, county, state, or other public agency, and the vehicles used for transport of the waste tires are owned and licensed by the public agency. The agency may only haul up to 10,000 waste tires within a 12-month period without obtaining a waste tire hauler's registration.

116.3(2) *Annual registration.*

a. A waste tire hauler registration shall be valid for one year, and the waste tire hauler must annually renew the waste tire hauler registration in order to continue to provide waste tire hauling services within the state.

b. Initial registration of a waste tire hauler shall be valid upon the date of issuance by the department and shall be effective for a minimum 12-month period thereafter, with expiration of the initial registration to occur on either January 1 or July 1, whichever date occurs most closely after the initial 12-month registration period.

c. Subsequent annual renewals of the waste tire hauler's registration shall then occur on either January 1 or July 1, subject to the date of the original expiration as referenced in 116.3(2)*"b."*

567—116.4(455B,455D) Registration form. A waste tire hauler shall submit the following information on a form prescribed by the department for application for or renewal of registration as a waste tire hauler.

1. The name of the waste tire hauler and any other names under which the waste tire hauler may do business.
2. The principal address of the waste tire hauler and any other address at which the waste tire hauler may do business.
3. A business telephone number.
4. The name and address of the principal officer of a corporate waste tire hauler or the principal owner or owners of a waste tire hauler operating a proprietorship or partnership.
5. The following information for each motor vehicle used by the waste tire hauler for hauling tires:
   - The name and address of the owner of the vehicle.
   - The vehicle identification number of the vehicle.
   - The year, make, and model of the vehicle.
   - The license plate number of the vehicle.
   - The name of the state in which the vehicle is registered.
6. A statement that the waste tire hauler agrees to comply with the vehicle identification requirements contained in this chapter.
7. The name of the permitted facility for waste tire disposal, storage or processing, or of another site of end use where the waste tires will be transported.
8. A statement that the waste tire hauler shall pay all amounts due to any individual or group of individuals when due for damages caused by improper disposal of waste tires by the waste tire hauler or the waste tire hauler's employee while acting within the scope of employment.
9. A statement that the waste tire hauler agrees to notify the department within 30 days of any change in the information contained in the registration form.
10. The signature of the waste tire hauler.

567—116.5(455B,455D) Registration fee. An application for initial registration or renewal shall be accompanied by a fee of $50.

567—116.6(455B,455D) Bond form.

116.6(1) An application for registration or renewal shall not be approved by the department until the waste tire hauler has provided a bond in the sum of a minimum of $10,000 on a form prescribed by the commissioner of insurance.

116.6(2) Bond requirements.

a. The bond shall be executed by a surety company authorized by the commissioner of insurance to do business in Iowa. The bond provided to the department shall be an original, or copy thereof. Facsimiles of the bond will not be accepted.

b. The surety shall name the state of Iowa as the obligee for the bond.

c. The bond shall be continuous in nature until canceled by the surety. The surety shall provide at least 30 days' notice in writing to the waste tire hauler and the department in the event of any intent to cancel the bond.

d. The waste tire hauler shall provide the department with a statement from the surety with each waste tire hauler registration renewal application, noting that the bond is paid and current for the annual period for which the waste tire hauler has applied for registration renewal.

567—116.7(455B,455D) Marking of equipment. The following information shall be displayed on each side of equipment used for the hauling of waste tires, in letters and figures large enough to be read easily at a distance of 50 feet and in a color in contrast to the background.

1. The name of the registered waste tire hauler under whose authority the equipment is being operated.
2. The address of the registered waste tire hauler (city and state).
3. The registration number of the waste tire hauler, as assigned by the department. The hauler shall apply the following letters and symbol "IA TH#" preceding the assigned registration number.

567—116.8(455B,455D) Disposition of waste tires collected.

116.8(1) All tires collected by a waste tire hauler for which a fee has been collected or is to be charged shall be defined as a solid waste and shall be regulated as such.

116.8(2) Upon receipt of waste tires from a person or business, the waste tire hauler shall handle the waste tires as follows:

a. The waste tires shall be directly transported to a tire collector, tire processor, or waste tire stockpile site, as permitted and approved by the department or applicable local or state agencies.

b. The waste tires must be transported to a permitted site within 72 hours of initial pickup from the generator of the waste tires.

c. The waste tire hauler may not establish or operate any intermediate storage, waste sorting, transfer, or processing activities regarding the waste tires collected, unless such activities occur at a facility or site for which a waste tire stockpile permit or processing permit has been issued in accordance with 567—Chapter 117.

567—116.9(455B,455D) Reporting requirements. A registered waste tire hauler shall make a semiannual report to the department on a form provided or approved by the department. The report shall provide the department with appropriate information to ensure that waste tires recovered by the waste tire hauler have been handled properly for disposal or processing. Failure of the waste tire hauler to submit a timely report will result in denial of the waste tire hauler's renewal of registration.

116.9(1) *Reporting period.* The waste tire hauler shall submit semiannual reports to the department according to the following schedule:

a. For waste tires collected during the six-month period beginning January 1 through June 30, the hauler shall submit a report by the following September 1.

b. For waste tires collected during the six-month period beginning July 1 through December 31, the hauler shall submit a report by March 1 of the following year.

116.9(2) *Information required.* The semiannual report shall include the following information. All waste tire quantities determined by count or weight shall be reported in passenger tire equivalents.

a. Quantity of waste tires collected by the waste tire hauler from within Iowa for the reporting period.

b. Quantity of waste tires that are brought to Iowa by the waste tire hauler from out-of-state sources during the reporting period.

c. Final disposition of all the waste tires collected during the reporting period by listing each tire collector, tire processor, waste tire stockpile site, or other beneficial site of end use, as approved by the department, and the total quantities of waste tires that the hauler has delivered to each.

116.9(3) *Documentation and record keeping.* The waste tire hauler shall keep appropriate records, including but not limited to receipts, invoices, or manifests, to document all quantities of waste tires hauled and disposed of by the waste tire hauler for the reporting period. These records shall be kept by the waste tire hauler for a minimum of three years, and shall be available for audit or inspection at the request of the department.

These rules are intended to implement Iowa Code sections 455B.301 to 455B.307 and 455D.11I.

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CHAPTER 117
WASTE TIRE MANAGEMENT
[Prior to 5/15/02, see also 567—Chapter 219]

567—117.1(455B,455D) Purpose. The purpose of this chapter is to establish guidelines for the proper management of waste tires, including disposal, collection, storage, processing, and beneficial reuse of waste tires and processed waste tire materials. The chapter shall not be construed to exempt a waste tire storage site or processing site from compliance with more stringent local ordinances, fire codes, or other applicable statutes.

567—117.2(455B,455D) Definitions. As used in this chapter:

"Bagel cut" means to cut a tire in half along its circumference.

"Baled tire" means a method of volume reduction of waste tires, whereby whole or cut tires are compacted into a bundle and then banded together to form a tire bale. Baled tires shall not be considered processed tires and shall be defined as solid waste, unless they are incorporated into an approved beneficial use project.

"Beneficial use" means the use or application of waste tires or processed tires in a manner that provides a benefit to an end user and that does not pose a threat to the environment or to public health and safety. Use of waste tires or processed tires primarily as a means for land disposal shall not be considered a beneficial use.

"Civil engineering application" means a form of reusing waste tires, either whole or processed, in place of naturally occurring materials in construction, so long as the waste tires provide a defined engineering benefit.

"Crumb rubber" means a material derived by reducing waste tires or other rubber into uniform granules of 3/8 inch or less, with the inherent reinforcing materials such as steel and fiber removed along with other contaminants.

"Cut tire" means a waste tire from which the tire face, tread, or sidewall has been cut or removed for beneficial use. A cut tire shall consist of pieces greater than 18 inches on any one side.

"Department" means Iowa department of natural resources.

"End user" means an industry, utility, business, entity, or individual that receives whole waste tires or processed tires and uses them for a raw material in a manufactured product, for energy recovery, or other beneficial use. A tire processor shall not be considered an end user.

"Energy recovery" means the extraction of the fuel or heat value from whole or processed tires through their controlled combustion at a permitted utility or industry.

"Operator" means the individual, corporation, or party that manages the daily work activities related to the collection, storage, and processing of waste tires and processed tire materials at a waste tire stockpile site or processing facility.

"Owner" means the individual, corporation, or party that is the legal owner of the real estate where a waste tire stockpile site or processing facility exists.

"Passenger tire equivalent" means a conversion measurement that is used to estimate waste tire weights and volume amounts and in which one passenger car tire with a rim diameter of 17 inches or less is equal to 20 pounds. One cubic yard of volume shall contain 15 passenger tire equivalents. Tires larger than a passenger car tire shall be evaluated for volume using this conversion measurement.

"Permit" means a permit issued by the department to establish, construct, modify, own, or operate a waste tire storage or processing site.

"Processed tire" means a tire that has been processed through grinding, shredding, or other means, thereby producing a material that is readily suitable for marketing into product manufacturing, energy recovery, or other beneficial reuse markets. Waste tires that have been compacted, baled, cut, or shredded without a suitable market shall not be considered processed tires and shall be regulated as solid waste.

"Processing" means producing or manufacturing usable materials from waste tires.

"Processing site" means a site which is used for the processing of waste tires and which is owned or operated by a tire processor who has a permit for the site.

"Site" includes all contiguous parcels of land under the ownership, management, or financial interest of an owner or operator receiving a permit through this chapter. Public rights-of-way and their easements shall not affect the continuity of a site for the purposes of this chapter.

"Site of end use" means a site where processed waste tires are recycled or reused in a beneficial manner authorized by the department.

"Tire bale." See *"baled tire."*

"Tire casing" means a used and worn tire that is suitable for the process of recapping. A tire casing stored for more than one year without being recapped shall be considered a waste tire.

"Tire collector" means a permitted person or business that owns or operates a site used for the storage, collection, or deposit of more than 500 waste tires or an authorized vehicle recycler who is licensed by the department of transportation pursuant to Iowa Code section 321H.4 and who owns or operates a site used for the storage, collection, or deposit of more than 3,500 waste tires.

"Tire processor" means a permitted individual or business that processes tires through grinding, shredding, or other means, thereby producing a material that is readily suitable for marketing into product manufacturing, energy recovery, or other beneficial reuse markets. "Tire processor" does not mean a person who retreads tire casings or who collects and stores tires.

"Used tire" means a tire that previously has been on a vehicle but that retains suitable tread depth and is free of damage or defects so that it may be safely returned to its original purpose.

"Waste tire," as defined in Iowa Code section 455D.11, means a tire that is no longer suitable for its originally intended purpose due to wear, damage, or defect. This definition shall include a tire mounted on a rim, but not on a vehicle. "Waste tire" does not include a nonpneumatic tire.

"Waste tire hauler" means an individual or business providing waste tire hauling and disposal services, in accordance with Iowa Code section 9B.1.

"Waste tire stockpile" means a site that is used for the storage, collection, or deposit of waste tires or tire bales, including indoor, outdoor, and underground storage.

567—117.3(455B,455D) Waste tire disposal.

117.3(1) *Land disposal prohibited.* Land disposal of waste tires, in whole, cut, or shredded form, is prohibited. Waste tires shall be accepted at a permitted sanitary landfill for final disposal if the tires have first been cut into pieces that are not more than 18 inches on any one side.

117.3(2) *Transport to permitted facilities.* A person who transports waste tires for final disposal is required to dispose of the tires only at a permitted facility.

117.3(3) *Registered waste tire hauler.* A person who contracts with another person to transport more than 40 waste tires in a single load is required to contract only with a person registered as a waste tire hauler, pursuant to Iowa Code section 455D.11I.

567—117.4(455B,455D) Waste tire storage permits and requirements.

117.4(1) *Storage quantity limitations.*

a. No business or individual shall store more than 500 passenger tire equivalents without obtaining a permit for a waste tire stockpile pursuant to 117.4(2).

b. Businesses or individuals may temporarily store up to 1,500 passenger tire equivalents without obtaining a waste tire stockpile permit, subject to the following requirements:

(1) The waste tires are stored only in a mobile container, truck, or trailer, provided or serviced by a registered waste tire hauler.

(2) The waste tires are removed by the waste tire hauler or delivered to a waste tire processor at least every 60 days.

(3) The waste tire generator has a written copy of a contract or service agreement for waste tire disposal services from a registered waste tire hauler.

c. A permitted municipal landfill or solid waste transfer station shall be allowed the storage of up to 1,500 passenger tire equivalents without a permit if the waste tires are removed at least every 120 days and are stored in a manner to minimize the collection of water.

d. Persons who use waste tires for an approved beneficial use shall not be required to obtain a waste tire stockpile permit, subject to their compliance with the provisions of rule 117.8(455B,455D).

117.4(2) *Waste tire stockpile permit.*

a. Any tire collector, business or individual storing more than 500 passenger tire equivalents on any one site must obtain a waste tire stockpile permit. An authorized vehicle recycler, as licensed by the Iowa department of transportation, may store up to 3,500 passenger tire equivalents without a waste tire stockpile permit; any storage beyond this amount shall require full compliance with this subrule. This subrule is applicable to the indoor, outdoor, and underground storage of waste tires. If the site cannot meet the conditions to obtain a waste tire stockpile permit, the waste tires must be removed from the site and properly disposed of within 30 days.

b. Any tire collector, business, individual, owner or operator of a site seeking to construct a waste tire stockpile must obtain the permit from the department before initiating such operations. The permit shall be issued directly to the owner of the site and the designated tire collector that will be operating the stockpile.

c. Permits shall have an annual fee of $850, payable to the department upon the application for a permit, and due annually beginning each July 1 thereafter at the rate of $850. Permit fees shall not be prorated. The permit shall be valid for a period of three years from date of issuance. Failure to remit the annual renewal fee shall be cause for the department to revoke the permit.

d. Application for a permit must be made on a form provided by the department and must include, at a minimum, the following:

(1) The name, address, and telephone number of the individual who directly owns the stockpile site.

(2) The name, address, and telephone number of the tire collector at the stockpile site, if different from the owner.

(3) A scaled map showing the areas proposed to be used for the storage of the waste tires, all property boundaries of the site, and the location of all buildings and major improvements on the site and within 300 feet of the property boundary.

(4) A vector control plan to prevent infestations of mosquitoes and rodents for aboveground storage in an open area. The plan shall be prepared by a firm that provides professional vector management services, or by the permittee, if properly trained and certified in vector control procedures. The permittee must provide documentation to show adequate implementation and monitoring of the vector control plan.

(5) A site closure plan. The plan shall describe the actions that would be taken to properly dispose of waste tire materials at the site 30 days prior to any intent to discontinue operations at the site so that, upon discontinuance of the operation, no violations of waste tire or solid waste disposal laws and regulations will exist.

(6) An emergency response and remedial action plan, developed and implemented according to applicable provisions of 567—102.16(455B). The plan shall be developed with the input and review of the local fire department and local emergency management coordinator. The applicant shall provide documentation that an opportunity for such input and review has been received by these local authorities.

(7) A financial assurance instrument in compliance with rule 117.7(455B,455D).

(8) A certified check for $850 made payable to the Department of Natural Resources.

117.4(3) *Permitted storage requirements.* A permitted waste tire stockpile site shall meet the following minimum permit conditions as set by the department:

a. Aboveground storage, open area.

(1) A waste tire stockpile site shall not contain more than 250,000 passenger tire equivalents.

(2) A single waste tire pile shall not contain more than 50,000 cubic feet of waste tires.

(3) The vertical dimension of a waste tire pile shall not exceed 10 feet.

(4) A single waste tire pile shall not be more than 100 feet in length.

(5) The surface area covered by a waste tire pile shall not exceed 5,000 square feet; the pile may not be constructed upon any waste tire materials or other flammable materials.

(6) A 50-foot fire lane must be maintained between any two tire piles.

(7) Tire bales shall be stored in piles no greater than 10 feet in height, 25 feet in width, or 50 feet in length, with a separation distance of 50 feet between piles of tire bales.

(8) All waste tire piles shall be located at least 50 feet from any building.

(9) Trees and brush shall be cleared within 50 feet of any tire pile.

(10) Combustible materials or volatile chemicals shall not be stored within 50 feet of any tire pile unless stored in approved fire-resistant containers or cabinets.

(11) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 100 feet of any one portion of the tire storage areas.

(12) The site must be graded to prevent any standing pools of water and to limit the runoff and run-on of precipitation.

(13) A waste tire pile must be at least 200 feet from any well, lake, pond, river, stream, sinkhole, or tile line surface intake unless appropriate grading, or the construction of a barrier, dike, or berm, is completed to intercept surface water flows that may impact such interceptors. This distance may then be reduced to 50 feet.

(14) The stockpile site must be secured by a fence or barrier of a minimum of 6 feet in height to impede unauthorized vehicle and personal access. All gates and entry points shall be secured and locked when site personnel are not present.

(15) No open burning of any type shall be allowed at the permitted stockpile site. All fueling of vehicles and equipment and any other work or activity that may release sparks or flame shall be conducted at least 50 feet from any tire storage area.

(16) Signs shall be posted every 100 feet on site, placed for visibility of personnel on site, and state: "Open burning on-site prohibited." The perimeter of the site shall be posted with signs every 100 feet, placed for visibility to those off site, that state: "Highly flammable materials on-site. Burning in area not recommended."

(17) All waste tire piles shall be located at least 300 feet from any property line, street, or public right-of-way.

b. Aboveground storage, enclosed area. Storage of waste tires shall comply with the requirements of 117.4(3)*"a,"* subparagraphs (2) through (7), and the following:

(1) To qualify as an enclosed area, the area must be enclosed in a structure with a permanent roof and lateral protection to prevent precipitation from accumulating within the tires.

(2) An enclosed storage structure shall not contain more than 50,000 passenger tire equivalents.

(3) Combustible materials or volatile chemicals shall not be stored in a structure permitted for tire storage unless stored in approved fire-resistant containers or cabinets.

(4) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 50 feet of any one portion of the tire storage areas.

(5) The storage structure must be secured from unauthorized access.

(6) No open burning of any type shall be allowed at the permitted stockpile site. All fueling of vehicles and equipment and any other work or activity that may release sparks or flame shall be conducted at least 50 feet from any tire storage area. The exterior of the enclosed storage area shall be posted with signs, placed every 100 feet, that state: "Highly flammable materials stored inside. Burning on-site prohibited."

c. Underground storage. To qualify as an underground waste tire storage site, the site must meet the following conditions:

(1) The site must be a licensed grain warehouse.

(2) All underground storage areas must be dry and not prone to the entry of surface water or groundwater.

(3) The underground storage areas must be secured from unauthorized access by locking gates, doors, barriers, or other devices.

(4) The site shall not store any volatile chemicals or other combustible materials within 150 feet of the tire storage area.

(5) For tires placed for storage after July 1, 2002, all such storage areas shall have access lanes, not less than 50 feet in width, arranged so that no portion of the storage area is more than 150 feet from an access lane.

(6) For tires placed for storage after July 1, 2002, the tires shall not be buried by debris, rubble, or other cover within the underground storage site.

(7) The underground storage site shall be limited to a maximum storage capacity of 4 million passenger tire equivalents.

117.4(4) *Reporting requirements.* The holder of a permit for a waste tire stockpile facility shall make a semiannual report to the department on a form as provided or approved by the department. The report shall state the following:

a. Quantity of waste tires stored at the facility at the time of reporting, determined by count or weight and reported in passenger tire equivalents.

b. Quantity of waste tires received from in-state sources during the reporting period.

c. Quantity of waste tires received from out-of-state sources during the reporting period.

d. For any waste tires removed from the permitted stockpile site during the reporting period, the quantity shall be given by equivalent count or weight of such waste tires removed. Documentation shall be provided to denote how the reported quantity of tires were disposed of at a permitted facility, reused, or resold.

567—117.5(455B,455D) Used tire storage.

117.5(1) *Acceptable used tire storage.* A used tire shall be stored in a manner that provides for the following:

a. Prevention of the collection of water, dirt, or debris within the tire.

b. Organized storage through stacking, rows, and sorting which provides for accurate descriptions and counts of the types and sizes of tires stored.

c. Storage conforms to applicable local and state fire codes.

117.5(2) *Inventory resale and reuse.* Used tires stored for more than one year without documentation of active resale or reuse of tire inventory in a proportion equal to 75 percent of the amount stored shall be considered waste tires and shall be subject to the applicable waste tire storage and disposal rules of this chapter.

567—117.6(455B,455D) Waste tire processing facility permits and requirements.

117.6(1) *Waste tire processing facility permit.*

a. Any business or individual operating a tire processing facility shall obtain a waste tire processing permit prior to commencing such operations. The permit shall be issued directly to the owner and operator of the company that will be operating the tire processing facility.

b. Facilities that accept waste tires to cut, grind, or compact only for final disposal at a permitted sanitary disposal project shall be required to obtain a waste tire processing permit in accordance with these rules. Such facilities shall not store any cut or shredded waste tire materials for more than 30 days.

c. Businesses or individuals operating mobile waste tire processing equipment shall be required to obtain a waste tire processing permit. The permit shall authorize the operator to provide waste tire processing services statewide; however, mobile operations shall not be allowed to store any processed or whole waste tires at any facility or site owned or operated by the permittee unless specifically authorized within the permit.

d. Businesses or individuals who cut, grind, or compact for disposal waste tires generated directly from operations at their own on-site manufacturing operation or service facility shall not be required to obtain a waste tire processing permit provided that all waste tire materials processed on site are disposed of at least every 30 days at a permitted facility and no more than 500 waste tires are processed monthly.

e. Processing permits shall have an annual fee of $850, payable to the department upon the application for a permit, and due annually beginning each July 1 thereafter at the rate of $850. Permit fees shall not be prorated. The permit shall be valid for a period of three years from date of issuance. Failure to remit the annual renewal fee shall be cause for the department to revoke the permit.

f. A permitted processing facility shall have a site closure plan. The plan shall describe the actions that would be taken to properly dispose of all waste tire materials, in whole or processed form, at the site 30 days prior to any intent to discontinue operations at the site so that, upon discontinuance of the operation, no violations of waste tire or solid waste disposal laws and regulations will exist.

g. A permitted processing facility shall have an emergency response and remedial action plan, developed and implemented according to applicable provisions of 567—102.16(455B). The plan shall be developed with the input and review of the local fire department and local emergency management coordinator. The applicant shall provide documentation that an opportunity for such input and review has been received by these local authorities.

h. A permitted processing facility shall obtain financial assurance in accordance with rule 117.7(455B,455D), as necessary.

i. Application for a processing permit must be made on a form provided by the department and must include, at a minimum, the following:

(1) The name, address, and telephone number of the individual who directly owns the tire processing facility.

(2) The name, address, and telephone number of the operator of the processing facility, if different from the owner of the tire processing facility.

(3) The type of processing operations to be conducted at the facility, including descriptions of processing equipment and its hourly capacity, operating hours of the facility, and types of processed tire materials to be produced.

(4) A scaled map showing all areas proposed for waste tire storage and processing operations, all property boundaries of the site, and the location of all buildings and major improvements on the site and within 300 feet of the property boundary.

(5) A site closure plan, as referenced in 117.6(1)*"f."*

(6) An emergency response and remedial action plan, as referenced in 117.6(1)*"g."*

(7) A certified check for $850 made payable to the Department of Natural Resources.

(8) A financial assurance instrument in compliance with rule 117.7(455B,455D).

117.6(2) *Permitted waste tire processing facility permit requirements.* A permitted waste tire processing facility shall meet the following minimum permit requirements as set by the department. Nothing in this rule shall limit the permitted tire processing facility from compliance with more stringent local ordinances, fire codes, or other applicable statutes.

a. The site must be graded to prevent any standing pools of water and to limit the run-on of precipitation in all areas where waste tires or processed tire material is stored.

b. The processing facility site must be secured by a fence or barrier of a minimum of 6 feet in height to impede unauthorized vehicle and personal access. All gates and entry points shall be secured and locked when site personnel are not present.

c. No open burning of any type shall be allowed at the permitted stockpile site. All fueling of vehicles and equipment and any other work or activity that may release sparks or flame shall be conducted at least 50 feet from any tire storage area.

d. Signs shall be posted every 100 feet on site, placed for visibility of personnel on site, and state: "Open burning on-site prohibited." The perimeter of the site shall be posted with signs every 100 feet, placed for visibility to those off site, that state: "Highly flammable materials on-site. Burning in area not recommended."

117.6(3) *Preprocessed whole waste tire storage.*

a. Permitted storage of whole waste tires on site prior to processing shall be limited to the quantity of tires that the facility has the ability to process within a three-day period. This quantity shall be determined by multiplying the actual number of working hours that processing is normally to occur during a typical three-day period by 80 percent of the manufacturer's specifications of hourly capacity of the processing equipment. After one year of the facility's operation, documented actual hourly production shall be used for this permit determination in lieu of the manufacturer's equipment specifications.

b. A tire processor may store an additional three-day capacity of preprocessed waste tires, above the initial three-day capacity, using the same quantity determination as stated in 117.6(3)*"a,"* subject to the tire processor's obtaining and maintaining financial assurance for these additional tires to be stored prior to processing in accordance with rule 117.7(455B,455D).

c. Under no circumstance shall a waste tire processor be allowed the storage of more than 75,000 preprocessed waste tires, measured as passenger tire equivalents, through any combination of processing performance or financial assurance determinations. All waste tires on site, including those stored indoors or outdoors or in trucks, trailers, or mobile cages, shall be counted in determining compliance with this rule.

d. Any single waste tire shall not be stored at the processing facility for more than 30 days before the tire is processed.

e. Any tire bales produced or stored at a tire processing facility shall count toward the maximum allowable quantity of preprocessed waste tire storage.

f. All preprocessed tires stored outdoors shall comply with the following:

(1) A single waste tire pile shall not contain more than 50,000 cubic feet of waste tires.

(2) The vertical dimension of a waste tire pile shall not exceed 10 feet.

(3) A single waste tire pile shall not be more than 100 feet in length.

(4) The surface area covered by a waste tire pile shall not exceed 5,000 square feet.

(5) A 50-foot fire lane must be maintained between any two tire piles.

(6) A waste tire pile shall not be located within 50 feet of any property line, street, public right-of-way, or building.

(7) A tire pile must be at least 200 feet from any well, lake, pond, river, stream, sinkhole, or tile line surface intake unless appropriate grading, or the construction of a barrier, dike, or berm, is completed to intercept surface water flows that may impact such interceptors. This distance may then be reduced to 50 feet.

(8) Trees and brush shall be cleared within 50 feet of any tire pile.

(9) Combustible materials or volatile chemicals shall not be stored within 50 feet of any tire pile unless stored in approved fire-resistant containers or cabinets.

(10) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 100 feet of any one portion of tire storage areas.

(11) Waste tires stored in trucks, trailers, or mobile containers must be at least 10 feet from any property line or building.

(12) Tire bales shall be stored in piles no greater than 10 feet in height, 25 feet in width, or 50 feet in length, with a separation distance of 50 feet between piles of tire bales.

g. Indoor storage of waste tires shall not be allowed within 20 feet of any waste tire processing or handling equipment. All waste tires being actively unloaded and fed into processing equipment, including those being off-loaded from trucks, trailers, or mobile containers, shall be cleared at least 20 feet away from the processing equipment by the end of the last working shift of the day. Any remaining indoor storage shall comply with the requirements of 117.4(3)*"b,"* subparagraphs (3) through (7), and the following:

(1) No more than 25,000 passenger tire equivalents shall be stored indoors.

(2) Combustible materials or volatile chemicals shall not be stored within 25 feet of any waste tire storage area unless they are stored in approved containers pursuant to applicable fire codes.

(3) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 50 feet of any one portion of indoor tire storage areas.

(4) The storage structure must be secured from unauthorized access.

117.6(4) *Processed tire storage.*

a. Storage of processed tire materials at a tire processing facility shall be limited to the volume of material in aggregate that the processor manufactures within a consecutive 60-day period, using the facility's daily average capacity for processing whole tires as determined in 117.6(3)*"a."* The department shall have the final authority for determining the allowable quantities of processed tire materials to be stored.

b. Under no circumstances shall the equivalent of more than 500,000 processed tires, or 5,000 tons of material, be stored at the processing site.

c. All processed tire material at the site of processing shall be stored as follows:

(1) Processed tires that have been shredded or ground into pieces that are 9 inches or smaller shall be stored in piles no more than 15 feet in height, 100 feet in length, and 50 feet in width and shall contain no more than 75,000 cubic feet of product by volume.

(2) Processed tires cut into strips, sidewalls, or other pieces larger than 9 inches shall be stored in piles no more than 10 feet in height, 100 feet in length, and 50 feet in width and shall contain no more than 50,000 cubic feet of product by volume.

(3) A 50-foot fire lane must be maintained between piles of processed tire material, with the base of the lane kept free from the accumulation of waste tire-derived residuals or materials or other debris.

(4) All processed tire material shall be stored at least 50 feet from any property line, street, public right-of-way, or building.

(5) Trees and brush shall be cleared within 50 feet of the storage of all processed tire material.

(6) A 20-pound Class ABC dry chemical fire extinguisher shall be available within 100 feet of any one portion of processed tire storage areas.

d. For indoor storage of more than 5,000 cubic feet of processed tire material, the material shall be stored on concrete floors and all retaining walls, bins, barriers, and roofing material for the material storage shall be constructed of nonflammable materials.

e. The processor must demonstrate a reasonable market demand for all types and quantities of processed product stored at the processing site. Market demand for processed waste tire products shall be demonstrated by the processor through at least one of the following criteria:

(1) Active contracts, purchase orders, or supply agreements with an end user, noting quantities of material required by the end user, specifications of the quality of the product required by the end user, and monthly or annual demand of product by the end user from the processor. This information shall be made available for review by the department as required to determine compliance with this rule.

(2) Historic, ongoing demand for product by an end user or type of end user, within the state or surrounding region.

(3) Information and evidence that any proposed new product or use for processed waste tires produced by the tire processor will be marketed in a timely fashion, with sufficient demand and consumption by end user markets.

f. The department shall have the final authority in determining storage limitations, including prohibition, for processed tire products when active markets are not evident from information provided by the tire processor.

117.6(5) *Reporting requirements.* The holder of a permit for a waste tire processing facility shall make a semiannual report to the department on a form as provided or approved by the department. The report shall state the following:

a. Quantity of waste tires received by the facility during the reporting period.

b. Quantity of waste tires received by the facility from in-state sources.

c. Quantity of waste tires received by the facility from out-of-state sources.

d. Quantity of unprocessed waste tires on hand at the facility at the time of reporting.

e. Quantity of waste tires processed and delivered to end users during the reporting period, by product type, with determinations of quantities of product delivered to identified in-state and out-of-state markets or sites.

f. Quantity of processed tire material currently stored at the facility, by product type.

117.6(6) *Disposal of solid wastes from tire processing.*

a. All waste materials, residuals, and scraps derived from tire processing operations shall be regulated as solid waste. These materials include, but are not limited to, tire bead rings, metal wire, synthetic fibers, and cording.

b. All of these solid wastes must be disposed of at least every 60 days at a permitted sanitary disposal project, scrap recycler, or location, as approved by the department.

c. Documentation of the disposal of these solid wastes must be kept at the processing facility for a period of three years.

567—117.7(455B,455D) Financial assurance for waste tire sites. Permitted waste tire stockpile sites and waste tire processing facilities must obtain and submit a financial assurance instrument to this department for permitted waste tire storage, in accordance with these rules. The financial assurance instrument shall provide monetary funds to properly dispose of any waste tires that may remain at a waste tire site due to the owner's or operator's failure to properly close the site within 30 days of permit termination, revocation, or expiration. Waste tire storage and processing sites operated by state, county, or city agencies or operated in conjunction with a sanitary landfill shall not be required to obtain financial assurance instruments.

117.7(1) *No permit without financial assurance.* A permit shall not be issued to the owner and operator of a waste tire processing or storage site until a financial assurance instrument has been submitted to and approved by the department as necessary.

117.7(2) *Financial assurance amounts required.*

a. Waste tire stockpile sites shall have financial assurance coverage equal to 35 cents per waste tire collected and stored prior to July 1, 1998, and 85 cents per waste tire collected and stored on or after July 1, 1998.

b. If the owner or operator of a waste tire stockpile does not have adequate records to determine the time frame within which waste tire inventories were initially collected, then financial assurance amounts shall be determined by allocating the number of tires stored proportionally between the time period the facility has operated before and after July 1, 1998.

c. Waste tire processing sites shall have financial assurance coverage equal to 85 cents per waste tire stored above the permitted three-day processing capacity, in accordance with 117.6(3)*"b."*

117.7(3) *Acceptable financial assurance instruments.* Financial assurance may be provided by cash, surety bond, letter of credit, secured trust fund, or corporate guarantee, as follows:

a. Cash payments shall be provided by a certified check, made payable to the Department of Natural Resources.

b. A surety bond must be written by a company authorized by the commissioner of insurance to do business in the state, and the surety bond shall comply with the following:

(1) The bond shall be in a form approved by the commissioner of insurance and shall be payable to the department of natural resources.

(2) The bond must be continuous until canceled by the surety. Written notice of intent to cancel the bond must be provided to the owner and operator and to the department at least 90 days before the effective date of cancellation.

c. A secured trust fund shall name the department of natural resources as the entity authorized to draw funds from the trust, subject to proper notification to the trust officer of failure by the permittee to comply with proper removal and disposal of waste tires covered by the financial assurance provided by the trust.

d. The department may require, at the expense of the permitte, a financial audit of an individual or firm requesting the use of a letter of credit or corporate guarantee.

117.7(4) *Financial assurance cancellation and permit suspension.*

a. Within 30 days of receipt of a written notice of cancellation of financial assurance by the surety, the owner or operator must provide the department an alternative financial assurance instrument. If a means of continued financial assurance is not provided within that 30 days, the department shall suspend the permit.

b. The owner or operator shall perform proper closure within 30 days of the permit suspension. For the purpose of this rule, proper closure means removal of all tires and related products from the site or facility through acceptable disposal or processing options.

c. If the owner or operator does not properly close the site within the 30-day period allowed, the department shall file a claim with the surety company, trust, or other financial assurance instrument provider to collect the amount of funds necessary to properly close the site.

d. Any financial assurance instrument provided to the department in compliance with this rule must be payable to the department and must remain in continuous effect until the director of the department gives written notification to the owner, operator, and surety provider that the covered site has been properly closed. An owner or operator who elects to terminate a permitted activity, or whose renewal application has been denied, or whose permit has been suspended or revoked for cause, must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 60 days from the date of termination of the permit.

e. The director may request payment from any surety to provide for the purpose of completing closure when one of the following circumstances exists:

(1) The owner or operator is more than 15 days late in providing a schedule for closure or for meeting any date in the schedule for closure.

(2) The owner or operator declares an economic inability to comply with this rule, either by sending written notification to the director or through an action such as, but not limited to, filing for bankruptcy.

567—117.8(455B,455D) Beneficial uses of waste tires.

117.8(1) *Role of the department.* In order to ensure that all approved uses of whole or processed waste tires do not pose a threat to the environment or to the public health, welfare, and safety, the department shall have the authority to determine if a proposed use of waste tires is beneficial and shall have the authority to approve or deny applications if such a benefit is not evident. Proposed beneficial uses in which the primary purpose of the project is as a land disposal mechanism shall not be approved.

117.8(2) *Waste tire products exempted.* The following end uses of materials derived, processed, or recycled from waste tires shall be considered beneficial reuses under this chapter and shall not require individual beneficial use designations from the department for their use at a specific site of end use.

a. Asphalt rubber, including asphalt cement modified with a crumb rubber modifier;

b. Buffing rubber, defined as high quality tire rubber, which is a by-product from the conditioning of tire casings in preparation for retreading;

c. Carbon black derived from the thermal or oxidative decomposition of tires;

d. Crumb rubber material, including rubber granules used for soil amendments or surfacing materials for playgrounds, equestrian arenas, and athletic fields;

e. Crumb rubber modifiers used in asphalt paving materials;

f. Tire-derived fuel (TDF), which is a fuel derived from waste tires, including whole tires, processed into pieces that satisfy the specifications of the end user for use as either a primary or supplemental fuel. Use of TDF requires modification of air source construction and operation permits if such use is not already recognized in the end user's permit.

117.8(3) *Beneficial uses for whole waste tires.* This subrule establishes acceptable beneficial uses for whole waste tires and required notifications and approvals that must be obtained from the department prior to placement of waste tires at the site of end use. The following applications shall be considered acceptable beneficial uses for whole waste tires:

a. Tire swings, sandboxes, or other equipment for child play areas on residential lots or at schools, care centers, and recreational areas;

b. Dock bumpers at vehicle loading/unloading docks or marine docks;

c. Crash barriers at racetracks;

d. Agricultural uses to hold down covers over hay, silage, and other agricultural commodities. When not in use, the tires should be neatly stacked;

e. Structures for military and police training at facilities under ownership or management of local, state, or federal agencies;

f. Artificial fishing reefs and fish habitat structures constructed at facilities under ownership or management of a county conservation board, the department, or a federal agency;

g. Stream bank erosion control and culvert outlet tire mats, constructed as follows:

(1) The tires shall be placed in a single layer and banded together with a noncorrosive strip;

(2) All the tires shall be drilled or punctured to allow for outflow of air to prevent their flotation when submerged;

(3) The banded mat shall be anchored with cable at least 0.5 inches in diameter;

(4) The cables shall then be fastened to buried anchors made of treated timbers or concrete, at least every 50 feet along the top of the mat and intermittently in the middle;

(5) The mat shall extend 4 to 6 feet out on the channel bottom;

(6) The outermost row on the channel bottom shall be filled with rocks or broken concrete;

(7) Vegetation shall be planted in and around the tire mat; rows within the tire mat that are too wet for vegetation establishment shall be filled with rocks or broken concrete; and

(8) Any variation from these design standards shall be acceptable only under the direction of an Iowa-licensed professional engineer.

h. Construction of residential dwelling structures or other buildings for which a building permit has been obtained from local government officials;

i. Culvert piping made from waste tires with a rim diameter of 21 inches or greater and subject to the following design criteria:

(1) The maximum depth of water flows within the culvert shall be no greater than 75 percent of the piping diameter;

(2) Sand or similar aggregate material must be installed in the lower portions of the culvert piping to provide ballast and limit mosquito infestations;

(3) The culvert must not be installed below the highest seasonal groundwater elevation;

(4) The maximum depth of earthen or aggregate coverings over the culvert shall not exceed the outside diameter of the whole tires used in the culvert;

(5) Soils used for backfill around and above the culvert shall be compacted so as to provide a culvert deflection of less than 5 percent of the outside diameter; and

(6) Vertical sections of tire culvert piping shall be designed with safety measures to prevent unauthorized access by or hazards to children and animals.

117.8(4) *Required notifications and approval for whole tire uses.* Prior to the installation or placement of waste tires for a beneficial use as approved in subrule 117.8(3), the owner or operator of the site of end use shall properly notify or seek approval from the department for the proposed beneficial use under the following circumstances. These circumstances apply to the total combined amount of tire material that already is, or is intended to be, used at the site:

a. For applications of less than 250 whole waste tires, notification to the department shall not be required, subject to the end user's compliance with all requirements of this chapter.

b. For applications of 250 to 500 whole waste tires, the department shall be notified in writing no less than 30 days prior to the construction or placement of waste tires for a beneficial use, with the following information provided:

(1) The name, address, and telephone number of the owner, operator, or individual responsible for the beneficial use application at the site of end use;

(2) The address of the site of beneficial end use;

(3) The estimated total number of tires to be used;

(4) A description of the beneficial use application;

(5) A project time line, including proposed project start and end dates; and

(6) A statement that explains how the site owner shall properly dispose of such waste tires in the event that the beneficial use is discontinued or dismantled.

c. For applications of more than 500 waste tires, approval by the department shall be obtained prior to any such applications. Approval requests shall be made to the department in writing and shall contain all information as requested in paragraph 117.8(4)*"b,"* as well as a scaled plan of the site of end use with areas noted where whole waste tires are to be placed, including locations of the site of end use property lines and the location of any structures within 300 feet of the site of end use.

117.8(5) *Prevention of public health risks for whole tire uses.* All beneficial uses of whole waste tires as approved in this rule shall have incorporated into their design and construction measures to prevent the retention and stagnation of water, in the event that such conditions are likely to exist. These measures

shall include, at a minimum, the piercing or drilling of holes in whole waste tires to allow for water drainage. Such measures shall be designed to minimize risks to public health and safety caused by the breeding of disease-carrying insects and rodents.

117.8(6) *Beneficial uses for shredded waste tires.* This subrule establishes acceptable beneficial uses for shredded waste tires and required design criteria that shall be observed in the placement of shredded tires at the site of end use. The following applications shall be considered acceptable beneficial uses for shredded waste tires:

a. Horizontal drainage structures (French drains) designed to lower the groundwater table and transport excess water to another location or drainage structure and constructed as follows:

(1) The elevation of the drain outlet must be lower than the average seasonal groundwater table to allow gravity drainage through the drainage structure;

(2) The drainage structure width shall be no less than 3 feet and no more than 6 feet;

(3) The minimum depth of shredded tire material in the trench shall be greater than 4 feet;

(4) The minimum thickness of backfill over the trench shall be 2 feet;

(5) Headloss of water flowing through the drain shall be due to elevation changes only; and

(6) Any site of end use to contain drainage structures composed of more than 300 cubic yards of shredded tires shall be constructed under the auspices of an Iowa-licensed professional engineer.

b. On-site wastewater treatment and disposal system construction, to include use of shredded tires in lateral trenches and as fill to cover distribution pipes under the following conditions:

(1) The on-site wastewater treatment and disposal system is constructed and permitted according to the requirements of 567—Chapter 69;

(2) Shredded tires used in the system have a minimum dimension of 1 inch on any one side and a maximum dimension of 3 inches on any one side; and

(3) The administrative authority responsible for issuance of the permit approves the beneficial use. The authority shall have the sole discretion to deny use of shredded tires in system construction based on any engineering or design principle concerns.

c. Lightweight fill in public roads, public road embankment construction, and other public civil engineering applications if all of the following conditions are met:

(1) The tire shreds are of uniform composition and sizing;

(2) The tire shreds are not mixed with other solid wastes, vegetation, composted materials, or other processed tire products, including separated tire bead wire, steel cording or nylon fibers;

(3) The tires are not placed in direct contact with surface water or groundwater;

(4) The shredded tires are isolated from overburden materials by a protective membrane or liner to prevent intrusion and settling of overburden; and

(5) An Iowa-licensed professional engineer designs and supervises the incorporation of shredded tires in beneficial uses of this manner.

d. Structural foundation drainage material used in a project as approved through a local building permit;

e. A bulking agent for composting operations at permitted composting facilities, with tire shreds used to be no larger than 3 inches on any one side; and

f. Leachate drainage medium at a permitted municipal landfill, provided that the medium meets engineering and design requirements for the landfill's operating permit, pursuant to 567—Chapter 102.

117.8(7) *Beneficial uses for baled tires.* This subrule establishes acceptable beneficial uses for baled tires and required notifications and approvals that must be obtained from the department prior to placement of baled tires at the site of end use.

a. *Beneficial uses.* Civil engineering applications, including stream bank and soil erosion control projects, shall be considered acceptable beneficial use applications for baled tires. Such applications involving the combined use of more than 50 cubic yards of baled tires at any one site of end use must be conducted under the immediate direction of one of the following entities:

(1) A federal agency including, but not limited to, the Army Corps of Engineers, the Natural Resources Conservation Service, or the Bureau of Land Management;

(2) A state agency including, but not limited to, the Iowa department of transportation; or

(3) An Iowa-licensed professional engineer.

b. *Required notifications and approval.* Prior to the installation or placement of baled tires for beneficial uses as approved in this rule, the owner or operator of the site of end use shall properly notify or seek approval from the department for the proposed beneficial use under the following circumstances. These circumstances apply to the total combined amount of tire material that already is, or is intended to be, used upon the site:

(1) For applications of less than 25 cubic yards of baled tires at a site of end use, notification to the department shall not be required, subject to the end user's compliance with all requirements of this chapter.

(2) For applications of 25 to 50 cubic yards of baled tires, the department shall be notified in writing no less than 30 days prior to the construction or placement of baled tires for a beneficial use, with the following information provided:

1. The name, address, and telephone number of the owner, operator, or individual responsible for the beneficial use application at the site of end use;
2. The address of the site of beneficial end use;
3. The estimated total number of cubic yards of tires to be used;
4. A description of the beneficial use application;
5. A project time line, including proposed project start and end dates; and
6. A statement that explains how the site owner shall properly dispose of such baled tires in the event that the beneficial use is discontinued or dismantled.

(3) For beneficial use applications of more than 50 cubic yards of baled tires, approval by the department shall be obtained prior to any such applications. Approval requests shall be made to the department in writing and shall contain all information as requested in subparagraph 117.8(7)*"b"*(2), as well as a scaled plan of the site of end use with areas noted where baled tires are to be placed, including locations of the site of end use property lines, and the location of any structures within 300 feet of the site of end use.

117.8(8) *Beneficial uses for cut tires.* This subrule establishes acceptable beneficial uses for cut tires. Notifications and approvals shall not be required by the department prior to the use or placement of cut tires at a site of end use as approved in this rule, so long as such uses have incorporated into their design and construction measures to prevent the retention and stagnation of surface water, in the event that such conditions are likely to exist. Such measures shall be designed to minimize risks to public health and safety caused by the breeding of disease-carrying insects and rodents. The following applications shall be considered acceptable beneficial uses for cut tires:

a. Agricultural uses to hold down covers over hay, silage, and other agricultural commodities;

b. Traffic control devices for use in public roadway construction projects;

c. Portable surfaces manufactured from tire faces or tread;

d. Silt collection fences manufactured from tire faces or tread; and

e. Bagel-cut tires used for underturf water conservation and turf growth enhancement systems at golf courses.

117.8(9) *Requests for approval of other beneficial use designations.* The department shall have the authority to approve or deny requests for beneficial use applications for whole, shredded, baled, or cut waste tires that are not specifically addressed within this chapter. Requests for such use determinations shall be made to the department in writing. The department may request project descriptions and supporting scientific and engineering data to determine if a request for a beneficial use designation is warranted. The department shall approve or deny a request for approval within 30 days of receipt of such a request and supporting data if so required by the department. The department shall have the sole authority to deny a beneficial use request if the department determines that any one of the following conditions exists:

a. The requested beneficial use designation poses a risk to the environment or to the public health, welfare, and safety;

b. The requested beneficial use designation is determined to have the primary purpose as a land disposal mechanism, and any beneficial use would be incidental in nature; or

c. The requested beneficial use designation would not be in accordance with other applicable federal, state, or local laws, regulations, and ordinances.

117.8(10) *Compliance with local, state, and federal regulations.* Any proposed beneficial use project or application of whole, shredded, baled, or cut waste tires may require approval or permits from federal, state, and local agencies, under other laws, regulations, and ordinances, as applicable, including but not limited to the following:

a. The Army Corps of Engineers, for projects involving navigable waterways and other waterways over which it has jurisdiction;

b. Waste tire beneficial use applications involving placement on or within land or waters contained within a floodplain which require approval from the department's floodplain management program, as specified in 567—Chapters 70 through 75; and

c. Local building codes, zoning and land-use covenants, ordinances, and guidelines.

117.8(11) *Storage of waste tires prior to beneficial use application.* Whole, shredded, cut, or baled waste tires to be used for a beneficial use application may be stored at the site of end use, subject to the following requirements:

a. Such tire materials shall be stored in piles or bales for no longer than 60 days prior to the date of application, except for whole waste tires for agricultural uses as specified in paragraph 117.8(3)*"d."*

b. All storage of such waste tire materials shall be conducted in accordance with the uniform fire code and the requirements of 117.4(3) and 117.6(4)*"c"* as applicable.

c. Any storage of waste tires associated with a proposed beneficial reuse project at a site of end use for longer than 60 days without implementation of completion of a beneficial reuse project shall be subject to the waste tire storage permitting requirements as contained in rule 117.4(455B,455D).

These rules are intended to implement Iowa Code sections 455B.301 to 455B.307 and 455D.11 to 455D.11H.

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CHAPTER 118
DISCARDED APPLIANCE DEMANUFACTURING

567—118.1(455B,455D) Purpose. The purpose of this chapter is to implement Iowa Code chapter 455B, division IV, part 1, and section 455D.6(6) to ensure the proper removal and disposal of electrical parts containing polychlorinated biphenyls (PCBs), components containing mercury, and refrigerants (e.g., CFCs and HCFCs) from discarded appliances.

567—118.2(455B,455D) Applicability and compliance.

118.2(1) All discarded appliances must be demanufactured before being disposed of or recycled. This chapter does not apply to the service, repair, reuse or rebuilding of appliances or components for their original purpose. These rules do not apply to the removal of capacitors, refrigerants or components containing mercury during the maintenance or service of equipment containing such items.

118.2(2) A person must obtain an appliance demanufacturing permit (ADP) from the department of natural resources (DNR) before conducting any demanufacturing activities.

118.2(3) Any person engaged in demanufacturing must be in compliance with all federal and state laws relating to the management and disposition of all hazardous wastes, hazardous materials, universal wastes, PCBs and refrigerants.

567—118.3(455B,455D) Definitions.

"Appliances" means household and commercial devices such as refrigerators, freezers, kitchen ranges, air-conditioning units, dehumidifiers, gas water heaters, furnaces, clothes washers, clothes dryers, dishwashers, microwave ovens and commercial coolers with components containing mercury, refrigerants, or PCB-containing capacitors.

"Ballast" means an electrical device containing capacitors for the purpose of triggering high-level electrical components. A ballast provides electrical balance within the high-level electrical component circuitry.

"Capacitor" means a device for accumulating and holding a charge of electricity that consists of conducting surfaces separated by a dielectric fluid.

"CFC" or *"CFCs"* means chlorofluorocarbons, including any of several compounds used as refrigerants.

"CFR" means Code of Federal Regulations.

"Demanufacturing" means the removal of components, including but not limited to PCB-containing capacitors, ballasts, mercury-containing components, fluorescent tubes, and refrigerants, from discarded appliances.

"Discarded" means no longer to be used for the original intended purpose.

"DOT-approved container" means those containers approved by the U.S. Department of Transportation, the agency responsible for shipping regulations for hazardous materials in the United States.

"Facility" means any landfill, transfer station, material recovery facility, salvage business, appliance service or repair shop, appliance demanufacturer, shredder operation or other party which may accept appliances for demanufacturing. A demanufacturing facility may occupy a portion of a material recovery facility, salvage business, landfill, transfer station or other site.

"Fixed facility" means a permitted appliance demanufacturer operating at a permanent location.

"Fluff" means the residual waste from the shredding operation after metals recovery.

"Hazardous condition" means any situation involving an actual, imminent or probable spillage, leakage, or release of a hazardous substance onto the land, into a water of the state or into the atmosphere which, because of the quantity, strength and toxicity of the hazardous substance, its mobility in the environment and its persistence, creates an immediate or potential danger to the public health or safety or to the environment.

"HCFC" or *"HCFCs"* means hydrochlorofluorocarbons, including any of several compounds used as refrigerants.

"Mercury-containing components" means devices containing mercury. Examples include, but are not limited to, thermostats, thermocouples, mercury switches and fluorescent tubes.

"Mobile operation" means a permitted appliance demanufacturer that has equipment capable of operating in an area away from a fixed, permitted location.

"PCB" or *"PCBs"* means polychlorinated biphenyl, which is a chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees, or any combination of substances that contain polychlorinated biphenyl.

"Point of demanufacturing" means the actual location of demanufacturing for fixed facilities and mobile operations.

"Reclaim" means to reprocess refrigerant to an EPA ARI-700-88 standard.

"Recovery" means to remove all refrigerants to EPA standards.

"Small capacitor" means a capacitor which contains less than 1.36 kg (3 lbs) of dielectric fluid. The following assumptions may be used if the actual weight of the dielectric fluid is unknown. A capacitor whose total volume is less than 1,639 cubic centimeters (100 cubic inches) may be considered to contain less than 1.36 kg (3 lbs) of dielectric fluid, and a capacitor whose volume is more than 3,278 cubic centimeters (200 cubic inches) must be considered to contain more than 1.36 kg (3 lbs) of dielectric fluid. A capacitor whose volume is between 1,639 and 3,278 cubic centimeters may be considered to contain less than 1.36 kg (3 lbs) of dielectric fluid if the total weight of the capacitor is less than 4.08 kg (9 lbs).

567—118.4(455B,455D) Storage and handling of appliances prior to demanufacturing.

118.4(1) Any person collecting and storing discarded appliances must store the appliances so as to prevent electrical capacitors, refrigerant lines and compressors, and mercury-containing components from being damaged and allowing a release into the environment.

118.4(2) No method of handling discarded appliances may be used which in any way damages, cuts or breaks refrigerant lines or crushes compressors, capacitors, or mercury-containing components, or may cause a release of refrigerant, PCBs or mercury into the environment.

118.4(3) No more than 1,000 discarded appliances may be stored at a location prior to demanufacturing.

118.4(4) Discarded appliances may not be stored for more than 270 days before being demanufactured.

567—118.5(455B,455D) Appliance demanufacturing permits.

118.5(1) *Permit required.* A person must obtain an appliance demanufacturing permit (ADP) from the department before conducting any demanufacturing activities.

118.5(2) *Types of permits.*

a. A person may request a permit that excludes appliances that contain a particular type of material (e.g., refrigerants, sodium chromate, PCBs, or mercury switches). Persons may not demanufacture or place their unique mark on an appliance that once contained a material that is excluded from their permit. An appliance demanufacturing facility must clearly post the types of appliances the facility does not accept.

b. Permits may be issued for both fixed facilities and mobile operations.

118.5(3) *Transfer of title and permit.* If title to an appliance demanufacturing facility is transferred to another party, the department shall transfer the permit within 60 days if the department determines that the following requirements have been met:

a. The title transferee has applied in writing to the department within 30 days of the transfer of title to request a transfer of the permit.

b. The permitted facility and title transferee are in compliance with Iowa Code chapters 455B and 455D, this chapter, and the conditions of the permit.

118.5(4) *Permit conditions.* A permit may be issued with conditions, specified in writing by the department, that are necessary to ensure the appliance demanufacturing facility can be operated in a safe and effective manner and in compliance with Iowa Code chapters 455B and 455D and this chapter.

118.5(5) *Inspection of site and operation.* The department shall inspect facilities prior to issuing an appliance demanufacturing permit. The permit will not be issued until the facility is in compliance with these rules. Appliance demanufacturing facilities may be inspected by the department throughout the permit period and prior to permit renewal.

118.5(6) *Duration of permits.* Appliance demanufacturing permits shall be issued and may be renewed for a five-year term.

118.5(7) *Request for permit renewal.* Applications for permit renewal must address any changes to the information previously submitted pursuant to subrule 118.5(1). If there has been no change in an item, the applicant shall so indicate on the application form. The renewal application, Form 542-8005, must be submitted to the solid waste section of the DNR central office in Des Moines a minimum of 60 days before permit expiration.

118.5(8) *Request for permit modification.* An application for permit amendment must be submitted and the amendment must be issued by the department before significant changes may be made by the permit holder to the process or facility. The applicant shall provide a revised plan of operations, a contingency plan, and any other documentation required in rule 118.6(455B,455D) that will change.

118.5(9) *Factors in permit issuance decisions.* The department may request that additional information be submitted for review to make a permit issuance decision. The department may review and inspect the facility, its agents and operators, and compliance history. The department may review whether a good-faith effort to maintain compliance and protect human health and the environment is being made and whether a compliance schedule is being followed. The department may issue a permit on a trial basis.

567—118.6(455B,455D) Appliance demanufacturing permit application requirements. The permit application for appliance demanufacturing must contain the following information to be submitted on Form 542-8005.

1. Facility name.
2. Office address.
3. Location of demanufacturing facility if different from office address.
4. Contact person or official responsible for the operation of the facility.
5. Type, source and expected number or weight of appliances to be handled per year.
6. Schematic site plans of a fixed facility, including the schematic floor plans of any buildings showing where activities will take place and where waste is stored.
7. For mobile operations: schematic plans, or a description and photographs, of the mobile van or trailer.
8. A copy of the EPA Refrigerant Recovery or Recycling Device Acquisition Certification Form 2060-0256.
9. Operation plan: a detailed summary of the activities that will be performed on each type of appliance considered for demanufacturing. This summary must include step-by-step activities of the demanufacturing process.
10. A contingency plan detailing specific procedures to be used in case of equipment breakdown or fire, including methods to be used to remove or dispose of accumulated waste.
11. A copy of the Authorization to Discharge (Stormwater) Permit number, where applicable.
12. A copy of EPA Notification of PCB Activity Form 7710-53 and a return response from EPA. Facilities storing PCB-containing articles longer than 30 days must register with EPA. This form may be obtained by contacting the Fibers and Organics Branch, Office of Pollution Prevention and Toxics, United States Environmental Protection Agency, Ariel Rios Building (7404), 1200 Pennsylvania Avenue NW, Washington, DC 20460.
13. Documentation showing compliance with rule 118.8(455B,455D).
14. A copy of the unique marking system to be applied to each discarded appliance after demanufacturing.
15. Documentation that a permanent facility meets local zoning requirements.

567—118.7(455B,455D) Fixed facilities and mobile operations. The following removal and disposal requirements must be met by both fixed facilities and mobile operations.

118.7(1) Demanufacturing of appliances must take place on an impervious floor (including but not limited to concrete, ceramic tile, or metal, but not wood). Any spills must be contained and picked up with proper equipment and procedures and be disposed of properly.

118.7(2) The point of demanufacturing must be located at least 50 feet from a well and any water of the state.

118.7(3) The facility must be located above the 100-year floodwater elevation.

118.7(4) A permanent facility must meet local zoning requirements.

118.7(5) An applicant must establish a unique marking system, to be submitted with the permit application for department approval, signifying that all refrigerants, PCB-containing articles, and mercury-containing components have been removed. The unique marking system must be a minimum of nine inches by nine inches and must be applied to the appliances after demanufacturing.

567—118.8(455B,455D) Training. Beginning January 1, 2003, at least one owner or employee of an appliance demanufacturing facility must have a training certificate from a department-approved training course. A person who has completed the department-approved training course must be on site at all times when discarded appliances are being demanufactured. The training will, at a minimum, cover the following topics.

1. State and federal regulations for the removal, storage, transportation, and disposal of refrigerant, PCB-containing articles, mercury-containing components, and asbestos from appliances.
2. Record-keeping requirements.
3. Safety precautions for handling appliances and hazardous materials.
4. Spill prevention and cleanup procedures appropriate for appliance demanufacturing.
5. The proper methods of loading and unloading discarded appliances.
6. General demanufacturing procedures.

567—118.9(455B,455D) Refrigerant removal requirements.

118.9(1) All owners of refrigerant recovery and recycling equipment must provide certification to EPA that they have acquired and are using EPA-approved equipment.

118.9(2) Refrigerant in appliances must be recovered to EPA standards using equipment meeting EPA requirements (40 CFR 82.162). Refrigerant may be removed prior to delivery to the appliance demanufacturer if it is removed by an appliance service or repair facility employee certified for the removal of refrigerant.

118.9(3) The removal of refrigerant from refrigeration appliances must take place in an area where the temperature of the surrounding air and of the appliance being demanufactured is 45 degrees Fahrenheit or greater.

118.9(4) Facilities that are not EPA-certified refrigerant reclaimers must ship recovered refrigerant to an EPA-certified reclamation facility or properly dispose of the refrigerant at an EPA-permitted facility. Reclamation may take place on site only if the appliance demanufacturing facility is certified as a reclaimer by the EPA. Any refrigerant that cannot be reclaimed or recycled must be properly disposed of by incineration or other acceptable means.

118.9(5) Compressor oil.

a. Compressor oil from refrigeration unit compressors may be removed during the demanufacturing process, and any oil removed must be stored in accordance with rule 567—119.5(455D,455B).

b. Compressor oil is not hazardous and may be burned in used oil-fired space heaters, provided the heaters have a capacity of 0.5 BTUs (British thermal units) per hour or more.

c. Compressor oil may be sold to a marketer of used oil.

118.9(6) Ammonia gas-operated refrigerators and air conditioners.

a. Ammonia gas must be vented into water.

b. Sodium chromate must be removed from refrigeration equipment containing sodium chromate.

c. Sodium chromate liquid is a hazardous waste and must be disposed of at an EPA-permitted facility.

d. Removal of sodium chromate liquid must take place on an impervious surface. In case of a spill, the spilled liquid and the material used as absorbent must be handled as a hazardous waste and disposed of as a hazardous waste.

e. Sodium chromate must be stored in a DOT-approved container that shows no sign of damage. The container must be labeled with a proper EPA-approved chromium label stating "chromium" or "hazardous waste" as required by 40 CFR 262.32 and 49 CFR 172.304 in both English and the predominant language of any non-English-reading workers.

f. Prior to shipment, sodium chromate must be packaged to prevent leakage, and all containers must be sealed.

g. A person generating sodium chromate waste must maintain records to determine if the person is a conditionally exempt small-quantity generator, small-quantity generator, or large-quantity generator of hazardous waste.

h. Asbestos insulation found within the appliance or on refrigerant lines must be removed. Asbestos must be handled in a manner that complies with Occupational Safety and Health Administration (OSHA) regulations.

i. Asbestos must be moistened and double bagged, in accordance with 567—Chapter 109, prior to disposal at a landfill approved for asbestos disposal for the person's solid waste comprehensive planning area. A person who needs to dispose of asbestos must contact the landfill and make arrangements for the disposal and any additional packaging and handling procedures.

567—118.10(455B,455D) Mercury-containing component removal and disposal requirements.

118.10(1) All components containing mercury shall be removed from appliances. Precautions shall be taken to prevent breakage of the mercury-containing components and the release of mercury.

118.10(2) All mercury-containing component storage containers must be labeled with the proper EPA-approved mercury label stating "Universal Waste—Mercury Containing Equipment," "Waste Mercury-Containing Equipment" or "Used Mercury-Containing Equipment" in both English and the predominant language of any non-English-reading workers.

118.10(3) The date when the first mercury-containing component was placed in the container shall be affixed to the container.

118.10(4) Mercury-containing components may be stored for no longer than one year.

118.10(5) Accumulation of mercury-containing components shall not exceed 5,000 kg (11,025 lbs) at any time.

118.10(6) All mercury containers must be sealed prior to shipment.

118.10(7) All components containing mercury must be disposed of at an EPA-approved mercury recycling/recovery facility.

118.10(8) Fluorescent tubes, lamps, bulbs, and similar items must be placed in a container and packaged to prevent breakage for shipment to an EPA-approved recycler or must be processed in a manner that complies with state and federal regulations.

118.10(9) All mercury-containing components must be managed in accordance with 40 CFR 273 and all state and federal regulations.

567—118.11(455B,455D) Capacitor removal requirements.

118.11(1) All capacitors must be removed from discarded appliances unless the appliance manufacturer certifies in writing that no PCBs were used in the manufacture of the appliance.

118.11(2) Capacitors that meet one or more of the following criteria may be disposed of or recycled as solid waste. The capacitor:

a. Is proven to be free of PCBs by an approved laboratory.

b. Is imprinted by the manufacturer with the words "No PCBs" on the body of the capacitor.

c. Is certified in writing by the manufacturer of the capacitor not to contain PCBs.

d. Does not contain dielectric fluid.

118.11(3) All capacitors not meeting the criteria in subrule 118.11(2) must be disposed of in accordance with subrule 118.11(5).

118.11(4) Containers for storage and disposal of PCB-containing items. PCB-containing items must be stored and transported according to the Toxic Substances Control Act (TSCA) (40 CFR 761) and disposed of at a TSCA-permitted disposal facility. Facilities used for the storage of PCB-containing items designated for disposal must meet the following storage requirements:

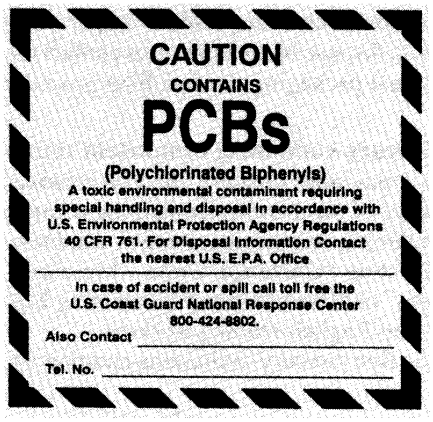
a. Facilities shall register with the US EPA and receive an EPA identification number.

b. PCB-containing items must be stored in a manner that provides adequate protection from the elements and adequate secondary containment. This storage must take place on an impervious material above the 100-year floodwater elevation.

c. The point of demanufacturing must be located above the 100-year floodwater elevation.

d. All capacitors containing or suspected of containing PCBs must be placed in a DOT-approved container that shows no signs of damage. The bottom of the container must be filled to a depth of two inches with absorbent material such as sand, oil-dry, or kitty litter.

e. All DOT-approved containers must be affixed with the large PCB mark (M_L) as described in 40 CFR 761.45 and shown below.



f. The date when the first PCB-containing item was placed in the container shall be placed on the container.

g. Nonleaking small PCB capacitors may be stored for up to 30 days from the date of removal in an area that does not comply with the requirements in 118.11(4)*"a"* to *"f"* provided a notation is placed on the PCB capacitor indicating the date the item was removed from the appliance.

h. PCB-containing items may be stored for no more than 270 days. The storage area must be labeled with the PCB M_L mark. The storage area must be inspected every 30 days, and the inspection must be documented.

i. If a demanufacturer stores more than 45 kg (99.4 lbs) at any one time, the demanufacturer must maintain annual written records and the annual document log as required by 40 CFR 761.180.

118.11(5) Transportation and disposal.

a. Appliance demanufacturers may dispose of PCB capacitors by one of two means. If the facility is a conditionally exempt small quantity generator (CESQG), the demanufacturer may send the properly marked and dated container of capacitors to a regional collection center (RCC) permitted under 567—Chapter 123 for disposal. If the facility is not a CESQG, the capacitors must be manifested and shipped for disposal in accordance with 40 CFR 761.65.

b. Disposal through an RCC. Shipments from a CESQG to an RCC shall be considered equivalent to disposal as municipal solid waste for the purposes of 40 CFR 761.60(b)(2)(iii); capacitors may not be disposed of in a landfill. An RCC may accept PCB capacitors without having to provide a certificate of disposal. The RCC shall provide the appliance demanufacturer with a receipt specifying the name of the RCC, the appliance demanufacturer from which the capacitors were received, the weight or number of capacitors, and the date the capacitors were received. Copies of this document must be retained for three

years at both locations. The date that capacitors are received shall be considered the date the capacitors are determined to be PCB-containing waste for the purposes of 40 CFR 761.65(a)(1). Capacitors may be consolidated in DOT-approved shipping containers for transport for disposal.

c. Disposal through EPA-approved facility for the disposal of PCB waste. The labeled and dated DOT-approved container must be transported by a transporter with a valid EPA ID number, using an EPA Uniform Hazardous Waste Manifest Form. All containers must be sealed prior to shipment. The demanufacturer has one year from the date the first PCB-containing item is placed in the container to properly dispose of the contents by incineration, recycling, or another approved method pursuant to 40 CFR 761.60(b) or 761.60(c). Disposal must be documented and the record kept by the demanufacturer for three years from the date the PCB-containing waste was accepted by the initial transporter.

d. PCB-containing items shall be properly disposed of within one year of removal from the appliance. The generator shall obtain a certificate of disposal within 30 days of the date that disposal of the PCB-containing items was completed at a PCB disposal facility. If a certificate of disposal is not obtained within 30 days, the EPA regional administrator must be notified pursuant to 40 CFR 761.218(d).

567—118.12(455B,455D) Spills.

118.12(1) Any spills from leaking or cracked capacitors must be handled by placing the capacitor and any contaminated rags, clothing, and soil into a container for shipment to an EPA-approved waste disposal facility. Spills of liquid PCBs which occur outside a DOT-approved container must be cleaned and the cleanup verified by sampling as described at 40 CFR 761.130. Detailed records of such cleanups and sampling must be maintained as described at 40 CFR 761.180.

118.12(2) Mercury spill kits (with a mercury absorbent in the kits) must be on hand and used in the event of a mercury spill. Any waste from the cleanup of a mercury spill must be disposed of as a hazardous waste.

118.12(3) In the event a spill results in a hazardous condition, the facility must notify the department of natural resources at (515)281-8694 and the local police department or sheriff's office of the affected county of the occurrence of a hazardous condition as soon as possible, but no later than six hours after the onset or discovery of a spill pursuant to 567—Chapter 131.

567—118.13(455B,455D) Record keeping and reporting.

118.13(1) Annual reports with the information required in subrule 118.13(2) are:

a. To be sent to the solid waste section of the DNR central office in Des Moines;

b. Due January 31 each year for the activities of the previous calendar year;

c. To be submitted on forms provided by the department, which may be submitted electronically when the electronic format is completed; and

d. To be retained by the permit holder for at least three years.

118.13(2) Annual reports shall contain the following information for the previous calendar year.

a. Number of appliances demanufactured in each of the following categories:

(1) Refrigerators and freezers.

(2) Commercial coolers.

(3) Air-conditioning units.

(4) Dehumidifiers.

(5) Gas water heaters.

(6) Furnaces.

(7) Clothes washers and clothes dryers.

(8) Dishwashers.

(9) Microwave ovens.

(10) Other items containing mercury, refrigerant or PCB-containing articles.

b. Number of mercury switches removed from appliances.

c. Number of mercury thermocouples removed from appliances.

d. Date the first item was placed in the mercury storage drum that is in use on December 31.

e. Number of fluorescent tubes removed from appliances.

f. Number of sodium chromate-containing appliances shipped to another demanufacturer.

g. Amount of refrigerant removed.

h. Number of PCB capacitors removed.

i. Number of PCB ballasts removed.

j. Date the first PCB-containing item was placed in the storage drum that is in use on December 31.

118.13(3) A permitted appliance demanufacturing facility shall retain the following records on site for a minimum of three years.

a. All hazardous waste manifests and bills of lading for shipments of refrigerant, mercury switches, PCB-containing materials and any hazardous waste.

b. Receipts for any sodium chromate-containing units that were sent to another facility for processing.

c. Documentation of destruction or receipt from a regional collection center for all PCB materials shipped.

d. Documentation of inspections of the PCB storage area as required by paragraph 118.11(4)*"h."*

e. Annual written records and annual document log if required by paragraph 118.11(4)*"i."*

f. Copy of the annual report as required in subrule 118.13(1).

567—118.14(455B,455D) Appliance demanufacturing facility closure requirements. An appliance demanufacturing facility shall submit to the department central office and department field office with jurisdiction over the appliance demanufacturing facility written notice of intent to permanently close the facility at least 90 days before closure. Closure shall not be official until the department field office has provided written certification of the completion of the following activities:

1. Removal of all appliances that have not been demanufactured.
2. Proper disposal of all refrigerant, PCBs, mercury and all hazardous materials.
3. Submission of an annual report covering January through the last disposal of hazardous materials, PCBs and refrigerant.

567—118.15(455B,455D) Shredding of appliances.

118.15(1) Facilities shredding demanufactured appliances shall sample the fluff from the shredding of demanufactured appliances at least quarterly and analyze the fluff according to Test Methods for Evaluation of Solid Waste, Physical-Chemical Methods SW 846, US EPA, Third Edition 1986, for the presence of PCBs, and according to the toxicity characteristic leaching procedure (TCLP) for heavy metals. The waste shall be sampled once a day for seven consecutive working days to make a composite sample. If the concentrations of heavy metals do not exceed concentrations listed in 40 CFR 261.24, the fluff may be landfilled in Iowa. Results must be retained on site for a minimum of three years and be submitted to the department within 30 days of the end of each quarter.

118.15(2) Fluff from the shredding of demanufactured appliances may be sampled and tested by the department at any time.

118.15(3) A person or facility engaged in demanufacturing in the state may not shred, crush, or bale any appliances that have not been demanufactured. A person or facility located in Iowa that does not engage in demanufacturing but accepts appliances from demanufacturers for recycling or disposal may shred, crush, or bale only appliances that have been demanufactured in accordance with federal regulations and the laws of the state from which the appliances are received.

567—118.16(455B,455D) Appliance demanufacturing facility financial assurance requirements. Unless a facility is exempt from this rule pursuant to subrule 118.16(1), permitted appliance demanufacturing facilities must obtain and submit a financial assurance instrument to the department for storage of appliances in accordance with this rule. The financial assurance instrument shall provide monetary funds to properly dispose of any appliances, refrigerant, PCBs, mercury and any other hazardous materials associated with appliance demanufacturing that may remain at a facility

due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

118.16(1) Exemptions. An appliance demanufacturing facility owned and operated in conjunction with a sanitary landfill already required to have financial assurance shall not be required to obtain additional financial assurance in compliance with this chapter.

118.16(2) No permit without financial assurance. The department shall not issue or renew a permit to an owner or operator of an appliance demanufacturing facility until a financial assurance instrument has been submitted to and approved by the department.

118.16(3) Proof of compliance. Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted to the department by July 1, 2008, or at the time of application for a permit for a new appliance demanufacturing facility. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

118.16(4) Use of one financial assurance instrument for multiple permitted activities. Appliance demanufacturing facilities required to maintain financial assurance pursuant to any other provisions of 567—Chapters 100 to 123 may satisfy the requirements of this rule by the use of one financial assurance instrument if the permit holder ensures that the instrument provides financial assurance for an amount at least equal to the current cost estimates for closure of all sanitary disposal project activities covered.

118.16(5) The estimate submitted to the department must be certified by a professional engineer and account for at least the following factors determined by the department to be minimal necessary costs for closure pursuant to rule 118.14(455B,455D):

a. Third-party labor and transportation costs and disposal fees to properly manage any appliances, refrigerant, PCBs, mercury and any other hazardous materials associated with appliance demanufacturing equal to the maximum storage capacity of the facility. If materials are temporarily stored on site in transportation vehicles, waste receptacles or drums, then this estimate shall include disposal costs for the maximum number of transportation vehicles, waste receptacles and drums that can be on site at any one time.

b. The cost of hiring a third party to properly clean and decontaminate all equipment, storage facilities, holding areas and drainage collection systems. This estimate shall include the cost of properly disposing of a one-week volume of washwater from the facility. If the facility utilizes washwater storage tanks, then this estimate shall assume that the storage tanks are full and add that volume to the one-week volume.

c. The costs for maintaining financial assurance pursuant to any other provisions of 567—Chapters 100 to 123, if any, in accordance with subrule 118.16(4).

118.16(6) Acceptable financial assurance instruments. The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with subrule 118.16(5) and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. Financial assurance may be provided by cash in the form of a secured trust fund or local government dedicated fund, surety bond, letter of credit, or corporate or local government guarantee as follows:

a. *Secured trust fund.* The owner or operator of an appliance demanufacturing facility or an entity serving as a guarantor may demonstrate financial assurance for closure by establishing a secured trust fund that conforms to the requirements of this paragraph.

(1) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The fund shall be restricted for the sole purpose of funding closure activities at the facility, and a copy of the trust agreement must be submitted to the department and placed in the facility's official files.

(2) A secured trust fund shall name the department of natural resources as the entity authorized to draw funds from the trust, subject to proper notification to the trust officer of failure by the permittee to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) Moneys in the fund shall not be assigned for the benefit of creditors with the exception of the state.

(4) Moneys in the fund shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

(5) The owner or operator or another person authorized to conduct closure activities may request reimbursement from the trustee for closure expenditures as they are incurred. Requests for reimbursement shall be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure and if documentation of the justification for reimbursement has been submitted to the department for prior approval.

(6) If the balance of the trust fund exceeds the current cost estimate for closure at any time, the owner or operator may request withdrawal of the excess funds from the trustee so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

b. Local government dedicated fund. The owner or operator of a publicly owned appliance demanufacturing facility or a local government serving as a guarantor may demonstrate financial assurance for closure by establishing a dedicated fund that conforms to the requirements of this paragraph.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, resolution or order as a restricted fund to pay for closure costs arising from the operation of the facility.

(2) A copy of the document establishing the dedicated fund must be submitted to the department and placed in the facility's official files.

(3) If the balance of the dedicated fund exceeds the current cost estimate for closure at any time, the owner or operator may withdraw excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

c. Surety bond. A surety bond must be written by a company authorized by the commissioner of insurance to do business in the state, and the surety bond shall comply with the following:

(1) The bond shall be in a form approved by the commissioner of insurance and shall be payable to the department of natural resources.

(2) The bond shall be specific to a particular facility for the purpose of properly disposing of any appliances, refrigerant, PCBs, mercury and any other hazardous materials associated with appliance demanufacturing that may remain on site due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) The owner or operator shall provide the department with a statement from the surety with each permit application renewal, noting that the bond is paid and current for the permit period for which the owner or operator has applied for renewal.

d. Letter of credit. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(1) The owner or operator must submit to the department a copy of the letter of credit and place a copy in the facility's official files.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 90 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a secured trust fund that meets the requirements of paragraph 118.16(6)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the secured trust fund established by the owner or operator. The provision of funds by the issuer of

the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

e. Corporate guarantee. An owner or operator may meet the requirements of this rule by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 118.16(6)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following three conditions:

1. A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or

2. A ratio of less than 1.5 comparing total liabilities to net worth; or

3. A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities.

(3) The tangible net worth of the guarantor must be greater than the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(4) The guarantor must have assets amounting to at least the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(5) Record-keeping and reporting requirements. The guarantor must submit the following records to the department and place a copy in the facility's official files:

1. A copy of the written guarantee between the owner or operator and the guarantor.

2. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a guarantee including, but not limited to, cost estimates required by subrule 118.16(5); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
- Provides evidence demonstrating that the guarantor meets the conditions of subparagraphs 118.16(6)*"e"*(2), (3) and (4).

3. A copy of the independent certified public accountant's unqualified opinion of the guarantor's financial statements for the latest completed fiscal year. In order for the guarantor to be eligible to use the guarantee, the guarantor's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this instrument. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate guarantee, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

f. Local government guarantee. An owner or operator may demonstrate financial assurance for closure by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 118.16(6)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following requirements:

1. If the guarantor has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the guarantor must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or

2. The guarantor must satisfy each of the following financial ratios based on the guarantor's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

(3) The guarantor must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

(4) A guarantor is not eligible to assure its obligations if:

1. The guarantor is currently in default on any outstanding general obligation bonds; or

2. The guarantor has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or

3. The guarantor operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or

4. The guarantor receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement. A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism; or

5. The closure costs to be assured are greater than 43 percent of the guarantor's total annual revenue.

(5) The local government guarantor must include disclosure of the closure costs assured through the guarantee in its next annual audit report prior to the initial receipt of appliances at the facility or prior to cancellation of an alternative financial assurance instrument, whichever is later. For the first year the guarantee is used to assure costs at a particular facility, the reference may instead be placed in the guarantor's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(6) The local government owner or operator must submit to the department the following items:

1. A copy of the written guarantee between the owner or operator and the local government serving as guarantor for the closure costs at the facility.

2. A copy of the guarantor's most recent annual financial audit report indicating compliance with the financial ratios required by numbered paragraph 118.16(6)*"f"*(2)"2," if applicable, and the requirements of subparagraphs 118.16(6)*"f"*(3) and (4).

3. A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by the guarantor, as described in subrule 118.16(5); and that provides evidence and certifies that the local government meets the conditions of subparagraphs 118.16(6)*"f"*(2), (3), (4) and (5).

118.16(7) Financial assurance cancellation and permit suspension.

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance prior to cancellation, as specified in this rule, or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider or until the department gives written notification to the owner, operator, and financial assurance provider that the covered site has been properly closed. The financial assurance provider shall give at least 90 days' notice in writing to the owner or operator and the department in the event of any intent to cancel the instrument.

c. Within 60 days of receipt of a written notice of cancellation of financial assurance by the financial assurance provider, the owner or operator must provide the department an alternative financial assurance instrument. If a means of continued financial assurance is not provided within that 60 days, the department shall suspend the permit.

d. The owner or operator shall perform proper closure within 30 days of the permit suspension. For the purpose of this rule, "proper closure" means completion of all items pursuant to rule 118.14(455B,455D) and subrule 118.16(5).

e. If the owner or operator does not properly close the site within the 30-day period allowed, the department shall file a claim with the financial assurance instrument provider to collect the amount of funds necessary to properly close the site.

f. An owner or operator who elects to terminate a permitted activity, whose renewal application has been denied, or whose permit has been suspended or revoked for cause must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 60 days from the date of termination of the permit.

g. The director may also request payment from any financial assurance provider for the purpose of completing closure when the following circumstances exist:

(1) The owner or operator is more than 15 days late in providing a schedule for closure or for meeting any date in the schedule for closure.

(2) The owner or operator declares an economic inability to comply with this rule, either by sending written notification to the director or through an action such as, but not limited to, filing for bankruptcy.

These rules are intended to implement Iowa Code sections 455B.304 and 455D.6(6).

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[1] At its meeting held January 8, 2002, the Administrative Rules Review Committee voted to delay the effective date of Chapter 118 70 days.

CHAPTER 119
USED OIL AND USED OIL FILTERS

567—119.1(455D,455B) Authority, purpose, and applicability.

119.1(1) *Authority.* Pursuant to Iowa Code sections 455D.7(1), 455D.6(6), and 455B.304, the environmental protection commission is given the authority to adopt rules regulating the disposal, collection, recycling and reuse of used oil and used oil filters.

119.1(2) *Purpose.* The purpose of these rules is to protect the public health and the environment by regulating the disposal and collection of used oil and used oil filters and to promote the reuse and recycling of used oil and used oil filters.

119.1(3) *Applicability.* The provisions of this chapter apply to oil retailers, oil filter retailers, sanitary disposal project permittees, persons involved in the collection of used oil, and persons involved in the generation or collection of used oil filters.

567—119.2(455D,455B) Definitions. The following definitions apply to the provisions of this chapter:

"Contaminated" means used oil mixed with hazardous waste as defined by the resource conservation and recovery Act or with incompatible wastes including, but not limited to: antifreeze, solvents, paints, pesticides, or household hazardous materials. Minimal amounts of vehicle fuel shall not be considered an incompatible waste.

"Customer" means any individual who purchases oil or oil filters or generates used oil or used oil filters for personal or family purposes, including a farmer or a farm household.

"Department" means the department of natural resources.

"Retailer" means a person offering for sale or selling a petroleum-based or synthetic oil or oil filter to the ultimate consumer or user of the product, as an over-the-counter product or whereby the consumer is charged separately for the oil or oil filter when coupled with a service.

"Tank" means a closable stationary or mobile device designed to contain an accumulation of used oil and constructed of nonearthen materials (e.g., concrete, steel, plastic) that provide structural support.

"Used oil" means any petroleum-based or synthetic oil which through its use, storage, or handling has become unsuitable for its original purpose due to the presence of chemical or physical impurities. Used oil includes, but is not limited to, the following:

1. Spent lubricating fluids which have been removed from an engine crankcase, transmission, gearbox, or differential of an automobile, bus, truck, vessel, plane, heavy equipment, or machinery powered by an internal combustion engine.
2. Spent industrial oils, including compressor, turbine, bearing, hydraulic, metalworking, electrical, and refrigerator oils.

Used oil does not include oil which has been contaminated or contains PCBs of 5ppm or greater.

"Used oil collection site" means any commercial, municipal, or nonprofit establishment or operation which has a used oil collection tank on the premises, and accepts used oil for temporary storage prior to the recycling of that which is collected.

"Used oil collector" means any sanitary landfill operator, sanitary disposal project operator, oil retailer, or other individual who operates a used oil collection site.

"Used oil filter" means a filter that removes impurities from the oil used to lubricate an internal combustion engine and has been used for its intended purpose.

"Used oil filter recycling" means the preparation of used oil filters for steel recovery.

"Used oil recycling" means the preparation of used oil for reuse as a petroleum product by rerefining, reprocessing, reclaiming, or other means or to use used oil as a substitute for a petroleum product made from new oil, provided that the preparation or use is operationally safe, environmentally sound, and complies with all federal and state laws.

567—119.3(455D,455B) Prohibited disposal.

119.3(1) Used oil shall not be accepted for final disposal at any sanitary landfill. However, a sanitary landfill or sanitary disposal project, as defined in Iowa Code section 455B.301, may accept used oil

for temporary storage or collection if the ultimate disposition of the oil is for recycling or reuse. All necessary permits or permit conditions must be obtained prior to the storage or collection of used oil at these landfills and projects.

119.3(2) A business that generates used oil filters or accepts used oil filters from a person shall not dispose of the used oil filters in a sanitary landfill and shall source separate and recycle the used oil filters.

567—119.4(455D,455B) Operational requirements for acceptance of used oil. Any person accepting used oil from customers shall comply with the following requirements:

119.4(1) Used oil shall be accepted which is contained in a closed, unbreakable, preferably reusable, container.

119.4(2) Used oil collectors shall provide supervision of the collection process to minimize the risk of spills and to prevent customers from depositing contaminated used oil into the collection tank. However, this does not preclude designating unsupervised drop-off sites for used oil as long as the following conditions are met:

a. Only sealed containers of five gallons or less shall be accepted.

b. The designated drop-off site must be protected from the elements.

c. Customers shall drop off their used oil in containers at the designated site and are not permitted to deposit their used oil into a collection tank.

d. The designated site must be located on an impervious surface engineered to contain potential spills.

119.4(3) During noncollection hours, the tank must be secured to prevent the contamination of the collected used oil.

119.4(4) A sign shall be placed on or near the used oil collection tank which includes the statement: This tank is for used oil collection only. The depositing of other materials is prohibited.

119.4(5) Collectors of used oil shall ensure that the ultimate disposition of used oil collected is for recycling and reuse.

119.4(6) Used oil found to be contaminated shall be managed as a hazardous waste. There is no obligation to accept contaminated oil.

119.4(7) Used oil collectors shall comply with Iowa Code section 455B.386 when actual or imminent oil spills pose a threat to the public health or the environment.

119.4(8) Absorbent material shall be available at the site for use by the operator to control spillage or discharge of used oil.

567—119.5(455D,455B) Operational requirements for acceptance of used oil filters. Any person accepting used oil filters from customers shall comply with the following requirements:

119.5(1) The used oil filters shall be collected, stored and transported in a container designed and maintained to prevent the spillage or discharge of used oil from the filters.

119.5(2) The collection container shall be located on an impervious surface engineered to contain spills.

119.5(3) The collection container shall be protected from inclement weather.

119.5(4) The collection container shall be clearly labeled “used oil filters.”

119.5(5) Used oil filter collectors shall comply with Iowa Code section 455B.386 when actual or imminent oil spills pose a threat to the public health or the environment.

119.5(6) Absorbent material shall be available at the site for use by the operator to control spillage or discharge of used oil from the used oil filters.

567—119.6(455D,455B) Oil retailer requirements. In addition to the requirements set forth in rules 567—119.4(455D,455B) and 567—119.5(455D,455B) relating to used oil and used oil filter collection, used oil retailers also shall comply with the following:

119.6(1) A durable, legible sign at least 8½" by 11" in size shall be placed near the point of sale which contains the following:

a. Language informing the customer that it is unlawful to dispose of used oil at a sanitary landfill, and that the customer should return used oil to used oil collection sites for recycling and reuse;

b. The language "RECYCLE USED OIL" in bold lettering;

c. A list of the benefits from recycling used oil including, but not limited to, "conserves energy, reuses limited resources, and protects Iowa's drinking water";

d. The language "used oil is a household hazardous material" and the household hazardous materials program symbol, at least 2 inches in length, as shown below;

e. The warning that the disposal of used oil in a landfill or its deposit or discharge into any state waterway is unlawful;

f. The name, address and location of at least one used oil collection site located within the county in which the retailer is located. If there is more than one used oil collection site located in the county, then the nearest collection site shall be listed on the posted sign.

119.6(2) Retailers may obtain the required signs upon request from the department. Retailers choosing to develop and post their own signs must obtain a variance from the departmental rules. Signs must be at least 8½" by 11" in size and contain the information stipulated above. To request a variance, retailers should forward to the department for review the sign they wish to substitute for the departmental sign.

119.6(3) Retailers are not required to collect used oil generated by commercial or municipal establishments.

119.6(4) Used oil shall be accepted during normal business hours.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—119.7(455D,455B) Oil filter retailer requirements. In addition to the requirements set forth in rules 567—119.4(455D,455B) to 567—119.6(455D,455B) relating to used oil and used oil filter collection, oil filter retailers also shall comply with the following:

119.7(1) A durable, legible sign at least 8½" by 11" in size shall be placed near the point of sale which contains the following:

a. The language "RECYCLE USED OIL FILTERS" in bold lettering;

b. A list of the benefits from recycling used oil filters including, but not limited to, "conserves energy, reuses limited resources, and protects Iowa's drinking water";

c. The language "used oil filters are a household hazardous material" and the household hazardous materials program symbol, at least 2 inches in length, as shown below;

d. The name, address and location of at least one used oil filter collection site located within the county in which the retailer is located. If there is more than one used oil filter collection site located in the county, then the nearest collection site shall be listed on the posted sign.

119.7(2) Retailers who choose to collect used oil filters shall accept used oil filters generated by residential households or farmers, but are not required to collect used oil filters generated by commercial or municipal establishments.

119.7(3) Used oil filters shall be accepted during normal business hours.
[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—119.8(455D,455B) Tanks.

119.8(1) *Aboveground.* In addition to the requirements imposed by the office of the state fire marshal, the following standards are applicable to aboveground used oil collection tanks:

a. The tank shall be of sufficient size to handle the projected quantities of used oil to be returned to this specific collection site.

b. The tank shall be designed and maintained to prevent the spillage or discharge of used oil. Tanks must be set upon an impermeable surface engineered to contain potential spills.

c. Absorbent material shall be available at the tank site for use by the operator to control used oil spillage or discharge.

d. The tank shall have a level gauge or some other adequate means for checking the oil level within the tank.

e. The tank shall be constructed in accordance with American Petroleum Institute specifications and standards.

119.8(2) *Underground.* Underground storage tanks used to collect or store used oil shall comply with the standards in part 8 of division IV of Iowa Code chapter 455B, entitled "Underground Storage Tanks," and the promulgated rules, Iowa Administrative Code, 567—Chapters 135 and 136.

567—119.9(455D,455B) Locating collection sites. If the retailer is unaware of any locations within the county where used oil or used oil filters are being accepted from customers, the retailer shall contact the department to determine if a collection site is located in the county. If no collection site is currently available in the county, the retailer shall accept used oil and used oil filters from customers.

These rules are intended to implement Iowa Code sections 455D.6(6) and 455D.13 and chapter 455B, division IV, part 1.

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CHAPTER 120
LANDFARMING OF PETROLEUM CONTAMINATED SOIL

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—120.1(455B) Purpose. The purpose of this chapter is to establish rules for the safe and effective remediation and disposal of petroleum contaminated soil (PCS) through landfarming. These rules are intended to satisfy the requirements of Iowa Code sections 455B.301A, 455B.304 and 455B.383.

567—120.2(455B) Applicability and compliance.

120.2(1) These rules apply to the landfarming of soils contaminated with biodegradable petroleum products including, but not limited to, gasoline, diesel fuel, kerosene, jet fuel, motor oil, hydraulic fluid, or some combination thereof. All PCS landfarming activities in which 3 or more cubic yards of PCS are excavated shall comply with this chapter. Uncontaminated soil that is excavated during the removal of the PCS shall not be counted toward the 3-cubic-yard applicability threshold.

120.2(2) These rules do not apply to PCS that is being remediated or disposed of at a sanitary landfill. For rules governing the remediation and disposal of PCS at a sanitary landfill, see 567—Chapter 109.

120.2(3) The issuance of a landfarm permit by the department in no way relieves the generator or permit holder of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules and other applicable requirements.

567—120.3(455B) Definitions. In addition to the definitions set out in Iowa Code section 455B.301, which shall be considered to be incorporated by reference in these rules, the following definitions shall apply:

"High water table" means the position of the water table that occurs in the spring in years of normal or above-normal precipitation.

"Incorporation" means to mix into the soil by tilling, disking, or other suitable means, thereby creating a loose and divided soil texture.

"Landfarm" means a surface-level soil remediation technology for petroleum contaminated soils that reduces concentrations of petroleum constituents through biodegradation to a level safe for human health and the environment. This technology usually involves spreading excavated contaminated soils in a thin layer on the ground surface and stimulating aerobic microbial activity within the soils through aeration. The enhanced microbial activity results in degradation of adsorbed petroleum product constituents through microbial respiration. Some petroleum product constituents volatize during the landfarming process. There are two types of landfarm permits issued by the department: a multiuse landfarm permit and a single-use landfarm applicator permit.

"Landfarm plot" means the specific operating area of a landfarm upon which a particular source and type of PCS is applied. A landfarm plot is a subset of the operating area.

"Landfarm season" means the time period beginning April 1 and ending October 31 of each year.

"Multiuse landfarm" means a landfarm used for more than one application of PCS. Each application of a particular source and type of PCS is landfarmed in separate landfarm plots. After the PCS is remediated, the landfarming process may be repeated. A multiuse landfarm is not located at a sanitary landfill.

"Nonstandard PCS" means soil contaminated with a petroleum product other than gasoline, diesel fuel, kerosene, jet fuel, motor oil, hydraulic fluid, or some combination thereof.

"Operating area" means the total aggregate area of the landfarm where PCS is applied. The operating area of a multiuse landfarm may include multiple landfarm plots.

"Petroleum contaminated soil" or *"PCS"* means soil contaminated with petroleum products including, but not limited to, gasoline, diesel fuel, kerosene, jet fuel, motor oil, hydraulic fluid, or some combination thereof.

"Single-use landfarm" means the area of land used to landfarm a single application of a particular source and type of PCS. Single-use landfarms are created when a single-use landfarm applicator, or the landfarm's supervised agent, land applies PCS. No other PCS may be applied within 15 feet of

the area of land used as a single-use landfarm until the single-use landfarm is closed pursuant to rule 567—120.12(455B).

"Single-use landfarm applicator" means an entity permitted by the department to land apply PCS to create one or more single-use landfarms.

"Source of PCS" means the contaminated area from which the PCS originated. Examples of a source include, but are not limited to, a specific gas station or spill location.

"Standard PCS" means soil contaminated with gasoline, diesel fuel, kerosene, jet fuel, motor oil, hydraulic fluid, or some combination thereof.

"Tar ball" means a ball or conglomeration of tarlike petroleum constituents. Tar balls may form when PCS that contains a high concentration of long-chain or high molecular weight hydrocarbons is landfarmed.

"Type of PCS" means the specific petroleum product or combination thereof that contaminated the soil. Examples of type include, but are not limited to, gasoline, diesel fuel, kerosene, jet fuel, motor oil, hydraulic fluid, or some combination thereof.

"Water table" means the water surface below the ground at which the unsaturated zone ends and the saturated zone begins.

567—120.4(455B) Landfarming permits.

120.4(1) *Permit required.* PCS shall not be landfarmed without a permit from the department.

120.4(2) *Types of landfarm permits.* The department issues two types of landfarm permits as follows:

a. *Multiuse landfarm permit.* A multiuse landfarm permit is issued for a landfarm designed to be used for more than one application of PCS. This permit requires that each application of a particular source and type of PCS be landfarmed in separate landfarm plots. If a facility has a multiuse landfarm permit, then the landfarming process may be repeated after the PCS has been remediated. A multiuse landfarm permit is not for a facility located at a sanitary landfill.

b. *Single-use landfarm applicator permit.* A single-use landfarm applicator permit is issued to an entity that is then_permitted by the department to land apply PCS to create one or more single-use landfarms. This permit requires that single-use landfarms be used for only one application of a particular source and type of PCS. This permit requires that no other PCS be applied within 15 feet of the area of land used as a single-use landfarm until the single-use landfarm is closed pursuant to rule 567—120.12(455B).

120.4(3) *Construction and operation.* All landfarms shall be constructed and operated according to these rules, any plans and specifications approved by the department, and the conditions of the permit. Any approved plans and specifications shall constitute a condition of the permit.

120.4(4) *Transfer of title and permit.* If title to a type of landfarm permit is transferred to a third party, then the department shall transfer the permit within 60 days if the department has determined that the following requirements have been met:

a. The title transferee has applied in writing to the department within 30 days of the transfer of title to request a transfer of the permit.

b. The permitted facility and title transferee are in compliance with Iowa Code chapter 455B, this chapter and the conditions of the permit.

120.4(5) *Permit conditions.* A permit may be issued with conditions, specified in writing by the department, that are necessary to ensure the landfarm can be constructed and operated in a safe and effective manner, and in compliance with Iowa Code chapter 455B and this chapter.

120.4(6) *Effect of revocation.* If a landfarm permit held by any public or private agency is revoked by the department, then no new landfarm permit shall be issued to that agency for a period of one year from the date of revocation. Such revocation shall not prohibit the issuance of a permit for the same landfarm project to another public or private agency.

120.4(7) *Inspection of site and operation.* The department may inspect the facility and its operations to determine if the landfarm is in compliance with this chapter and the permit requirements.

120.4(8) *Duration of permits.* Landfarm permits shall be issued and may be renewed for a three-year term.

120.4(9) *Request for permit renewal.* A request for permit renewal shall be in writing and filed at least 90 days before the expiration of the current permit. If the renewal applicant is found not to be in compliance with this chapter or the permit requirements, then the applicant shall achieve compliance or be placed on a compliance schedule approved by the department before the permit may be renewed.

120.4(10) *Request for permit modification.* Requests for permit modifications must be submitted in writing to the department with supporting documentation and materials.

120.4(11) *Factors in permit issuance decisions.* The department may request that additional information be submitted for review to make a permit issuance decision. The department may review and inspect the facility, its agents and operators, and compliance history. The department may review whether or not a good-faith effort to maintain compliance and protect human health and the environment is being made, and whether a compliance schedule is being followed. The department may issue a permit on a trial basis.

567—120.5(455B) Landfarm permit application requirements.

120.5(1) *Multiuse landfarm permits.* To apply for a multiuse landfarm permit, the applicant shall submit the following information to the department:

a. The name, address, and telephone number of:

(1) Agency applying for the multiuse landfarm permit.

(2) Owner(s) of the agency.

(3) Owner(s) of the multiuse landfarm site.

(4) Individual responsible for the operation of the multiuse landfarm.

(5) Individual responsible for record keeping and reporting.

(6) An emergency contact person.

b. A site analysis demonstrating that the proposed site complies with the requirements of rule 567—120.7(455B).

c. A site plan that includes a legal description of the site, that designates and labels landfarm plots upon which PCS will be applied and groundwater monitoring wells, and that complies with the requirements of rule 567—120.8(455B).

d. A groundwater monitoring plan pursuant to paragraph 120.8(2)*"c."*

e. A plan of operations that complies with the requirements of rules 567—120.9(455B) and 567—120.11(455B).

f. An emergency response and remedial action plan (ERRAP) pursuant to rule 567—120.10(455B).

g. Information on how the site will be used for at least three years following the last application of PCS.

h. A signed and dated statement from the owner(s) of the agency which reads: "I guarantee that this agency will comply with 567—Chapter 120."

120.5(2) *Single-use landfarm applicator permits.* To apply for a single-use landfarm applicator permit, the applicant shall submit the following information to the department:

a. The name, address, and telephone number of:

(1) Agency applying for the single-use landfarm applicator permit.

(2) Owner(s) of the agency.

(3) Individual responsible for record keeping and reporting.

(4) An emergency contact person.

b. A plan of operations that complies with the requirements of rules 567—120.9(455B) and 567—120.11(455B).

c. An emergency response and remedial action plan (ERRAP) pursuant to rule 567—120.10(455B).

d. A signed and dated statement from the owner(s) of the agency which reads: "I guarantee that this agency will comply with 567—Chapter 120."

120.5(3) *Incomplete applications.* If the department finds the permit application information to be incomplete, the department shall notify the applicant in writing of that fact and of the specific deficiencies.

If the deficiencies are not corrected within 30 days, the department shall return the application materials to the applicant. The applicant may reapply without prejudice.

567—120.6(455B) PCS analysis and characterization.

120.6(1) *Department-supervised emergency cleanups.* PCS originating from the cleanup of a spill or expedited overexcavation at a tank closure or upgrade under department jurisdiction shall be characterized and tested as follows before being landfarmed. Such PCS may be landfarmed prior to chemical testing, pursuant to the application rate in subrule 120.9(6) and reporting requirements of rule 567—120.11(455B), if permission is obtained from department emergency response personnel or the department field office with jurisdiction over the landfarm site.

a. *Source identification.* The name and address of the contaminated site from which the PCS originated and the spill or underground storage tank (UST) registration number shall be recorded.

b. *Type classification.* The PCS shall be classified by type according to the petroleum product's trade name (e.g., gasoline, diesel fuel) or according to the trade names if there is a mixture of petroleum products.

c. *Chemical testing.* A sample of the PCS shall be obtained from the emergency cleanup site and tested pursuant to paragraph 120.6(2)*"c."*

120.6(2) *Other cleanups.* PCS not originating from a department-supervised emergency cleanup pursuant to subrule 120.6(1) shall be characterized and tested as follows before being landfarmed. PCS originating from a cleanup pursuant to 567—Chapter 135 may utilize those test results as applicable.

a. *Source identification.* The name and address of the contaminated site from which the PCS originated, the UST registration number, and the leaking underground storage tank (LUST) number shall be recorded, if applicable.

b. *Type classification.* The PCS shall be classified by type according to the petroleum product's trade name (e.g., gasoline, diesel fuel) or according to the trade names if there is a mixture of petroleum products.

c. *Chemical testing.* The following analyses shall be performed. Samples shall be acquired, stored, handled, tested, and reported in accordance with the required methodology and accepted scientific procedures.

(1) BTEX testing. The PCS shall be tested for benzene, toluene, ethylbenzene, and xylene (BTEX). A laboratory certified for UST petroleum analyses pursuant to 567—Chapter 83 shall test the samples. The analysis shall utilize the most recent version of Method OA-1 (GCMS), "Method for Determination of Volatile Petroleum Hydrocarbons (Gasoline)," University of Iowa Hygienic Laboratory.

(2) TEH-diesel testing. The PCS shall be tested for total extractable hydrocarbons (TEH-diesel). A laboratory certified for UST petroleum analyses pursuant to 567—Chapter 83 shall test the samples. The analysis shall utilize the most recent version of Method OA-2, "Extractable Petroleum Products (and Relatively Low Volatility Organic Compounds)," University of Iowa Hygienic Laboratory.

(3) MTBE testing. The PCS shall be tested for methyl tertiary-butyl ether (MTBE) unless prior analysis at a site, pursuant to rule 567—135.15(455B), has shown that MTBE is not present in soil or groundwater. A laboratory certified for UST petroleum analyses pursuant to 567—Chapter 83 shall test the samples. The analysis shall utilize one of the following methods:

1. The most recent version of Method OA-1 (GCMS), "Method for Determination of Volatile Petroleum Hydrocarbons (Gasoline)," University of Iowa Hygienic Laboratory.

2. U.S. Environmental Protection Agency (EPA) Method 8260B, SW-846, "Test Methods for Evaluating Solid Waste," Third Edition.

(4) Total metals testing. If the history of the petroleum contaminated site is known to have included solvents, batteries, leaded fuel, waste oil, or a gas station in operation prior to 1985, then the PCS shall be tested for total Resource Conservation and Recovery Act (RCRA) metals.

120.6(3) *Tar balls.* PCS that has the potential to produce tar balls shall not be landfarmed at a single-use or multiuse landfarm. Such PCS may be disposed of in a sanitary landfill pursuant to 567—Chapter 109.

120.6(4) *Other tests.* The department may require testing of the PCS for other chemicals of concern.

567—120.7(455B) Site exploration and suitability requirements for landfarms. All landfarms shall meet the following site exploration and suitability requirements.

120.7(1) *Previous use.* If the site is to be used as a single-use landfarm, then the single-use landfarm applicator shall obtain written confirmation from the site owner of one of the following requirements. This subrule shall not apply to land utilized as a landfarm prior to October 20, 2004.

a. That any other landfarm created in the past three years within 15 feet of the proposed operating area has been closed pursuant to rule 567—120.12(455B).

b. That no area within 15 feet of the proposed operating area has been used as a landfarm in the past three years.

120.7(2) *Wells.* PCS shall not be landfarmed or stored within 500 feet of a well that is being used or could be used for human or livestock consumption. Groundwater monitoring wells installed pursuant to paragraph 120.8(2)*"c"* are exempt from this requirement. The department may also exempt from this requirement extraction wells utilized as part of a remediation system. PCS shall not be landfarmed or stored within 500 feet of an agricultural drainage well.

120.7(3) *Sinkholes.* PCS shall not be landfarmed or stored within 500 feet of a sinkhole.

120.7(4) *Groundwater elevations.* Multiuse landfarms shall not landfarm PCS in soil that is within 5 feet of the high water table.

120.7(5) *Surface waters of the state.* PCS shall not be landfarmed or stored within 200 feet of a stream, lake, pond, wetland, or other surface water of the state. The department may waive the setback requirement for surface waters that have been constructed for pollution control purposes.

120.7(6) *Tile lines.* PCS shall not be landfarmed or stored within 200 feet of a tile line surface intake. A multiuse landfarm shall not be located on land that has been tiled. The absence of tile lines shall be verified by written confirmation from the landowner and a visual inspection of the property.

120.7(7) *Housing and sensitive populations.* PCS shall not be landfarmed or stored within 200 feet of an occupied residence, recreational area, child care facility, educational facility, or health care facility.

120.7(8) *Flood plains.* PCS shall not be landfarmed or stored within the 100-year flood plain.

120.7(9) *Slope.* PCS shall not be landfarmed or stored on slopes greater than 5 percent. This requirement may be satisfied by utilizing United States Department of Agriculture (USDA) soil maps.

120.7(10) *Soil properties for operating area.* All soils in the operating area of the landfarm shall comply with the following requirements:

a. *USDA textural soil classification.*

(1) Multiuse landfarms. Soils in the operating area of multiuse landfarms shall be silty clay, silt clay loam, clay loam, loam, or silt loam as classified by the USDA Textural Classification Chart for soils.

(2) Single-use landfarms. Soils in the operating area of single-use landfarms shall be clay, sandy clay, sandy clay loam, sandy loam, silty clay, silt clay loam, clay loam, loam, or silt loam as classified by the USDA Textural Classification Chart for soils.

b. *Stones and debris.* Soils in the operating area shall be free of stones and debris larger than 4 inches in diameter.

c. *Soil pH.* Soils in the operating area shall have a pH greater than or equal to 6 and less than or equal to 9.

d. *Bedrock separation.* The operating area shall have a minimum of 6 feet of soil over bedrock.

567—120.8(455B) Landfarm design requirements.

120.8(1) *Requirements for all landfarms.* All landfarms shall comply with the following design requirements:

a. *PCS storage areas.* Storage areas for PCS shall be constructed in compliance with the following requirements:

(1) Over an impervious surface (e.g., tarp, concrete pad, plastic sheeting).

(2) Under a roof or tarp to minimize the infiltration of precipitation.

(3) In an area with minimal potential for stormwater run-on.

b. *Flagging.* The landfarm plot(s) upon which PCS is land applied shall be flagged pursuant to subrule 120.9(7).

120.8(2) *Additional requirements for multiuse landfarms.* In addition to the requirements of subrule 120.8(1), all multiuse landfarms shall comply with the following design requirements:

a. *Signage.* Signs shall be posted as follows:

(1) A sign at the primary entrance specifying the name and permit number of the facility, and the telephone number of an emergency contact person.

(2) One "No Trespassing" sign every 200 feet on the site's perimeter but not fewer than one sign per side of the property.

(3) Signs clearly designating and uniquely labeling each separate landfarm plot. The designations and labels for each separate landfarm plot shall not be changed.

b. *Access.* The department may require that the landfarm be fenced and locked to prevent unauthorized access.

c. *Groundwater monitoring.*

(1) Monitoring plan. A groundwater monitoring plan shall be maintained which demonstrates that groundwater quality can be accurately monitored at the site. The monitoring plan shall contain the rationale for the position and number of wells, sampling frequency, and testing parameters and procedures. At a minimum, the testing parameters and procedures shall comply with paragraph 120.11(1)*"d."*

(2) Monitoring wells. Groundwater monitoring wells sufficient to monitor the groundwater shall be installed. At a minimum, one up-gradient and two down-gradient monitoring wells shall be installed. The groundwater monitoring wells shall be no farther than 50 feet from the edge of the operating area.

d. *Sediment control requirements.* Multiuse landfarms shall, at a minimum, implement the applicable sediment control measures listed in this subrule.

(1) Plot separation strips. Separation strips around each landfarm plot shall be planted. Landfarm plot separation strips shall be at least 15 feet wide. The separation strips shall be planted with stiff-stemmed, dense, upright vegetation suitable for growing under native conditions. Mowing of the vegetation shall be minimized. If mowed, the vegetation shall be maintained at a minimum height of 1 foot.

(2) NRCS conservation plan. Multiuse landfarms that have slopes of 3 percent to 5 percent shall implement a Natural Resource Conservation Service (NRCS) designed and approved conservation plan.

e. *Stormwater permit.* A stormwater permit may be required pursuant to 567—Chapter 64.

567—120.9(455B) Landfarm operating requirements. All multiuse and single-use landfarms shall comply with the following operating requirements:

120.9(1) *Standard PCS.* Only standard PCS may be land applied or stored at a landfarm without a permit amendment from the department. A permit amendment from the department, pursuant to subrule 120.4(10), shall be obtained for each particular source and type of nonstandard PCS before that PCS may be land applied or stored at a landfarm. The permit amendment application shall include a justification of how the PCS can be safely and effectively remediated by landfarming.

120.9(2) *Saturated, slurry, or flammable PCS.* PCS in a saturated, slurry, or flammable condition shall not be land applied or stored at a landfarm. PCS in such a condition shall be bulked with other biodegradable materials (e.g., compost, mulch) until it is no longer saturated, in a slurry, or flammable before it is land applied or stored at a landfarm.

120.9(3) *PCS storage.* PCS that cannot immediately be land applied at the landfarm during landfarm season may be stored at the landfarm as follows. PCS delivered during non-landfarm season may be stored until the conditions of subrule 120.9(4) are satisfied or within the first seven days of landfarm season, whichever is shorter.

a. *Seven days or less.* PCS may be stored up to seven days in compliance with the following requirements:

(1) Over an impervious surface (e.g., tarp, concrete pad, plastic sheeting).

(2) Under a roof or tarp to minimize the infiltration of precipitation.

(3) In an area with minimal potential for stormwater run-on.

b. Extended storage time. No PCS shall be stored longer than seven days during landfarm season without written permission from the department field office that has jurisdiction over the landfarm.

120.9(4) *PCS application weather and landfarm season.*

a. PCS shall only be land applied during non-landfarm season if the PCS must be land applied as part of an emergency cleanup supervised by the department pursuant to subrule 120.6(1), or all of the following conditions exist:

(1) The operating area is free of snow.

(2) The slope of the operating area is less than 3 percent.

(3) The PCS is incorporated into the soil as soon as site conditions allow.

b. PCS shall not be land applied during precipitation.

120.9(5) *One application, source and type of PCS per plot.* One application of a particular source and type of PCS may be applied to a landfarm plot. A landfarm may only apply a subsequent application of PCS to a previously utilized landfarm plot if such application is in compliance with the following:

a. Multiuse landfarms. A subsequent application of a particular source and type of PCS may be applied to a previously utilized landfarm plot in a multiuse landfarm after the following requirements have been met:

(1) The plot has been tested pursuant to subparagraphs 120.6(2)*"c"*(1), (2), and (3), and the results demonstrate that petroleum constituent concentrations are less than 0.54 mg/kg for benzene, 42 mg/kg for toluene, 15 mg/kg for ethylbenzene, 3800 mg/kg for TEH-diesel, and 0.02 mg/kg for MTBE.

(2) The PCS turning requirement of subrule 120.9(10) has been completed.

b. Single-use landfarms. A subsequent application of a particular source and type of PCS may not be applied within 15 feet of an area used as a single-use landfarm until the single-use landfarm is closed pursuant to subrule 120.12(2).

120.9(6) *PCS application rates.* PCS shall be land applied at a rate that is as uniform as practical over an area sufficient to satisfy the greater of the following area requirements. However, PCS from an emergency cleanup supervised by the department pursuant to subrule 120.6(1) may instead be land applied at a rate of 162 ft^2 of landfarm area per cubic yard (yd^3) of PCS, that is as uniform as practical, and in which no layer of unincorporated PCS is thicker than 2 inches.

a. Petroleum constituents. PCS shall be land applied over the largest area required by the following:

(1) Benzene. PCS contaminated with benzene shall be land applied in accordance with Table 1. The average concentration of benzene in the PCS shall be used to determine the landfarm area (ft^2) required per cubic yard (yd^3) of PCS to be land applied. The average concentration of benzene shall be calculated from all soil boring test results that are within the PCS excavation area. The application shall be as uniform as practical over the area required.

Table 1

Average concentration of benzene (mg/kg)	Ft^2 of landfarm area per yd^3 of PCS applied	Maximum thickness of unincorporated PCS	Yd^3 of PCS per acre of landfarm
0< mg/kg ≤10	81 ft^2	4 inches	537 yd^3
10< mg/kg ≤20	162 ft^2	2 inches	268 yd^3
20< mg/kg	324 ft^2	1 inch	134 yd^3

(2) Toluene, ethylbenzene, xylene, and TEH-diesel. PCS that is not contaminated with benzene or MTBE, but is contaminated with toluene, ethylbenzene, xylene, TEH-diesel, or some combination thereof, shall be land applied at a rate of 81 ft^2 of landfarm area per cubic yard (yd^3) of PCS. The application shall be as uniform as practical, and no layer of unincorporated PCS shall be thicker than 4 inches.

b. Total heavy metals. PCS that has been tested for heavy metals pursuant to subparagraph 120.6(2)*"c"*(4) shall be applied at a rate that is as uniform as practical, that results in no layer of PCS thicker than 4 inches, and that upon incorporation produces a landfarm soil that satisfies the following

requirements. This analysis requires prior testing of background levels of heavy metals at the proposed landfarm site.

(1) Total heavy metals are less than 2,500 milligrams per kilogram (mg/kg).

(2) Any particular concentration of a heavy metal is less than the appropriate statewide standard for soil developed pursuant to 567—Chapter 137.

120.9(7) *Flagging.* The landfarm plot(s) upon which PCS is land applied shall be flagged for one year after land application or until the landfarm is closed pursuant to rule 567—120.12(455B), whichever is shorter.

120.9(8) *Removal of solid waste and rubble.* All solid waste that is not PCS (e.g., pipe) shall be removed and properly disposed of. All rubble, stones, and debris larger than 4 inches in diameter, or that interfere with incorporating and turning the PCS, shall be removed and properly disposed of.

120.9(9) *PCS incorporation.* PCS shall be incorporated into the soil by tilling, disking, or other suitable means within 48 hours of being land applied or before the next precipitation event, whichever is sooner. PCS shall not be incorporated deeper than 12 inches.

120.9(10) *Turning the PCS.* After incorporation, the PCS shall be turned by tilling, disking, or other suitable means at least once per month for the first three months during landfarm season.

120.9(11) *No crops for consumption.*

a. Multiuse landfarms shall not grow crops for human or livestock consumption within 15 feet of the operating area until the landfarm is closed pursuant to subrule 120.12(1).

b. Single-use landfarms shall not grow crops within 15 feet of a landfarm plot that is flagged pursuant to subrule 120.9(7). Crops for human and livestock consumption may be grown at a single-use landfarm after the landfarm plot is no longer required to be flagged pursuant to subrule 120.9(7).

120.9(12) *Water quality.* A multiuse landfarm shall not accept additional PCS if evidence of surface water or groundwater contamination exists. Such evidence includes, but is not limited to, a visible sheen on immediately downgradient surface waters or downgradient monitoring well test results greater than two standard deviations of mean analyte concentrations in corresponding upgradient monitoring wells. Responsible parties shall notify the department within 6 hours of discovery of contamination of a water of the state by calling (515)281-8694. The acceptance of PCS shall be suspended until written verification has been received from the department that the site is not or is no longer contaminating surface water or groundwater.

120.9(13) *Removal of PCS from a landfarm.* PCS shall not be removed from a landfarm until the landfarm is closed pursuant to rule 567—120.12(455B) or the following conditions are met:

a. One sample from each 2,500 ft^2 (e.g., 50-foot × 50-foot area) of landfarm plot is analyzed pursuant to subparagraphs 120.6(2)*"c"*(1), (2), and (3). A minimum of one sample per landfarm plot shall be obtained. All samples shall be obtained from between the top 2 to 6 inches of soil.

b. The results of the tests in paragraph 120.12(1)*"a"* demonstrate that petroleum constituent concentrations for benzene, toluene, ethylbenzene, TEH-diesel, and MTBE are below the detection limits required by 567—Chapter 135.

c. Records of the lab results, amount of PCS removed, and the exact final location of the PCS shall be maintained by the landfarm.

567—120.10(455B) Emergency response and remedial action plans.

120.10(1) *Access.* Emergency response and remedial action plan (ERRAP) documents shall be readily available. Multiuse landfarms shall maintain a copy of the ERRAP on site (e.g., the back of permit sign, fence post, or mailbox). Single-use landfarm applicators shall have employees carry a copy of the ERRAP document to each site where operations are taking place.

120.10(2) *Updates.* An updated ERRAP shall be included with any request for permit modification to incorporate a facility or operational change that requires modification of the currently approved ERRAP.

120.10(3) *Employee training.* At a minimum, all employees shall receive annual training sufficient to understand and utilize ERRAP documents.

120.10(4) *Content.* The content of ERRAP documents shall be concise and readily usable as a reference manual by facility managers and operators during emergency conditions. The ERRAP document content shall address at least the following primary issues in detail, unless project conditions render the specific issue as not applicable. The rationale for exclusion of any issue areas that are not applicable must be provided either in the body of the plan or as a supplement. Additional ERRAP requirements unique to the facility shall be addressed as applicable.

a. Facility information.
(1) Permitted agency.
(2) DNR permit number.
(3) Responsible official and contact information.
(4) Project location.
(5) Facility description.
(6) Site and environs map.

b. Weather-related events.
(1) Intense rainstorms and erosion.
(2) Intense rainstorms or flooding impacting site access and usability.

c. Fire and explosions.
(1) Flammable PCS.
(2) Buildings on site.
(3) Equipment.
(4) Waste gases from PCS.
(5) Off-site fires or explosions at cleanup site or during transport.

d. Spills and releases.
(1) Saturated or slurry PCS.
(2) Free liquids from stored PCS.
(3) Spill of PCS during transport.

e. Hazardous materials.
(1) Hazardous waste delivery.
(2) Hazardous gases.

f. Emergency, spill and release notification and reporting.
(1) Emergency response agencies.
(2) Federal agencies.
(3) State agencies.
(4) County and city agencies.
(5) Special populations near site.
(6) Reporting requirements and forms.
(7) News media.

g. Primary emergency equipment inventory.
(1) Major equipment.
(2) Fire hydrants and water sources.
(3) Off-site equipment resources.

h. ERRAP training requirements.
(1) Training providers.
(2) Employee orientation.
(3) Annual training updates.
(4) Training completion and record keeping.

567—120.11(455B) Reporting and record-keeping requirements.

120.11(1) *Reporting.* The following information shall be submitted to the department on a form provided by the department. All reporting submissions shall include the name, address, and telephone number of the landfarm and permit holder, as well as the permit number.

a. *Storage notification.* Multiuse and single-use landfarms shall submit the following information to the department and department field office with jurisdiction over the landfarm before receipt of the PCS for storage; however, at least 30 days' notification is encouraged. PCS storage information from an emergency cleanup supervised by the department pursuant to subrule 120.6(1), however, shall be reported within 7 days of the emergency cleanup.

(1) The date the PCS is expected to be delivered for storage at the landfarm.

(2) Where the PCS will be stored at the landfarm.

(3) The spill number, UST registration number, and LUST number, as applicable.

b. *Land application notification.* Multiuse and single-use landfarms shall submit the following information to the department and department field office with jurisdiction over the landfarm before land application; however, at least 30 days' notification is encouraged. PCS information from an emergency cleanup supervised by the department pursuant to subrule 120.6(1), however, shall be reported within 7 days of the emergency cleanup.

(1) The date the PCS is expected to be land applied.

(2) Single-use landfarms shall submit an address, topographic map, soil map with key, and a map of the 100-year flood plain illustrating and labeling where the PCS is to be applied. Multiuse landfarms shall report the landfarm plot(s) to which the PCS is to be applied.

(3) Application rate calculations pursuant to subrule 120.9(6).

(4) The spill number, UST registration number, and LUST number, as applicable.

c. *PCS analysis and characterization.* Information on the analysis and characterization of the PCS pursuant to rule 567—120.6(455B) shall be submitted to the department before receipt of the PCS for storage or land application; however, at least 30 days' notification is encouraged. PCS analysis and characterization information from an emergency cleanup supervised by the department pursuant to subrule 120.6(1), however, shall be reported within 60 days of the emergency cleanup.

d. *Groundwater monitoring well results.* Multiuse landfarms shall annually test all groundwater monitoring wells as follows. A laboratory certified pursuant to 567—Chapter 83 for UST petroleum analyses shall test the samples. Test results for each well at a multiuse landfarm shall be submitted to the department by the first workday in January of each year.

(1) BTEX testing. The groundwater monitoring wells shall be tested for benzene, toluene, ethylbenzene, and xylene (BTEX). The BTEX analysis shall utilize the most recent version of Method OA-1 (GCMS), "Method for Determination of Volatile Petroleum Hydrocarbons (Gasoline)," University of Iowa Hygienic Laboratory.

(2) TEH-diesel and waste oil testing. The groundwater monitoring wells shall be tested for total extractable hydrocarbons (TEH-diesel and waste oil). The TEH-diesel and waste oil analyses shall utilize the most recent version of Method OA-2, "Extractable Petroleum Products (and Relatively Low Volatility Organic Compounds)," University of Iowa Hygienic Laboratory.

(3) MTBE testing. The groundwater monitoring wells shall be tested for MTBE unless prior analysis of PCS accepted for landfarming, pursuant to rule 567—135.15(455B), has shown that MTBE was not present in soil or groundwater of the source. A laboratory certified pursuant to 567—Chapter 83 for UST petroleum analyses shall test the samples. The analysis shall utilize one of the following methods:

1. The most recent version of Method OA-1 (GCMS), "Method for Determination of Volatile Petroleum Hydrocarbons (Gasoline)," University of Iowa Hygienic Laboratory.

2. U.S. Environmental Protection Agency (EPA) Method 8260B, SW-846, "Test Methods for Evaluating Solid Waste," Third Edition.

120.11(2) *Record keeping.* All landfarms shall maintain records of all information related to compliance with this chapter and the permit throughout the life of the landfarm and for three years after landfarm closure pursuant to rule 567—120.12(455B). This information shall be available to the department upon request. Applicable information includes, but is not limited to, the following material.

a. Permit application information pursuant to rule 567—120.5(455B).

b. PCS analysis and characterization pursuant to rule 567—120.6(455B).

c. Site suitability information pursuant to rule 567—120.7(455B).

d. Specific design requirements pursuant to rule 567—120.8(455B).

e. Operations information pursuant to rule 567—120.9(455B); in particular, application rate calculations pursuant to 120.9(6).

f. ERRAP documents pursuant to rule 567—120.10(455B).

g. Reports submitted pursuant to subrule 120.11(1).

h. Closure information pursuant to rule 567—120.12(455B).

567—120.12(455B) Landfarm closure. Unless otherwise required or approved by the department, landfarms shall be closed as follows.

120.12(1) *Multiuse landfarms.* Multiuse landfarms may be closed after groundwater monitoring well tests verify that down-gradient groundwater monitoring well results are within two standard deviations of the mean analyte concentrations, pursuant to paragraph 120.11(1)*"d,"* in corresponding up-gradient monitoring wells for three consecutive years after the last application of PCS. Furthermore, prior to closure each landfarm plot shall be tested as follows. Closure is not official until verified in writing by the department.

a. One sample from each 10,000 ft^2 (e.g., 100-foot × 100-foot area) of landfarm plot is analyzed pursuant to subparagraphs 120.6(2)*"c"*(1), (2), and (3). A minimum of one sample per landfarm plot shall be obtained. All samples shall be obtained from between the top 2 to 6 inches of soil.

b. The results of the tests in paragraph 120.12(1)*"a"* demonstrate that petroleum constituent concentrations are less than 0.54 mg/kg for benzene, 42 mg/kg for toluene, 15 mg/kg for ethylbenzene, 3800 mg/kg for TEH-diesel and 0.02 mg/kg for MTBE.

120.12(2) *Single-use landfarms.* Single-use landfarms are closed three years after the application of PCS, or at least six months after the application of PCS when documentation has been submitted and acknowledged in writing by the department that each landfarm plot has been tested as follows.

a. One sample from each 10,000 ft^2 (e.g., 100-foot × 100-foot area) of landfarm plot is analyzed pursuant to subparagraphs 120.6(2)*"c"*(1), (2), and (3). A minimum of one sample per landfarm plot shall be obtained. All samples shall be obtained from between the top 2 to 6 inches of soil.

b. The results of the tests in paragraph 120.12(2)*"a"* demonstrate that petroleum constituent concentrations are less than 0.54 mg/kg for benzene, 42 mg/kg for toluene, 15 mg/kg for ethylbenzene, 3800 mg/kg for TEH-diesel and 0.02 mg/kg for MTBE.

567—120.13(455B,455D) Financial assurance requirements for multiuse and single-use landfarms. The holder of a sanitary disposal project permit for a multiuse or single-use landfarm must obtain and submit a financial assurance instrument to the department in accordance with this rule. The financial assurance instrument shall provide monetary funds for the purpose of conducting closure activities at the operating area(s) due to the permit holder's failure to properly close the site as required in accordance with rule 120.12(455B) within 30 days of permit suspension, termination, revocation, or expiration.

120.13(1) *No permit without financial assurance.* The department shall not issue or renew a permit to an owner or operator of a multiuse or single-use landfarm until a financial assurance instrument has been submitted to and approved by the department.

120.13(2) *Proof of compliance.* Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted by July 1, 2008, or at the time of application for a permit for a new multiuse or single-use landfarm. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

120.13(3) *Financial assurance amounts required.* The estimate submitted to the department must be certified by a professional engineer and account for at least the following factors determined by the department to be minimal necessary costs for closure pursuant to rule 120.12(455B):

a. Third-party costs to conduct groundwater and soil sampling and properly clean all equipment and storage areas at the operating area(s).

b. If PCS is temporarily stored on site prior to incorporation, then this estimate shall include third-party labor and transportation costs and total tip fees to properly dispose of all PCS equal to the maximum storage capacity on site.

120.13(4) *Acceptable financial assurance instruments.* The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with subrule 120.13(3) and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. Financial assurance may be provided by cash in the form of a secured trust fund or local government dedicated fund, surety bond, letter of credit, or corporate or local government guarantee as follows:

a. *Secured trust fund.* The owner or operator of a landfarm or entity serving as a guarantor may demonstrate financial assurance for closure by establishing a secured trust fund that conforms to the requirements of this paragraph.

(1) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The fund shall be restricted for the sole purpose of funding closure activities at the landfarm sites, and a copy of the trust agreement must be submitted to the department and placed in the permit holder's official files.

(2) A secured trust fund shall name the department of natural resources as the entity authorized to draw funds from the trust, subject to proper notification to the trust officer of failure by the permittee to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) Moneys in the fund shall not be assigned for the benefit of creditors with the exception of the state.

(4) Moneys in the fund shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

(5) The owner or operator or another person authorized to conduct closure activities may request reimbursement from the trustee for closure expenditures as they are incurred. Requests for reimbursement shall be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure and if documentation of the justification for reimbursement has been submitted to the department for prior approval.

(6) If the balance of the trust fund exceeds the current cost estimate for closure at any time, the owner or operator may request withdrawal of the excess funds from the trustee so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

b. *Local government dedicated fund.* The owner or operator of a publicly owned entity permitted to landfarm PCS or a local government serving as a guarantor may demonstrate financial assurance for closure by establishing a dedicated fund that conforms to the requirements of this paragraph.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, resolution or order as a restricted fund to pay for closure costs arising from the operation of the landfarm site(s).

(2) A copy of the document establishing the dedicated fund must be submitted to the department and placed in the permit holder's official files.

(3) If the balance of the dedicated fund exceeds the current cost estimate for closure at any time, the owner or operator may withdraw excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

c. *Surety bond.* A surety bond must be written by a company authorized by the commissioner of insurance to do business in the state. The surety bond shall comply with the following:

(1) The bond shall be in a form approved by the commissioner of insurance and shall be payable to the department of natural resources.

(2) The bond shall be specific to a particular landfarm owner or operator for the purpose of funding closure in accordance with rule 120.12(455B) and removing any stockpiled PCS that may remain at the site(s) due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) The owner or operator shall provide the department with a statement from the surety with each permit application renewal, noting that the bond is paid and current for the permit period for which the owner or operator has applied for renewal.

d. Letter of credit. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(1) The owner or operator must submit to the department a copy of the letter of credit and place a copy in the permit holder's official files.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the permit holder and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the permit holder's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 90 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a secured trust fund that meets the requirements of paragraph 120.13(4)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the secured trust fund established by the owner or operator. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

e. Corporate guarantee. An owner or operator may meet the requirements of this rule by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a landfarm site(s) covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 120.13(4)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following three conditions:

1. A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or

2. A ratio of less than 1.5 comparing total liabilities to net worth; or

3. A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities.

(3) The tangible net worth of the guarantor must be greater than the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(4) The guarantor must have assets amounting to at least the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(5) Record-keeping and reporting requirements. The guarantor must submit the following records to the department and place a copy in the permit holder's official files:

1. A copy of the written guarantee between the owner or operator and the guarantor.

2. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a guarantee including, but not limited to, cost estimates required by subrule 120.13(3); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40

CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and

- Provides evidence demonstrating that the guarantor meets the conditions of subparagraphs 120.13(4)*"e"*(2), (3) and (4).

3. A copy of the independent certified public accountant's unqualified opinion of the guarantor's financial statements for the latest completed fiscal year. In order for the guarantor to be eligible to use the guarantee, the guarantor's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this instrument. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate guarantee, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

f. Local government guarantee. An owner or operator may demonstrate financial assurance for closure by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a landfarm site(s) covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 120.13(4)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following requirements:

1. If the guarantor has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the guarantor must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or

2. The guarantor must satisfy each of the following financial ratios based on the guarantor's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

(3) The guarantor must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and must have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

(4) A guarantor is not eligible to assure its obligations if:

1. The guarantor is currently in default on any outstanding general obligation bonds; or

2. The guarantor has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or

3. The guarantor operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or

4. The guarantor receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement. A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism; or

5. The closure costs to be assured are greater than 43 percent of the guarantor's total annual revenue.

(5) The local government guarantor must include disclosure of the closure costs assured through the guarantee in its next annual audit report prior to the initial application of PCS at the landfarm site(s) or prior to cancellation of an alternative financial assurance instrument, whichever is later. For the first year the guarantee is used to assure costs at a particular site(s), the reference may instead be placed in the

guarantor's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(6) The local government owner or operator must submit to the department the following items:

1. A copy of the written guarantee between the owner or operator and the local government serving as guarantor for the closure costs at the landfarm site(s).

2. A copy of the guarantor's most recent annual financial audit report indicating compliance with the financial ratios required by numbered paragraph 120.13(4)*"f"*(2)"2," if applicable, and the requirements of subparagraphs 120.13(4)*"f"*(3) and (4).

3. A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by the guarantor, as described in subrule 120.13(3); and that provides evidence and certifies that the local government meets the conditions of subparagraphs 120.13(4)*"f"*(2), (3), (4) and (5).

120.13(5) *Financial assurance cancellation and permit suspension.*

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance prior to cancellation, as specified in this rule, or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider or until the department gives written notification to the owner, operator, and financial assurance provider that the covered site has been properly closed. The financial assurance provider shall give at least 90 days' notice in writing to the owner or operator and the department in the event of any intent to cancel the instrument.

c. Within 60 days of receipt of a written notice of cancellation of financial assurance by the financial assurance provider, the owner or operator must provide the department an alternative financial assurance instrument. If a means of continued financial assurance is not provided within that 60 days, the department shall suspend the permit.

d. The owner or operator shall perform proper closure within 30 days of the permit suspension. For the purpose of this rule, "proper closure" means completion of all items pursuant to rule 120.12(455B) and subrule 120.13(3).

e. If the owner or operator does not properly close the site within the 30-day period allowed, the department shall file a claim with the financial assurance instrument provider to collect the amount of funds necessary to properly close the site.

f. An owner or operator who elects to terminate a permitted activity, whose renewal application has been denied, or whose permit has been suspended or revoked for cause must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 60 days from the date of termination of the permit.

g. The director may also request payment from any financial assurance provider for the purpose of completing closure when the following circumstances exist:

(1) The owner or operator is more than 15 days late in providing a schedule for closure or for meeting any date in the schedule for closure.

(2) The owner or operator declares an economic inability to comply with this rule, either by sending written notification to the director or through an action such as, but not limited to, filing for bankruptcy.

These rules are intended to implement Iowa Code sections 455B.301A, 455B.304 and 455B.383.

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CHAPTER 121
LAND APPLICATION OF WASTES

[Prior to 7/1/83, DEQ Ch 33]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—121.1(455B,17A) Scope of title. The department has jurisdiction over the disposal of solid waste including the land application of those wastes. The land application of solid wastes requires a specific permit from the department, unless certain conditions are met which warrant that an exemption be granted.

This chapter provides general definitions applicable in this title and rules of practice, including forms, applicable to the public in the department's administration of the subject matter of this title.

This chapter contains rules and regulations specifying the types of waste to which the chapter applies, the circumstances under which no permit is required for land application, and the permit requirements for those activities not exempted.

567—121.2(455B) Definitions.

"Industrial sludge" means any sludge produced by industrial activity.

"Land application" means a method through which sludge is applied to the ground surface. Land application may include subsurface injection.

"Sewage sludge" is defined in 567—Chapter 67.

"Sludge" means any solid, semisolid, or liquid waste generated from a commercial or industrial wastewater treatment plant, water supply treatment plant or air pollution control facility or any other such waste having similar characteristics and effects.

"Solid waste" means garbage, refuse, rubbish, and other similar discarded solid or semisolid materials, including but not limited to such materials resulting from industrial, commercial, agricultural, and domestic activities. Solid waste may include vehicles, as defined by Iowa Code section 321.1, subsection 1. Nothing herein shall be construed as prohibiting the use of dirt, stone, brick, or similar inorganic material for fill, landscaping, excavation, or grading at places other than a sanitary disposal.

"Stabilized sludge" means sludge that has been processed to a point where it has the ability to resist further change, produces minimal odor, and has achieved a substantial reduction in the pathogenic organism content. (The department recognizes principles of stabilization other than the conventional biological processes. Whether these processes produce a stabilized sludge will be evaluated on an individual basis.)

567—121.3(455B) Application for permits and forms. Any private or public person or agent desiring to secure a permit for any land application of solid waste not exempted in rules 121.5(455B) and 121.6(455B) shall file a properly completed application.

121.3(1) A properly completed application shall consist of the application form with all blanks filled in by the applicant, all signatures, and all documents and information required by the land application rules. Application forms may be obtained from:

Environmental Services Division
Iowa Department of Natural Resources
Henry A. Wallace Building
900 East Grand
Des Moines, Iowa 50319

Properly completed forms should be submitted in accordance with the instructions for the form.

121.3(2) Application for a land application permit shall be made on Form 43, "Application for a Sanitary Disposal Project Permit."

567—121.4(455B) Land application of solid wastes.

121.4(1) General. This chapter shall apply to the land application of solid wastes, except domestic septage, sewage sludge, animal manure, animal bedding and crop residue. Land application of animal manure should be in conformance with the provisions of 567—Chapter 65. Land application of water

supply sludge and certain other approved wastes is governed by 121.5(455B). Land application of other waste without a permit is governed by 121.6(455B). Land application of wastes which require a permit is governed by 121.7(455B). These rules establish permit requirements and exemptions for home and crop use and general exemptions for other wastes, contamination levels and other requirements for the disposal of solid wastes by land application. Land application of sewage sludge is governed by 567—Chapter 67.

121.4(2) Land application does not include disposal of solid waste by burial.

567—121.5(455B) Land application of solid wastes for home and certain crop use.

121.5(1) Definitions.

a. *"Home and certain crop use"* shall include lawns, gardens, flower beds or similar areas associated with residential use. Included also is land where food crops for human consumption are raised or are made available to the general public.

b. *"Food crops for human consumption"* are those crops that may be consumed by humans without prior heating or processing (e.g., lettuce, carrots) or those that are commonly available to the public in raw form (e.g., asparagus, squash). Food crops for human consumption exclude cereal crops.

121.5(2) Only the following solid wastes may be applied to land for home and certain crop uses. These and other solid wastes may be used on other agricultural lands.

a. Water supply sludges.

b. Other wastes as approved by the department based on their constituents and expected environmental impact.

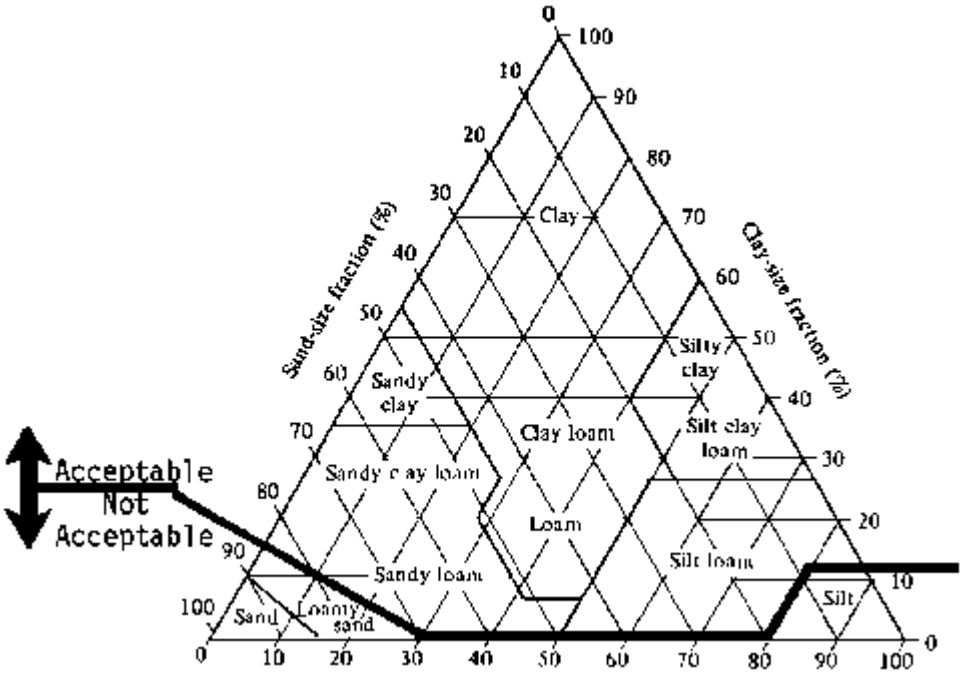
567—121.6(455B) Permit exemptions. No permit is required for land application of the following solid wastes under the following circumstances. (Land applications that do not comply with these rules must have obtained a permit under rule 121.7(455B).)

121.6(1) *Solid wastes.* Solid wastes (other than petroleum contaminated soil) may be land applied without permit if the land application does not violate the following:

a. Land application of sludge and other solid waste shall be conducted in accordance with the following criteria:

(1) The maximum application rate shall not exceed two tons per acre per year, measured on a dry weight basis. The maximum application rate shall be reduced if soil tests indicate that a two ton per acre per year rate would provide nutrient levels significantly in excess of crop nutrient requirements or would provide heavy metals concentrations in the soil at levels which may be detrimental to crop production or hazardous to human health.

(2) The sludge or solid waste shall be applied only to soils classified as acceptable throughout the top five feet of soil profile. The acceptability of a soil shall be determined using the following chart based on USDA soil classifications.



U.S.D.A. textural classification chart, Sand size particles 2-0.05 mm, silt-size particles, 0.05-0.002 mm; and clay size particles; less than 0.002 mm.

(3) Land application sites shall have soil pH maintained between 6.5 and 8.4 for sludges with cadmium levels up to 15 mg/kg. The soil pH may be maintained below 6.5 but not below 6.0 if the cadmium level is 8.0 mg/kg or the sludge has been stabilized to a pH of 10-12. If the soil pH is below these levels, it is acceptable to use agricultural lime to increase the pH to an acceptable level prior to land application of sludge.

(4) The department recommends that all sludge be injected on the contour or applied to the surface and mechanically incorporated into the soil as soon as possible but not later than 48 hours after application.

(5) If the sludge is applied to land on which the soil loss exceeds the soil loss limits established by the county soil conservation district, the sludge shall be injected on the contour or shall be applied to the surface and mechanically incorporated into soil within 48 hours of application. The sludge shall not be applied to ground having greater than 9 percent slope.

(6) If the sludge is applied to land subject to flooding more frequently than once in ten years, the sludge shall be injected or shall be applied to the surface and mechanically incorporated into the soil within 48 hours. Information on which land is subject to flooding more frequently than once in ten years is available from the department.

(7) Sludge application on frozen or snow-covered ground should be avoided. If application on frozen or snow-covered ground is necessary, it shall be limited to land areas of less than 5 percent slope.

(8) If sludge is applied within 200 feet of a stream, lake, sinkhole or tile line surface intake located downgradient of the land application site, it shall be injected or applied to the surface and mechanically incorporated into the soil within 48 hours of application.

b. The waste shall not be land applied or made available for land application if the waste contains constituents in excess of the levels specified below.

Constituents	Levels	Cumulative Loading Rate	
Arsenic	41 mg/kg	41 kg/ha	36 lb/ac
Cadmium	39 mg/kg	39 kg/ha	34 lb/ac
Chromium	1200 mg/kg	3000 kg/ha	2670 lb/ac
Copper	1500 mg/kg	1500 kg/ha	1335 lb/ac
Lead	300 mg/kg	300 kg/ha	267 lb/ac
Mercury	17 mg/kg	17 kg/ha	15 lb/ac
Molybdenum	75 mg/kg	75 kg/ha	66 lb/ac
Nickel	420 mg/kg	420 kg/ha	373 lb/ac
Selenium	36 mg/kg	100 kg/ha	89 lb/ac
Zinc	2800 mg/kg	2800 kg/ha	2490 lb/ac

If the waste has other toxic constituents, the toxic constituents shall not be in excess of levels where there is a threat to human, animal, or plant life as determined by the department.

c. Macronutrients.

(1) The application of nitrogen available from the waste and any other sources does not exceed the nitrogen needs of the vegetation to be grown on the site over the next year, and

(2) The total application of phosphorus and potassium does not exceed the acceptable agronomic application rates for the site and crops involved.

d. The waste does not have a sodium absorption ratio in excess of levels where there is a threat to plant life. If high sodium absorption ratios are suspected, analytical testing may be required.

e. Stabilized sludge. If land applying sludge or other wastes containing pathogens, the waste must be treated to reduce pathogen content by methods specified in 567—Chapter 67 prior to land application.

f. The waste does not contain a waste having direct process stream contact with the following listed organics: Petroleum products, organic solvents, pesticides, pharmaceuticals, polychlorinated biphenyls (PCBs). The waste does not originate from a process which may release the previously mentioned compounds.

g. Assimilation capabilities. The waste would not be readily present in a visual analysis of a random sample collected two years following application.

h. General public health aspects. The waste is not putrescible, or is incorporated (or otherwise managed) to prevent runoff and odor problems.

i. Separation distance. Waste shall not be applied within 200 feet of an occupied residence nor within 500 feet of a well.

j. Operating requirements. A generator who intends to dispose of its waste by land application shall:

(1) Analyze the waste to determine if any sources exist which may contribute significant quantities of potentially hazardous chemicals or other toxic substances. If any are found, the generator shall inform the department of their presence and shall analyze the waste for chemicals or substances in accordance with guidelines provided by the department.

(2) Sample and analyze the waste to determine whether it meets the criteria in 121.6(1).

(3) Unless rules for specific programs under USEPA or department authority provide otherwise, or unless other methods are approved by the department for a specific situation, samples taken and analyses made to document contamination under this chapter shall be conducted in accordance with the following:

1. Samples. "A Compendium of Superfund Field Operations Methods," USEPA, Office of Emergency and Remedial Response, Washington, D.C. 20460 (EPA/540/p-87/001, OSWER Directive 93.55.0-14).

2. Analyses. "Test Methods for Evaluation of Solid Waste, Physical — Chemical Methods SW-846," USEPA, Third Edition, November 1986, as revised through December 1988. Until the department adopts rules regarding certification of laboratories, analyses shall be conducted at a laboratory that certifies to the department that the approved analytical procedure has been utilized, or

a laboratory which has been approved under EPA's Contract Laboratory Program. Upon adoption of rules by the department regarding certification of laboratories, all analyses shall be made at a certified laboratory.

k. Land application program. All generators intending to land apply their waste routinely shall establish and maintain in writing a long-range program for land application of its waste. This program shall be developed for a minimum period of five years and shall be updated annually. A copy of this program shall be available at the facility for inspection by the department. As a minimum this program shall contain the following information in detail for the next calendar year and in general terms for the following four years. The plan shall include, but not be limited to, the following:

(1) An outline of the waste sampling schedule and procedures which will be followed to ensure that the waste being applied to land continues to meet the criteria in 121.6(1).

(2) A determination of the amount of land required to allow disposal to be conducted in accordance with the requirements of 121.6(1).

(3) An identification of the land and waste application methods which will be used to dispose of the waste. Those areas and application methods shall be selected as necessary to ensure that land application can be conducted in accordance with the land application criteria in 121.6(1).

(4) The names of the owners and operators of all land to be used for waste disposal, and identification of any legal arrangements made relative to use of these areas. The programs should also outline any restrictions or special conditions which exist regarding use of these areas for waste disposal.

(5) An overall schedule for the disposal of the waste. This schedule should indicate the areas being used, the time of year that disposal on each area will be conducted, and the proposed application rates for each area.

(6) A determination of the types and capacities of the equipment required to dispose of the waste in accordance with the developed disposal schedule. The program shall also outline how the required disposal equipment will be made available and who will be responsible for conducting land disposal operations.

(7) A determination of the volumes and types of storage and handling facilities required to allow waste disposal to be conducted in accordance with the waste disposal schedule. The program shall also outline how any required additional waste storage or handling facilities will be provided.

(8) A plan to construct or obtain any additional waste storage, handling or disposal facilities or equipment which are required by the waste disposal program.

l. Other requirements.

(1) If the waste is being supplied to other persons for land application, the generating facility shall inform them of the applicable requirements of the waste disposal program, 567—subrules 101.3(2) and 121.6(1).

(2) If the generating facility determines that a person being supplied waste for land application is not complying with applicable requirements of the waste disposal program or the land application criteria, the generating facility shall work with them to obtain compliance with the requirements. If subsequent compliance cannot be achieved, the generating facility shall not supply additional waste to the person.

(3) The generating facility must inform all persons involved in waste disposal operations of the potential health hazards associated with waste disposal, including informing them of the cautions and recommended practices which should be followed to minimize these hazards.

(4) The generating facility shall maintain records of sample analysis and waste disposal operations to document compliance with 567—121.6(455B).

(5) If waste is applied to land subject to use by the general public (e.g., golf courses, parks), public access to the waste application site shall be restricted for a period of one month after waste application. In no case shall waste be applied to areas where direct body contact with the soil is likely (e.g., school yards, playground areas, picnic areas).

(6) Waste shall not be applied to land for the commercial production of human consumption food crops.

(7) If sludge is applied to land where crops being grown will be grazed by or fed to livestock within two months of sludge application, or where cereal grains will be harvested within two months of sludge application, the sludge shall be injected or shall be applied to the surface and mechanically incorporated into the soil.

m. Notification. Before opening a disposal site the department shall be notified in writing of the location of the disposal operation. This notice shall also contain the legal description of the site, the landowner, the responsible official, the quantities and type of waste (including chemical analyses which the department may require to adequately define the waste).

121.6(2) *Petroleum-contaminated soil.* Rescinded IAB 9/15/04, effective 10/20/04.

121.6(3) *Flood plains.* Rescinded IAB 9/15/04, effective 10/20/04.

567—121.7(455B) Permit requirements. Prior to any land application of solid waste not exempted in 121.5(455B) and 121.6(455B), a permit must be obtained by the waste generator in accordance with the following requirements.

121.7(1) *Solid wastes.* The land application of sludge other than from a publicly owned treatment works which does not comply with 121.6(455B) shall:

a. Submit plan requirements of 567—Chapter 102 for land application sites. In addition all permit applications for land application shall include:

(1) A map and aerial photograph as required in 567—subrule 102.12(3) that shall be of sufficient scale to show all homes, buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads and other applicable details including topography and drainage patterns. All wells located within one mile of the site shall be identified on the map or aerial photograph and a bench mark shall be indicated.

(2) A soil map.

(3) Evidence that the proposed plan has been reviewed by the local soil conservation district commission and that the technical assistance of the soil conservation district will be utilized to facilitate compliance with wind and water soil loss limit regulations provided for in Iowa Code sections 161A.42 to 161A.51.

(4) Total area of the site in acres and the number of acres which are to be used for sludge disposal.

(5) Information on the depth, construction and use of any wells located within one mile of the site.

(6) Soil loss limits applicable to the site.

(7) Design soil loss levels for the proposed site.

(8) Estimated current soil loss levels.

(9) Cation exchange capacity, current exchangeable cations, available potassium and phosphorus, total nitrogen, bulk density and pH (normal and as modified) of site soils.

(10) Water table levels of the site, including the frequency and duration of any expected high water table or flooding.

(11) Information on the source, quantity, and method of treatment of the sludge prior to disposal.

(12) Results of sludge analyses, including the following: total residue; volatile residue; pH; total nitrogen[1]; NH_3-N[1]; NO_3-N[1]; total phosphorus[1]; potassium[1]; the following metals[1]: Arsenic (As), Cadmium (Cd), Chromium (Cr), Copper (Cu), Mercury (Hg), Molybdenum (Mo), Nickel (Ni), Lead (Pb), Selenium (Se), Zinc (Zn); and such other tests as may be necessary to establish the constituents and stability of the sludge.

The collection and preservation of samples shall be done by the highest grade operator or the operator's designee at the plant producing the sludge. This shall be done in a manner and frequency approved by the department and intended to ensure that the sampling results are representative of sludge being disposed.

All analyses shall be performed in accordance with the methods described in "Methods for Chemical Analysis of Water and Wastes," 1974 (US-EPA) or "Standard Methods for the Examination of Water and Waste Water," 17th Edition, 1989. Alternate methods may be substituted only if acceptable to the university hygienic laboratory and approved by the department.

(13) A detailed description of the disposal process to be used, including: method of application and operation; daily, annual and total loading of sludge and of all significant components of the sludge

identified in the analyses of 121.7(1)*"a"*(12); periods of use (including duration and frequencies); crop and cropping practice employed; and final use of site.

(14) Information specifying the equipment to be used, its design capacities, degree of utilization and expected methods of operation.

(15) Information indicating that the proposed sludge disposal project will not result in predictable uptake of contaminants by site vegetation to such a degree as to make the site unsuitable for its intended uses.

This shall be supported by information as to the rate of uptake and toxicity of any constituent in question, along with soil pH and cation exchange capacities and any other data necessary to evaluate the significance of contamination.

(16) Information indicating that the proposed sludge disposal project will not result in predictable movement of significant quantities of contaminants from the site to standing or flowing surface waters or to shallow aquifers that are in actual use or are deemed to have potential for use as water sources. Cation exchange capacities of site soils shall be utilized to evaluate the potential for metal contamination.

(17) Information indicating that the portion of the site to be utilized is outside a flood plain or shoreland, unless proper engineering and protection of the site will render it acceptable and prior approval of the department under Title V of these rules and, where necessary, the U.S. corps of engineers, is obtained.

(18) Information indicating how the operational requirements of 121.7(1)*"c"* and *"d"* will be met.

b. Additional plan requirements for land application sites. If site conditions, waste constituents, or proposed operation procedures warrant, the department may require any of the following:

(1) A description of the material underlying the proposed site, including stratigraphic sections based on a number of borings adequate to accurately determine the geology of the proposed site, unless the department agrees that an equivalent description may be obtained without borings. Additional information, including additional borings, may be required for any additional locations of specific concern to the department.

The stratigraphic sections shall be described from the surface to a depth determined by the director to be necessary to evaluate the suitability of the site for disposal of the specific waste.

Samples of sediments and rock units shall be collected at 5-foot intervals or when different genetic soil horizons are encountered, whichever is more frequent, unless the department agrees the other data will provide equivalent information. If samples are required, they shall be identified by location and depth. The name of the person classifying the sediments shall be indicated. At least one complete set of unaltered sack samples shall be submitted with the application. A drilling location plan and drilling log shall be submitted for each series of samples.

(2) A detailed description of each genetic soil horizon in terms of clay mineralogy, bulk density, moisture holding capacity, seasonal water table levels, particle size distribution, organic matter content, pH, cation exchange capacity, drainage class total heavy metals concentrations, current exchangeable cations, Atterberg limits and grain size distribution (by means of laboratory sieve and hydrometer or pipette analysis) unless the department agrees that other data will provide equivalent information.

(3) The direction of groundwater flow and the number, location, and depth of monitoring wells needed to monitor the groundwater quality.

(4) Information indicating that the portion of the site to be utilized is not situated in an unconsolidated sequence that will permit leakage of a quantity of water of a quality reasonably likely to have an adverse effect on the groundwater beneath or adjacent to the proposed site. The potential leakage shall be evaluated by means of generalized Darcy's Law:

$$Q = \frac{AP(h_2-h_1)}{L} \text{ where:}$$

Q = cubic feet of liquid/day/square foot of area of the interface.

A = one square foot of area.

P = coefficient of permeability in feet/day of the unconsolidated confining unit above the high water table.

h_2 = maximum final elevation of a contiguous portion of till of the site.

h_1 = lowest elevation of the bottom of the confining unit above the high water table at the location being elevated.

L = minimum thickness of the confining unit above the high water table at the location being evaluated.

The potential leakage shall be evaluated at those points where leakage could reasonably be expected, including the location of minimum thickness of the confining unit, the lowest elevation of the site and such other locations as seem reasonable.

(5) Engineering plans and reports detailing how the site will be designed, constructed, and operated to protect ground and surface water resources.

(6) Proof of the applicant's ownership of the site or legal entitlement to use the site for the disposal of sludge for the term of the permit for which application is made. The applicant shall also designate who will be responsible for the long-range monitoring and outline legal and financial arrangements for this.

(7) Other information as required by the department.

c. Operating requirements for land application sites. All land application projects shall be operated in conformance with 567—Chapter 102 and the following:

(1) The general public and livestock shall not be given access to the disposal site during sludge disposal and for a minimum of two months after sludge disposal operations have ceased, unless specific permit conditions specify otherwise.

(2) Land application sites shall have the pH of the surface horizon or plow layer adjusted to and maintained above 6.5, unless specific permit conditions specify otherwise.

(3) Land application sites shall not be used for sludge disposal during or immediately preceding expected: rains or other occasions when runoff may result (unless subsurface injection methods are utilized); high groundwater conditions; or flooding.

(4) Land application sites shall not be used for sludge disposal when frozen or snow covered unless special precautions are taken to avoid runoff.

(5) As required by the department, groundwater monitoring wells and surface monitoring points shall be installed and a monitoring program implemented. Samples must be analyzed by a laboratory which is equipped and competent to perform the tests required by the department. The results shall be forwarded to the department on a stipulated schedule.

(6) In the event significant leachate is detected, the department shall be so notified, and the permit holder shall submit a plan for controlling and treating the leachate. Upon approval of the plan by the department, it shall be immediately implemented.

(7) Sampling and analyses of the sludge shall be performed and submitted to the department according to the schedule stipulated in the permit. Analyses shall include tests as required to confirm the constituents of the sludge.

(8) Records of the site usage shall be maintained, shall be submitted to the department on a stipulated schedule and shall include: date of use; application area; application rate; quantity of sludge applied; method and timeliness of incorporation; chemical analyses of sludge being applied; and loading rates of significant components of sludge as identified in the analyses of 121.7(1)*"a"*(12).

(9) Prior to completion of a site, or suspension of operations at a site, the department shall be notified in writing. As required by the department, engineering plans and reports shall be submitted detailing deviations, if any, from the permitted final site conditions. An inspection shall be made by the department before abandonment of the site.

(10) Following closing of the site, any monitoring program in effect shall be continued until the integrity of the site is confirmed and any corrective measures which may be necessary are implemented. This shall be detailed in annual reports submitted to the department for the duration of the monitoring program.

(11) A copy of the plans and reports, as amended or revised along with pertinent operations data, for any completed site shall be filed with the county recorder and the location of the filled area shall be recorded for abstract of title purposes. The recording may be made by affidavit.

d. Additional operating requirements for land application. If site conditions, waste constituents, or proposed operating procedures warrant, the department may require any of the following:

(1) Telephone or other adequate communications facilities be available on the site;

(2) Sanitary facilities, personnel washing facilities and potable water be available within a shelter on the site;

(3) The site be fenced to control access and a gate be provided at the entrance to the site and kept locked when an attendant operator is not on duty;

(4) A copy of the permit, engineering plans, and specifications be kept at the site at all times;

(5) Sites not open to the public have a permanent sign posted at the site entrance specifying: name of the operation; the site permit number; that the site is not open to the public; the owner's name and telephone number.

121.7(2) *Waste pesticides.* Waste pesticides may be land applied:

a. If a determination is made by the department that the disposal method is the best available disposal methodology;

b. If the applicant submits an accepted permit plan. To be accepted all applications for a permit shall include:

(1) The name, address and telephone number of the owner of site where project will be located, permit applicant, official responsible for operation of project, and design engineer, if any.

If the waste generator is not the one seeking the permit then the waste generator and a responsible official of the waste generator shall also be listed.

(2) A legal description of the site.

(3) A map or aerial photograph locating the boundaries of the site and identifying, north or other principal compass points, haul routes to and from the site with any special load limits or other restrictions which may apply, land use, homes and buildings within one-half mile, and section lines or other legal boundaries.

NOTE: Copies of current soil maps are satisfactory for this required function.

(4) A complete description of the waste including: brands, active ingredients, solvents and carriers, the concentrations and quantities thereof, original use made of the product, the date of use, duration and conditions of storage and any other information which may relate to the effects to be expected from the waste. The description of the waste shall include laboratory analysis as required by the department.

(5) The rate at which the product would normally be applied to the site given specified cropping intentions, soil types, moisture levels, soil pH, organic matter present, previous pesticide applications and any other relevant information.

(6) The rate at which the waste is to be applied to the site along with the reason for any discrepancy from normal product application rates as described in (5), the impacts to be expected and such information as necessary to show that adverse impacts will not be significant.

(7) A description of the methods to be used in disposing of the waste including any special provisions needed to ensure intended application rates.

(8) A description of methods to be used to avoid migration of the waste off the site including control of airborne drift, leaching and transportation by erosion.

(9) Other information as required by the department.

c. Operating requirements.

(1) Records detailing the waste and the proposed and actual application rates (along with any other information required by the department) shall be maintained for a period (and submitted to the department on a schedule) specified by the department.

(2) The department shall be informed immediately of any divergence from the plan, the details of that divergence and the impacts to be expected.

(3) Other requirements of the department as specified in special provisions of the permit.

121.7(3) *Other wastes.* Specific criteria for the permitting of the land application of waste not otherwise specified in this rule will be developed in the future. Until promulgated, the criteria for the permitting of land application in 121.7(1) shall be used.

[1] On a dry weight basis.

567—121.8(455B,455D) Financial assurance requirements for land application of wastes. The holder of a sanitary disposal project permit for the land application of solid wastes that has received authorization to temporarily store waste at the application site(s) must obtain and submit a financial assurance instrument to the department in accordance with this rule. The financial assurance instrument shall provide monetary funds for the purpose of properly disposing of or having a third party land apply any stored solid wastes due to the permit holder's failure to properly land apply wastes in accordance with rule 121.7(455B) and the applicable permit provisions.

121.8(1) *No permit without financial assurance.* The department shall not issue or renew a permit to an owner or operator until a financial assurance instrument has been submitted to and approved by the department.

121.8(2) *Proof of compliance.* Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted by July 1, 2008, or at the time of application for a permit to land apply solid wastes. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

121.8(3) *Financial assurance amounts required.* The estimate submitted to the department must be certified by a professional engineer and account for at least the following factors determined by the department to be minimal necessary costs for closure:

a. Third-party labor and transportation costs and total tip fees to properly dispose of all solid wastes equal to the maximum storage capacity of all approved storage areas, or

b. Third-party labor costs to land apply all solid wastes equal to the maximum storage capacity of all approved storage areas.

121.8(4) *Acceptable financial assurance instruments.* The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with subrule 121.8(3) and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. Financial assurance may be provided by cash in the form of a secured trust fund or local government dedicated fund, surety bond, letter of credit, or corporate or local government guarantee as follows:

a. *Secured trust fund.* The owner or operator or entity serving as a guarantor may demonstrate financial assurance for closure by establishing a secured trust fund that conforms to the requirements of this paragraph.

(1) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The fund shall be restricted for the sole purpose of funding closure activities at the land application site(s), and a copy of the trust agreement must be submitted to the department and placed in the permit holder's official files.

(2) A secured trust fund shall name the department of natural resources as the entity authorized to draw funds from the trust, subject to proper notification to the trust officer of failure by the permittee to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) Moneys in the fund shall not be assigned for the benefit of creditors with the exception of the state.

(4) Moneys in the fund shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

(5) The owner or operator or another person authorized to conduct closure activities may request reimbursement from the trustee for closure expenditures as they are incurred. Requests for reimbursement shall be granted by the trustee only if sufficient funds are remaining in the trust fund to

cover the remaining costs of closure and if documentation of the justification for reimbursement has been submitted to the department for prior approval.

(6) If the balance of the trust fund exceeds the current cost estimate for closure at any time, the owner or operator may request withdrawal of the excess funds from the trustee so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

b. Local government dedicated fund. The owner or operator of a publicly owned entity permitted to land apply solid waste or a local government serving as a guarantor may demonstrate financial assurance for closure by establishing a dedicated fund that conforms to the requirements of this paragraph.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, resolution or order as a restricted fund to pay for closure costs arising from the operation of the land application sites.

(2) A copy of the document establishing the dedicated fund must be submitted to the department and placed in the permit holder's official files.

(3) If the balance of the dedicated fund exceeds the current cost estimate for closure at any time, the owner or operator may withdraw excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

c. Surety bond. A surety bond must be written by a company authorized by the commissioner of insurance to do business in the state. The surety bond shall comply with the following:

(1) The bond shall be in a form approved by the commissioner of insurance and shall be payable to the department of natural resources.

(2) The bond shall be specific to a particular land application site(s) for the purpose of funding closure in accordance with subrule 121.8(3) and removing any stockpiled solid wastes that may remain on site due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) The owner or operator shall provide the department with a statement from the surety with each permit application renewal, noting that the bond is paid and current for the permit period for which the owner or operator has applied for renewal.

d. Letter of credit. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(1) The owner or operator must submit to the department a copy of the letter of credit and place a copy in the permit holder's official files.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the permit holder and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the permit holder's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 90 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a secured trust fund that meets the requirements of paragraph 121.8(4)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the secured trust fund established by the owner or operator. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties. The state shall not be considered a party to this credit transaction.

e. Corporate guarantee. An owner or operator may meet the requirements of this rule by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a land application site(s) covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 121.8(4)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following three conditions:

1. A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or

2. A ratio of less than 1.5 comparing total liabilities to net worth; or

3. A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities.

(3) The tangible net worth of the guarantor must be greater than the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(4) The guarantor must have assets amounting to at least the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(5) Record-keeping and reporting requirements. The guarantor must submit the following records to the department and place a copy in the permit holder's official files:

1. A copy of the written guarantee between the owner or operator and the guarantor.

2. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a guarantee including, but not limited to, cost estimates required by subrule 121.8(3); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
- Provides evidence demonstrating that the guarantor meets the conditions of subparagraphs 121.8(4)*"e"*(2), (3) and (4).

3. A copy of the independent certified public accountant's unqualified opinion of the guarantor's financial statements for the latest completed fiscal year. In order for the guarantor to be eligible to use the guarantee, the guarantor's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this instrument. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the corporate guarantee, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

f. Local government guarantee. An owner or operator may demonstrate financial assurance for closure by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a land application site(s) covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 121.8(4)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following requirements:

1. If the guarantor has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the guarantor must have a current rating of

Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or

2. The guarantor must satisfy each of the following financial ratios based on the guarantor's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

(3) The guarantor must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

(4) A guarantor is not eligible to assure its obligations if:

1. The guarantor is currently in default on any outstanding general obligation bonds; or

2. The guarantor has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or

3. The guarantor operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or

4. The guarantor receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement. A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism; or

5. The closure costs to be assured are greater than 43 percent of the guarantor's total annual revenue.

(5) The local government guarantor must include disclosure of the closure costs assured through the guarantee in its next annual audit report prior to the initial application of waste at the land application site(s) or prior to cancellation of an alternative financial assurance instrument, whichever is later. For the first year the guarantee is used to assure costs at a particular land application site(s), the reference may instead be placed in the guarantor's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(6) The local government owner or operator must submit to the department the following items:

1. A copy of the written guarantee between the owner or operator and the local government serving as guarantor for the closure costs at the land application sites.

2. A copy of the guarantor's most recent annual financial audit report indicating compliance with the financial ratios required by numbered paragraph 121.8(4)*"f"*(2)"2," if applicable, and the requirements of subparagraphs 121.8(4)*"f"*(3) and (4).

3. A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by the guarantor, as described in subrule 121.8(3); and that provides evidence and certifies that the local government meets the conditions of subparagraphs 121.8(4)*"f"*(2), (3), (4) and (5).

121.8(5) *Financial assurance cancellation and permit suspension.*

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance prior to cancellation, as specified in this rule, or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider or until the department gives written notification to the owner, operator, and financial assurance provider that the covered site has been properly closed. The financial assurance provider shall give at least 90 days' notice in writing to the owner or operator and the department in the event of any intent to cancel the instrument.

c. Within 60 days of receipt of a written notice of cancellation of financial assurance by the financial assurance provider, the owner or operator must provide the department an alternative financial

assurance instrument. If a means of continued financial assurance is not provided within that 60 days, the department shall suspend the permit.

d. The owner or operator shall perform proper closure within 30 days of the permit suspension. For the purpose of this rule, "proper closure" means completion of all items pursuant to subrule 121.8(3).

e. If the owner or operator does not properly close the site within the 30-day period allowed, the department shall file a claim with the financial assurance instrument provider to collect the amount of funds necessary to properly close the site.

f. An owner or operator who elects to terminate a permitted activity, whose renewal application has been denied, or whose permit has been suspended or revoked for cause must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 60 days from the date of termination of the permit.

g. The director may also request payment from any financial assurance provider for the purpose of completing closure when the following circumstances exist:

(1) The owner or operator is more than 15 days late in providing a schedule for closure or for meeting any date in the schedule for closure.

(2) The owner or operator declares an economic inability to comply with this rule, either by sending written notification to the director or through an action such as, but not limited to, filing for bankruptcy.

These rules are intended to implement Iowa Code sections 455B.173 and 455B.304.

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CHAPTER 122
CATHODE RAY TUBE DEVICE RECYCLING

567—122.1(455B,455D) Purpose. These rules are intended to satisfy the requirements of Iowa Code sections 455D.6(7) and 455B.304(1). The purpose of this chapter is to implement rules for the recycling of discarded CRTs and the disassembly and removal of toxic parts from discarded CRTs in a manner that is safe for human health and the environment.

567—122.2(455B,455D) Applicability and compliance.

122.2(1) This chapter applies to facilities that perform CRT recycling functions, including but not limited to the collection, refurbishing, demanufacturing, and processing of discarded CRTs.

122.2(2) This chapter does not apply to facilities solely engaged in CRT reuse activities. This chapter does not apply to businesses solely engaged in CRT service and repair. This chapter does not apply to batteries, circuit boards, CRTs, mercury-containing components, or PCB capacitors removed during the maintenance or service of equipment containing such items.

122.2(3) These rules do not pertain to appliance demanufacturing. For rules pertaining to appliance demanufacturing, see 567—Chapter 118.

122.2(4) The issuance of a permit by the department in no way relieves the applicant of the responsibility of complying with all other local, state, or federal statutes, ordinances, and rules or other requirements applicable to the construction and operation of a CRT recycling facility.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.3(455B,455D) Definitions. In addition to the definitions set out in Iowa Code section 455B.301, which shall be considered to be incorporated by reference in these rules, the following definitions shall apply:

"Battery" means a device consisting of one or more electrically connected electrochemical cells, which is designed to receive, store, and deliver electric energy.

"Broken CRT" means a CRT that has had the glass broken or the vacuum released. "Broken CRT" does not include a CRT that is intact but not functional.

"Capacitor" means a device for accumulating and holding a charge of electricity that consists of conducting surfaces separated by a dielectric fluid. For the purposes of this chapter, "capacitor" does not include dry-cell capacitors.

"Cathode ray tube" and its abbreviation *"CRT"* mean a vacuum tube composed primarily of leaded glass and used to convert an electrical signal into a visual image.

"CFR" means Code of Federal Regulations.

"Circuit board" means a board in a computer or electronic good that holds integrated circuits and other electronic components.

"CRT collection" means any activity by a CRT recycling facility or CRT collection facility involving the collection of discarded CRTs.

"CRT collection facility" means a site where ongoing CRT collection is the only CRT recycling activity performed.

"CRT demanufacturing" means any activity involving the disassembly of discarded CRTs.

"CRT device" means any device that contains a CRT. Examples of a CRT device include, but are not limited to, computer monitors, televisions, some cash registers, and oscilloscopes.

"CRT fluff" means the residual waste from the shredding of discarded CRTs.

"CRT glass" means any glass generated from CRTs.

"CRT processing" means any activity that processes discarded CRTs into raw materials.

"CRT recycling" means any process by which discarded CRTs or electronic materials that would otherwise become waste are collected, processed and returned to use in the form of raw materials or products. CRT recycling includes, but is not limited to, CRT demanufacturing, CRT processing, and CRT refurbishing.

"CRT recycling facility" means a site where CRT recycling takes place.

"CRT refurbishing" means any activity that repairs and rebuilds discarded CRTs, so that they may be used for their original intended purpose.

"CRT reuse" means any activity involving the donation or sale of discarded CRTs for their original intended purpose provided that the CRT devices are in good working order and do not require refurbishment.

"CRT reuse facility" means a facility where CRT reuse occurs and the only CRTs accepted are those in good working order, and the CRTs are sold or donated without being refurbished.

"Discarded" means no longer to be used for the original intended purpose and means the letting go or throwing away of materials that have become useless or superfluous though often not intrinsically valueless. CRTs that are returned to the original owner are not "discarded."

"Discarded CRT" means a cathode ray tube or CRT device that has been discarded.

"DOT-approved container" means those containers approved by the U.S. Department of Transportation for shipping hazardous materials in the United States.

"Hazardous condition" means any situation involving the actual, imminent or probable release of a hazardous substance onto the land, into a water of the state, or into the atmosphere which, because of the quantity, strength or toxicity of the hazardous substance, its mobility in the environment and its persistence in the environment, creates an immediate or potential danger to the public health or safety, or to the environment.

"Mercury-containing components" means devices, other than batteries, containing a regulated amount of mercury.

"PCB" or *"PCBs"* means polychlorinated biphenyl, which is a chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees, or any combination of such substances.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.4(455B,455D) CRT recycling permits.

122.4(1) *Permit required.* A CRT recycling facility shall not be constructed or operated without a permit from the department.

122.4(2) *CRT recycling permit exemption.* If a CRT recycling facility is located at a permitted sanitary disposal project, it shall not require its own permit; instead, the CRT recycling activities shall be amended into the host facility's permit.

122.4(3) *Construction and operation.* CRT recycling facilities shall be constructed and operated according to the plans and specifications approved by the department and the conditions of the permit. The approved plans and specifications shall constitute a condition of the permit.

122.4(4) *Transfer of title and permit.* If title to a CRT recycling facility is transferred, then the department shall transfer the permit within 60 days if the department has found that the following requirements have been met:

a. The title transferee has applied in writing to the department to request a transfer of the permit within 30 days of the transfer of title.

b. The permitted facility is in compliance with Iowa Code chapters 455B and 455D, these rules and the conditions of the permit.

122.4(5) *Permit conditions.* Any permit may be issued subject to conditions specified in writing by the department that are necessary to ensure that the facility is constructed and operated in compliance with Iowa Code chapters 455B and 455D and these rules.

122.4(6) *Effect of revocation.* If a permit held by any public or private agency is revoked by the director, then no new permit shall be issued to that agency for that CRT recycling facility for a period of one year from the date of revocation. Such revocation shall not prohibit the issuance of a permit for the facility to another public or private agency.

122.4(7) *Inspection prior to commencing new operation.* The department shall be notified when the construction of a new facility has been completed. No discarded CRTs shall be accepted by the facility until it has been inspected and approved by the department or until 30 days have passed from the date of permit issuance and no inspection has been performed by the department.

122.4(8) *Duration and renewal of permits.* A permit shall be issued and may be renewed for a period of five years, unless otherwise authorized by the department.

122.4(9) *Request and approval of permit renewal.* A request for permit renewal shall be in writing and shall be filed at least 90 days before the expiration of the current permit by submitting Form 50 (542-1542) to the department. The department may request that additional information be submitted for review to make a permit renewal decision. The department shall renew the permit if, after a review and inspection of the facility and its compliance history, the department finds that the facility is in compliance with Iowa Code chapters 455B and 455D, these rules and the conditions of the permit, and is making a good-faith effort to maintain compliance. If the facility is found not to be in compliance with Iowa Code chapters 455B and 455D, these rules, and the conditions of the permit or if a good-faith effort to maintain compliance is not being made, the facility shall be brought into compliance or placed on a compliance schedule approved by the department before the permit is renewed.

122.4(10) *Request for permit modification.* A request for permit modification shall be submitted in writing to the department with supporting documentation and materials. The department may request that additional information be submitted for review to make a permit modification decision.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.5(455B,455D) Registration for CRT collection facilities. A CRT collection facility shall register with the department using Form 542-0060.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.6(455B,455D) CRT collection and storage requirements for registered collection points.

122.6(1) CRT storage at a registered collection site shall be limited to 48 Gaylord boxes or the equivalent containing no more than 2,000 CRTs.

122.6(2) A CRT shall not be stored at a registered collection point for more than one year.

122.6(3) All CRTs shall be stored in a building, shipping container, or enclosed vehicle that provides protection from the elements.

122.6(4) Access to the CRT storage area shall be secured during nonbusiness hours.

122.6(5) The CRT storage area shall be free of other solid waste, other than in designated storage areas, except for incidental amounts of solid waste that are not discarded CRTs.

122.6(6) Containers or packages shall be labeled and transported in compliance with state and federal Department of Transportation (DOT) rules.

122.6(7) Any container holding CRTs shall be clearly labeled with the contents of the container and the date the first CRT was placed in the container.

122.6(8) The CRT collection facility shall maintain the following records on site for a minimum of three years.

a. The total amount of CRTs received in a calendar year.

b. The total amount of CRTs shipped for recycling or reuse in a calendar year.

c. All shipping papers, manifests, and bills of lading for CRTs shipped from the facility.

122.6(9) The registrant must annually provide information to all employees who handle or have responsibility for managing discarded CRTs. The information shall describe proper handling, safety, and emergency procedures appropriate for discarded CRTs. A training log shall be maintained on site by the registrant and shall contain the following information:

a. A copy of the information provided to the employees;

b. The names of the employees who received the information; and

c. The date the training was provided to the employee.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.7(455B,455D) Record-keeping requirements for CRT collection facilities. All CRT collection facilities shall maintain the following records, on a calendar-year basis, for three years:

122.7(1) The name and address of the facility receiving a shipment that left the CRT collection facility, and contact information for that facility.

122.7(2) The type of service the receiving facility will provide to the CRT collection facility.

122.7(3) A description of the shipment contents.

122.7(4) All bills of lading.

122.7(5) All hazardous waste manifests.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.8(455B,455D) CRT recycling facility permit application requirements.

122.8(1) A CRT recycling facility permit applicant shall submit the following permit application information to the department:

a. The name, address, and telephone number of:

(1) The owner of the site where the project will be located.

(2) The permit applicant.

(3) The individual responsible for the operation of the project.

(4) The professional engineer (P.E.) licensed in the state of Iowa and retained for the design of the facility, if any.

(5) The agency to be served by the project, if any.

(6) The responsible official of the agency to be served, if any.

b. A legal description of the site, and any collection sites if separate from the main facility.

c. A map or aerial photograph locating the boundaries of the site and identifying:

(1) North and other principal compass points.

(2) Zoning and land use within 250 feet of the property boundary.

(3) Homes and buildings within 250 feet of the property boundary.

(4) Section lines or other legal boundaries.

(5) The 100-year flood plain pursuant to rule 567—122.9(455B,455D).

d. Proof of the applicant's ownership of the site or legal entitlement to use the site for CRT recycling.

e. Documentation that the facility meets local zoning requirements.

f. Days and hours of operation of the site.

g. The service area of the facility.

h. The type, source, and number or weight of discarded CRTs expected to be handled each year.

i. A description of the CRT recycling process to be used, such as collection, demanufacturing, processing, reuse, refurbishing, or a combination thereof.

j. Site plans detailing how the site will comply with rule 567—122.10(455B,455D), including floor plans of buildings where discarded CRTs will be handled and the location within each building for specific recycling activities.

k. A plan of operations detailing how the site will comply with rules 567—122.11(455B,455D) to 567—122.19(455B,455D).

l. An emergency response and remedial action plan (ERRAP) pursuant to rule 567—122.20(455B,455D).

m. A reporting plan detailing how the site will comply with rule 567—122.22(455B,455D).

n. A closure plan detailing how the site will comply with rule 567—122.24(455B,455D).

122.8(2) If the department finds the permit application information to be incomplete, it shall notify the applicant of that fact and of the specific deficiencies. If the deficiencies are not corrected within 30 days, the department shall return the application materials to the applicant. The applicant may reapply without prejudice.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.9(455B,455D) Site requirements for CRT recycling facilities. A CRT recycling facility shall not be located within a 100-year flood plain.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.10(455B,455D) Design requirements for CRT recycling facilities. A CRT recycling facility shall be designed and constructed to meet the following requirements:

122.10(1) CRT recycling facilities shall be enclosed by walls, a roof, and a floor satisfactory to:

a. Prevent litter from exiting the building.

b. Keep precipitation out of the building.

122.10(2) A CRT recycling facility shall maintain a separation between stormwater and liquids generated inside the building.

122.10(3) Discarded CRTs shall be demanufactured and processed in an area where hazardous materials can be contained.

122.10(4) A sign shall be posted at the primary entrance to the facility. The sign shall be a minimum of 8½ × 11 inches and visible from the outside of the building at approximately eye level. The lettering shall be a minimum of 1-inch high and state the following information:

a. Name and permit number of facility.

b. Telephone number of emergency contact person(s).

122.10(5) A CRT recycling facility may store discarded CRTs and materials derived from discarded CRTs outdoors if the following conditions are met:

a. The facility has a stormwater permit, if applicable.

b. The material is not harboring or attracting vectors.

c. Litter is contained within the storage area or unit.

d. The discarded CRTs and materials derived from discarded CRTs are not broken CRTs or CRT glass.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.11(455B,455D) Operational requirements for permitted CRT recycling facilities.

122.11(1) *Collection requirements for CRTs.* All discarded CRTs coming into the CRT recycling facility shall be collected in a manner that complies with the following requirements:

a. Collection activities for discarded CRTs shall occur in an area and through a process that minimizes the risk of hazardous conditions.

b. Discarded CRTs shall be collected and contained in a manner that is structurally adequate to prevent breakage and spillage under normal operating conditions, and that is compatible with the contents.

c. CRT glass and CRTs that show evidence of breakage, leakage, or damage that could cause the release of lead or other hazardous constituents into the environment shall be collected in enclosed and separate containers from other discarded CRTs.

122.11(2) *Transportation requirements for CRTs.* All discarded CRTs leaving the CRT recycling facility shall be transported in a manner that complies with the following requirements:

a. Discarded CRTs shall be transported in a contained manner that is structurally adequate to prevent breakage and spillage under normal operating conditions, and that is compatible with the contents.

b. Containers or packages shall be labeled. Labeling shall specify the contents (e.g., CRTs, nonintact CRTs), point of origin, destination, and shipment date.

c. CRT glass and CRTs that show evidence of breakage, leakage, or damage that could cause the release of lead or other hazardous constituents into the environment shall be transported in enclosed and separate containers from other discarded CRTs.

d. Discarded CRTs shall be transported in compliance with state and federal Department of Transportation (DOT) regulations.

122.11(3) *General operating requirements.* All CRT recycling facilities shall comply with the following requirements:

a. CRT refurbishing, CRT demanufacturing, and CRT processing shall be done in a specifically designated location within a facility.

b. Working conditions shall be in compliance with state and federal worker safety requirements.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.12(455B,455D) Further requirements for batteries for CRT recycling facilities.

122.12(1) CRT recycling facilities shall manage waste batteries derived from discarded CRTs in a manner that prevents release of any hazardous material into the environment.

122.12(2) Any battery that shows evidence of leakage, spillage, or damage that could cause a release of hazardous material into the environment must be contained in a container that is compatible with the contents of the battery.

122.12(3) All batteries must be managed in accordance with all state and federal regulations.
[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.13(455B,455D) Further requirements for circuit boards for CRT recycling facilities. Spent circuit boards are regulated as scrap metal when recycled and stored in containers sufficient to prevent a release into the environment and the circuit board contains only minor battery or mercury switching components. If minor batteries and mercury switching components are removed, the minor batteries or mercury switching components may be universal waste under 40 CFR Part 273 or a hazardous waste under 40 CFR Parts 261, 262, and 263.
[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.14(455B,455D) Further requirements for CRTs for CRT recycling facilities.

122.14(1) CRT recycling facilities shall manage CRT materials in a manner that prevents the release of any hazardous material or component into the environment as follows:

a. A CRT recycling facility shall immediately clean up and contain any CRTs, CRT devices, and CRT glass that are unintentionally broken.

b. A CRT recycling facility may disassemble or crush CRTs provided the handler crushes CRTs in a controlled manner.

122.14(2) All CRTs, CRT devices, and CRT glass must be managed in accordance with all state and federal regulations.
[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.15(455B,455D) Further requirements for removal and disposal of mercury-containing components for CRT recycling facilities.

122.15(1) CRT demanufacturers and CRT processors that manage mercury-containing components may be considered hazardous waste generators. Precautions shall be taken to prevent the release of mercury.

122.15(2) All removed mercury-containing components shall be stored in a DOT-approved container and labeled with a label stating "hazardous waste–mercury" or "mercury components" in both English and the predominant language of any non-English-reading workers. Furthermore, the date when the first mercury-containing component was placed in the container shall be affixed on the container.

122.15(3) All mercury containers shall be sealed prior to shipment.

122.15(4) All mercury-containing components shall be managed at an EPA-approved mercury recycling or recovery facility.

122.15(5) Mercury-containing components must be managed in accordance with all state and federal regulations.
[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.16(455B,455D) Further requirements for removal and disposal of PCB capacitors for CRT recycling facilities.

122.16(1) CRT demanufacturers and CRT processors shall remove all capacitors not marked as non-PCB unless the manufacturer certifies in writing that no PCBs were used in the manufacture of the discarded CRT or capacitor.

122.16(2) All capacitors are assumed to contain PCBs unless proven otherwise by an approved laboratory, unless the words "No PCBs" have been imprinted on the body of the capacitor by the manufacturer, or unless the manufacturer certifies in writing that no PCBs were used in the manufacture of the discarded CRT or capacitor.

122.16(3) Capacitors that are proven not to contain PCBs may be recycled or disposed of as nonhazardous waste.

122.16(4) PCB capacitors shall be stored and transported in compliance with the Toxic Substances Control Act (TSCA; 40 CFR Part 761) and disposed of at a TSCA-permitted disposal facility. Facilities used for the storage of PCB items designated for disposal shall comply with the following requirements:

a. PCB items shall be stored in a manner that provides adequate protection from the elements and adequate secondary containment. Storage shall be over an impervious material.

b. All capacitors containing or suspected of containing PCBs shall be placed in a DOT-approved container that shows no signs of damage. The bottom of the container shall be filled to a depth of two inches with an absorbent material (e.g., oil-dry, kitty litter).

c. All DOT-approved containers shall be affixed with an EPA-approved 6-inch × 6-inch yellow label stating "PCBs" in both English and the predominant language of any non-English-reading workers (Reference: 40 CFR Part 761.45). Furthermore, the date when the first capacitor was placed in the container shall be affixed on the container.

d. All containers must be sealed prior to shipment.

e. Capacitors shall be be stored for no more than 270 days.

122.16(5) An EPA-approved PCB transporter using an EPA Uniform Hazardous Waste form may be required to transport the labeled and dated container. The demanufacturer has one year from the first date entered on the container to have the contents buried at a TSCA landfill or incinerated at a TSCA disposal facility (Reference: 40 CFR Part 761.65). The burial or incineration must be documented and the records kept by the demanufacturer for three years from the date the PCB waste was accepted by the initial transporter.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.17(455B,455D) Spills and releases at CRT recycling facilities.

122.17(1) Any spills from leaking or cracked capacitors shall be handled by placing the capacitor or component containing the capacitor and any contaminated rags, clothing, absorbents, and soil into a DOT-approved container for PCBs for shipment to an EPA-approved PCB waste disposal facility. Spills of PCBs that occur outside a DOT-approved container shall be cleaned up pursuant to 40 CFR Part 761.125. Detailed records of such cleanups and sampling shall be maintained pursuant to 40 CFR Part 761.180.

122.17(2) Mercury spill kits, with a mercury absorbent in the kits, shall be readily available and immediately utilized in the event of a mercury spill. Any waste from the cleanup of a mercury spill shall be managed in accordance with state and federal rules.

122.17(3) Any hazardous condition shall be immediately contained and remedied with proper equipment and procedures pursuant to 567—Chapter 131 and the emergency response and remedial action plan (ERRAP) pursuant to rule 567—122.20(455B,455D). Within six hours of the release, the department field office with jurisdiction over the spill or release location shall be notified.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.18(455B,455D) CRT recycling facilities that shred CRTs. CRT fluff from the shredding of discarded CRTs shall be sampled quarterly, at a minimum, and analyzed according to Test Methods for Evaluation of Solid Waste, Physical-Chemical Methods SW 846, U.S. EPA, Third Edition 1986, or other method approved by the department, for the presence of PCBs. CRT fluff from the shredding of discarded CRTs shall be sampled quarterly at a minimum and analyzed for metals according to the toxicity characteristic leaching procedure (TCLP, EPA Method 1311). The fluff shall be sampled once per day for seven consecutive working days to make a composite sample. If the total PCB amount is less than 50 parts per million (ppm) and if the TCLP results demonstrate the CRT fluff is not hazardous, then the CRT fluff may be disposed of in a municipal solid waste (MSW) sanitary landfill in Iowa.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.19(455B,455D) Storage requirements for CRT recycling facilities. All CRT recycling facilities shall store discarded CRTs in compliance with the following requirements:

122.19(1) Discarded CRTs and materials derived from discarded CRTs shall be stored in a manner that minimizes the risk of a release into the environment.

122.19(2) Discarded CRTs and materials derived from discarded CRTs shall not be speculatively accumulated at a permitted CRT recycling facility without the permit holder obtaining and maintaining financial assurance for the additional CRTs in accordance with rule 567—122.25(455B,455D). Speculative accumulation occurs when a facility cannot demonstrate that the amount of discarded CRTs and materials derived from discarded CRTs leaving the facility within a 12-month time period is greater than 75 percent, by weight or volume, of the discarded CRTs and materials derived from discarded CRTs received by the facility within a 12-month time period.
[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.20(455B,455D) ERRAP requirements for CRT recycling facilities. A CRT recycling facility shall develop, submit to the department for approval, and maintain on site a detailed emergency response and remedial action plan (ERRAP).

122.20(1) *Submittal requirements.* An updated ERRAP shall be included with any request for permit modification, to incorporate a facility expansion, or for significant changes in facility operation that require modification of the currently approved ERRAP.

122.20(2) *Content.* The content of ERRAP documents shall be concise and readily usable as a reference manual by facility managers and operators during emergency conditions. The ERRAP document content shall address at least the following primary issues in detail, unless project conditions render the specific issue as not applicable. To facilitate department review, the rationale for exclusion of any issues that are not determined to be applicable must be provided either in the body of the plan or as a supplement. Additional ERRAP requirements unique to the facility shall be addressed, as applicable.

a. *Facility information.*
(1) Permitted agency.
(2) DNR permit number.
(3) Responsible individual and contact information.
(4) Facility description.
(5) Site and environs map.
b. *Regulatory requirements—reference to provisions of the permit.*
c. *Emergency conditions—response activities—remedial action.*
(1) Failure of utilities.
1. Short-term (48 hours or less).
2. Long-term (over 48 hours).
(2) Weather-related event.
1. Tornado.
2. Windstorms.
3. Intense rainstorms.
4. Lightning strikes.
5. Flooding.
(3) Fire and explosions.
1. Discarded CRT materials.
2. Building and site.
3. Equipment.
4. Utilities.
5. Working area.
6. Evacuation.
(4) Regulated waste and hazardous material spills and releases.
1. Collection.
2. Transport.
3. Working area.
4. Storage.
(5) Emergency and release notifications and reporting.
1. Federal agencies.

2. State agencies.
3. County and city agencies.
4. Emergency response agencies.
5. Special populations within 2 miles.
6. Reporting requirements and forms.

(6) Emergency aid.

1. Responder contacts.
2. Medical services.
3. Contracts and agreements.

(7) Primary emergency equipment inventory.

1. Major equipment.
2. Fire hydrants and water sources.
3. Off-site equipment resources.

(8) ERRAP training requirements.

1. Training providers.
2. Employee orientation.
3. Annual training updates.
4. Training completion and record keeping.

(9) Reference tables, figures and maps.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.21(455B,455D) Training requirements for CRT recycling facilities.

122.21(1) *General training.* All employees of a CRT recycling facility involved in activities relevant to CRT recycling shall be trained in the following requirements and procedures as appropriate to the employees' specific job responsibilities:

a. The requirements of this chapter.

b. Standard operating procedures utilized by the CRT recycling facility, including:

(1) The proper method of loading and unloading discarded CRTs and materials derived from discarded CRTs.

(2) The proper collection, storage, and transportation requirements for discarded CRTs and materials derived from discarded CRTs.

(3) The proper disposal of discarded CRTs and materials derived from discarded CRTs.

(4) The proper management of batteries.

(5) The proper management of CRTs.

(6) The proper management of circuit boards.

(7) The proper management of mercury-containing components.

(8) The proper management of PCBs.

(9) Spill and release response procedures.

(10) Worker health and safety.

(11) Use of the department-approved ERRAP.

122.21(2) *DNR-approved training course.* Rescinded IAB 4/7/10, effective 7/1/10.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.22(455B,455D) Reporting requirements for CRT recycling facilities. A CRT recycling facility shall maintain a record of the number or weight of CRT devices received each calendar year and report this information to the department within 30 days of the end of that calendar year.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.23(455B,455D) Record-keeping requirements for CRT recycling facilities. All CRT recycling facilities shall maintain the following records, on a calendar-year basis, for three years:

122.23(1) The total aggregate weight and receipt date of each shipment of discarded CRTs received from businesses, institutions, CRT collection facilities, short-term CRT collection events, and other permitted CRT recycling facilities.

122.23(2) The name, address and contact information for shipments reported in subrule 122.23(1).

122.23(3) The total aggregate weight and date of each shipment leaving the CRT recycling facility.

122.23(4) The name and address of the facility receiving a shipment that left the CRT recycling facility, contact information for the receiving facility and a description of the shipment contents including all applicable bills of lading.

122.23(5) The type of service the receiving facility will provide to the CRT recycling facility.

122.23(6) All hazardous waste manifests.

122.23(7) Information related to the management of spills and releases pursuant to rule 567—122.17(455B,455D).

122.23(8) Information related to the management of CRT fluff pursuant to rule 567—122.18(455B,455D).

122.23(9) Information related to training requirements pursuant to subrule 122.21(1).

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.24(455B,455D) Closure requirements for CRT recycling facilities. A CRT recycling facility shall submit to the department and department field office with jurisdiction over the facility written notice of intent to permanently close at least 60 days before closure. Closure shall be in conformance with the closure plan pursuant to paragraph 122.11(1)*"n."* Closure shall not be official until the department field office with jurisdiction over the facility has given written certification of the proper disposal of all solid waste, discarded CRTs, and materials derived from discarded CRTs at the site.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

567—122.25(455B,455D) Financial assurance requirements for cathode ray tube (CRT) recycling facilities. Permitted CRT recycling facilities must obtain and submit a financial assurance instrument to the department for the storage of solid waste, discarded CRTs and materials derived from discarded CRTs at the site in accordance with this rule. The financial assurance instrument shall provide monetary funds to properly dispose of solid waste, discarded CRTs and materials derived from discarded CRTs that may remain at a site due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

122.25(1) No permit without financial assurance. The department shall not issue or renew a permit to an owner or operator of a CRT recycling facility until a financial assurance instrument has been submitted to and approved by the department.

122.25(2) Proof of compliance. Proof of the establishment of the financial assurance instrument and compliance with this rule, including a current closure cost estimate, shall be submitted to the department at the time of application for a permit for a new CRT recycling facility. The owner or operator must provide continuous coverage for closure and submit proof of compliance, including an updated closure cost estimate, with each permit renewal thereafter until released from this requirement by the department.

122.25(3) Use of one financial assurance instrument for multiple permitted activities. CRT recycling facilities required to maintain financial assurance pursuant to any other provisions of 567—Chapters 100 to 123 may satisfy the requirements of this rule by the use of one financial assurance instrument if the permit holder ensures that the instrument provides financial assurance for an amount at least equal to the current cost estimates for closure of all sanitary disposal project activities covered.

122.25(4) CRT recycling facilities shall have financial assurance coverage equal to one dollar per pound of CRTs determined to be speculatively accumulated in accordance with subrule 122.19(2).

122.25(5) Acceptable financial assurance instruments. The financial assurance instrument shall be established in an amount equal to the cost estimate prepared in accordance with subrule 122.25(4)and shall not be canceled, revoked, disbursed, released, or allowed to terminate without the approval of the department. Financial assurance may be provided by cash in the form of a secured trust fund or local government dedicated fund, surety bond, letter of credit, or corporate or local government guarantee as follows:

a. Secured trust fund. The owner or operator of a CRT recycling facility or an entity serving as a guarantor may demonstrate financial assurance for closure by establishing a secured trust fund that conforms to the requirements of this paragraph.

(1) The trustee must be an entity which has the authority to act as a trustee and whose trust operations are regulated and examined by a federal or state agency. The fund shall be restricted for the sole purpose of funding closure activities at the facility, and a copy of the trust agreement must be submitted to the department and placed in the facility's official files.

(2) A secured trust fund shall name the department of natural resources as the entity authorized to draw funds from the trust, subject to proper notification to the trust officer of failure by the permittee to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) Moneys in the fund shall not be assigned for the benefit of creditors with the exception of the state.

(4) Moneys in the fund shall not be used to pay any final judgment against a permit holder arising out of the ownership or operation of the site during its active life or after closure.

(5) The owner or operator or another person authorized to conduct closure activities may request reimbursement from the trustee for closure expenditures as they are incurred. Requests for reimbursement shall be granted by the trustee only if sufficient funds are remaining in the trust fund to cover the remaining costs of closure and if documentation of the justification for reimbursement has been submitted to the department for prior approval.

(6) If the balance of the trust fund exceeds the current cost estimate for closure at any time, the owner or operator may request withdrawal of the excess funds from the trustee so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

b. Local government dedicated fund. The owner or operator of a publicly owned CRT recycling facility or a local government serving as a guarantor may demonstrate financial assurance for closure by establishing a dedicated fund that conforms to the requirements of this paragraph.

(1) The fund shall be dedicated by state constitutional provision or local government statute, charter, ordinance, resolution or order as a restricted fund to pay for closure costs arising from the operation of the facility.

(2) A copy of the document establishing the dedicated fund must be submitted to the department and placed in the facility's official files.

(3) If the balance of the dedicated fund exceeds the current cost estimate for closure at any time, the owner or operator may withdraw excess funds so long as the withdrawal does not cause the balance to be reduced below the amount of the current cost estimate.

c. Surety bond. A surety bond must be written by a company authorized by the commissioner of insurance to do business in the state. The surety bond shall comply with the following:

(1) The bond shall be in a form approved by the commissioner of insurance and shall be payable to the department of natural resources.

(2) The bond shall be specific to a particular facility for the purpose of properly disposing of any solid waste, discarded CRTs, and materials derived from discarded CRTs associated with the collection and recycling of CRTs that may remain on site due to the owner's or operator's failure to properly close the site within 30 days of permit suspension, termination, revocation, or expiration.

(3) The owner or operator shall provide the department with a statement from the surety with each permit application renewal, noting that the bond is paid and current for the permit period for which the owner or operator has applied for renewal.

d. Letter of credit. The issuing institution must be an entity which has the authority to issue letters of credit and whose letter-of-credit operations are regulated and examined by a federal or state agency.

(1) The owner or operator must submit to the department a copy of the letter of credit and place a copy in the facility's official files.

(2) A letter from the owner or operator referring to the letter of credit by number, issuing institution, and date, and providing the name and address of the facility and the amount of funds assured, must be included with the letter of credit submitted to the department and placed in the facility's files.

(3) The letter of credit must be irrevocable and must be issued for a period of at least one year. The letter of credit must provide that the expiration date will be automatically extended for a period of at least one year unless the issuing institution has canceled the letter of credit by sending notice of cancellation by certified mail to the owner or operator and to the department 90 days in advance of cancellation. When such notice is provided, the owner or operator shall, within 60 days, provide to the department adequate proof of alternative financial assurance, notice of withdrawal of cancellation, or proof of a deposit of a sum equal to the amount of the letter of credit into a secured trust fund that meets the requirements of paragraph 122.25(5)*"a."* If the owner or operator has not complied with this subrule within the 60-day time period, the issuer of the letter of credit shall deposit a sum equal to the amount of the letter of credit into the secured trust fund established by the owner or operator. The provision of funds by the issuer of the letter of credit shall be considered an issuance of a loan to the owner or operator, and the terms of that loan shall be governed by the letter of credit or subsequent agreement between those parties.

e. Corporate guarantee. An owner or operator may meet the requirements of this rule by obtaining a written guarantee. The guarantor must be the direct or higher-tier parent corporation of the owner or operator, an owner or operator whose parent corporation is also the parent corporation of the owner or operator, or an owner or operator with a "substantial business relationship" with the owner or operator.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 122.25(5)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following three conditions:

1. A current rating for its senior unsubordinated debt of AAA, AA, A, or BBB as issued by Standard & Poor's or Aaa, Aa, A, or Baa as issued by Moody's; or

2. A ratio of less than 1.5 comparing total liabilities to net worth; or

3. A ratio of greater than 0.10 comparing the sum of net income plus depreciation, depletion and amortization, minus $10 million, to total liabilities.

(3) The tangible net worth of the guarantor must be greater than the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(4) The guarantor must have assets amounting to at least the sum of the current closure cost estimate and any other environmental obligations, including other financial assurance guarantees.

(5) Record-keeping and reporting requirements. The guarantor must submit the following records to the department and place a copy in the facility's official files:

1. A copy of the written guarantee between the owner or operator and the guarantor.

2. A letter signed by a certified public accountant and based upon a certified audit that:

- Lists all the current cost estimates covered by a guarantee including, but not limited to, cost estimates required by subrule 122.25(4); cost estimates required for municipal solid waste management facilities pursuant to 40 CFR Part 258; cost estimates required for UIC facilities under 40 CFR Part 144, if applicable; cost estimates required for petroleum underground storage tank facilities under 40 CFR Part 280, if applicable; cost estimates required for PCB storage facilities under 40 CFR Part 761, if applicable; and cost estimates required for hazardous waste treatment, storage, and disposal facilities under 40 CFR Parts 264 and 265, if applicable; and
- Provides evidence demonstrating that the guarantor meets the conditions of subparagraphs 122.25(5)*"e"*(2), (3) and (4).

3. A copy of the independent certified public accountant's unqualified opinion of the guarantor's financial statements for the latest completed fiscal year. In order for the guarantor to be eligible to use the guarantee, the guarantor's financial statements must receive an unqualified opinion from the independent certified public accountant. An adverse opinion or disclaimer of opinion shall be cause for disallowance of this instrument. A qualified opinion related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance. If the department does not allow use of the

corporate guarantee, the owner or operator must provide alternative financial assurance that meets the requirements of this rule.

f. *Local government guarantee.* An owner or operator may demonstrate financial assurance for closure by obtaining a written guarantee provided by a local government or jointly provided by the members of an agency established pursuant to Iowa Code chapter 28E.

(1) The terms of the written guarantee must provide that within 30 days of the owner's or operator's failure to perform closure of a facility covered by the guarantee, the guarantor will:

1. Perform closure or pay a third party to perform closure as required (performance guarantee);

2. Establish a fully funded secured trust fund as specified in paragraph 122.25(5)*"a"* in the name of the owner or operator (payment guarantee); or

3. Establish an alternative financial assurance instrument in the name of the owner or operator as required by this rule.

(2) The guarantor must satisfy one of the following requirements:

1. If the guarantor has outstanding, rated, general obligation bonds that are not secured by insurance, a letter of credit, or other collateral or guarantee, the guarantor must have a current rating of Aaa, Aa, A, or Baa, as issued by Moody's, or AAA, AA, A, or BBB, as issued by Standard & Poor's, on all such general obligation bonds; or

2. The guarantor must satisfy each of the following financial ratios based on the guarantor's most recent audited annual financial statement: a ratio of cash plus marketable securities to total expenditures greater than or equal to 0.05, and a ratio of annual debt service to total expenditures less than or equal to 0.20.

(3) The guarantor must prepare its financial statements in conformity with generally accepted accounting principles or other comprehensive basis of accounting and have its financial statements audited by an independent certified public accountant or the office of the auditor of the state of Iowa. The financial statement shall be in the form prescribed by the office of the auditor of the state of Iowa.

(4) A guarantor is not eligible to assure its obligations if:

1. The guarantor is currently in default on any outstanding general obligation bonds; or

2. The guarantor has any outstanding general obligation bonds rated lower than Baa as issued by Moody's or BBB as issued by Standard & Poor's; or

3. The guarantor operated at a deficit equal to 5 percent or more of total annual revenue in each of the past two fiscal years; or

4. The guarantor receives an adverse opinion or disclaimer of opinion from the independent certified public accountant or office of the auditor of the state of Iowa auditing its financial statement. A qualified opinion that is related to the demonstration of financial assurance may, at the discretion of the department, be cause for disallowance of this mechanism; or

5. The closure costs to be assured are greater than 43 percent of the guarantor's total annual revenue.

(5) The local government guarantor must include disclosure of the closure costs assured through the guarantee in its next annual audit report prior to the initial receipt of CRTs at the facility or prior to cancellation of an alternative financial assurance instrument, whichever is later. For the first year the guarantee is used to assure costs at a particular facility, the reference may instead be placed in the guarantor's official files until issuance of the next available annual audit report if timing does not permit the reference to be incorporated into the most recently issued annual audit report or budget. For closure costs, conformance with Governmental Accounting Standards Board Statement 18 ensures compliance with this public notice component.

(6) The local government owner or operator must submit to the department the following items:

1. A copy of the written guarantee between the owner or operator and the local government serving as guarantor for the closure costs at the facility.

2. A copy of the guarantor's most recent annual financial audit report indicating compliance with the financial ratios required by numbered paragraph 122.25(5)*"f"*(2)"2," if applicable, and the requirements of subparagraphs 122.25(5)*"f"*(3) and (4).

3. A letter signed by the local government's chief financial officer that lists all the current cost estimates covered by the guarantor, as described in subrule 122.25(4); and that provides evidence and certifies that the local government meets the conditions of subparagraphs 122.25(5)*"f"*(2), (3), (4) and (5).

122.25(6) Financial assurance cancellation and permit suspension.

a. A financial assurance instrument may be terminated by the owner or operator only if the owner or operator substitutes alternate financial assurance prior to cancellation, as specified in this rule, or if the owner or operator is no longer required to demonstrate financial responsibility in accordance with this rule.

b. A financial assurance instrument shall be continuous in nature until canceled by the financial assurance provider or until the department gives written notification to the owner, operator, and financial assurance provider that the covered site has been properly closed. The financial assurance provider shall give at least 90 days' notice in writing to the owner or operator and the department in the event of any intent to cancel the instrument.

c. Within 60 days of receipt of a written notice of cancellation of financial assurance by the financial assurance provider, the owner or operator must provide the department an alternative financial assurance instrument. If a means of continued financial assurance is not provided within that 60 days, the department shall suspend the permit.

d. The owner or operator shall perform proper closure within 30 days of the permit suspension. For the purpose of this rule, "proper closure" means completion of all items pursuant to rule 567—122.24(455B,455D) and subrule 122.25(4).

e. If the owner or operator does not properly close the site within the 30-day period allowed, the department shall file a claim with the financial assurance instrument provider to collect the amount of funds necessary to properly close the site.

f. An owner or operator who elects to terminate a permitted activity, whose renewal application has been denied, or whose permit has been suspended or revoked for cause must submit within 30 days of the termination of the permit a schedule for completing proper closure of the terminated activity. Closure completion cannot exceed 60 days from the date of termination of the permit.

g. The director may also request payment from any financial assurance provider for the purpose of completing closure when the following circumstances exist:

(1) The owner or operator is more than 15 days late in providing a schedule for closure or for meeting any date in the schedule for closure.

(2) The owner or operator declares an economic inability to comply with this rule, either by sending written notification to the director or through an action such as, but not limited to, filing for bankruptcy.

[**ARC 8679B**, IAB 4/7/10, effective 7/1/10]

These rules are intended to implement Iowa Code sections 455D.6(7) and 455B.304(1).

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CHAPTER 123
REGIONAL COLLECTION CENTERS AND SATELLITE FACILITIES

567—123.1(455F) Purpose. The purpose of this chapter is to implement operating license requirements for regional collection centers and satellite facilities which provide for the collection and proper disposal of household hazardous materials (HHMs) and hazardous waste from very small quantity generators (VSQGs).
[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—123.2(455B,455D,455F) Definitions. For the purposes of this chapter, these terms shall have the following meanings:

"Department" means the Iowa department of natural resources.

"Hazardous waste" or *"HW"* means the same as defined in Iowa Code section 455B.411.

"Hazardous waste contractor" means a private company that provides proper management (e.g., disposal, recycling) of hazardous waste. "Hazardous waste contractor" does not include regional collection centers.

"Household hazardous material" or *"HHM"* means the same as defined in Iowa Code section 455F.1.

"Household hazardous waste" or *"HHW"* means an HHM as defined in Iowa Code section 455F.1 which has served its intended use and is designated for disposal.

"RCC mobile unit" or *"mobile unit"* means a truck or trailer owned and operated under the direction of a regional collection center that can be moved to different sites within a region. A mobile unit is used to perform collection events and to transport collected materials to an RCC for sorting and consolidation.

"Regional collection center" or *"RCC"* means the same as defined in Iowa Code section 455F.1.

"Satellite facility" means the same as defined in Iowa Code section 455F.1.

"Very small quantity generator" or *"VSQG"* means a generator that generates less than or equal to the following amounts in a calendar month:

1. 100 kilograms (220 lbs) of non-acute hazardous waste;
2. 1 kilogram (2.2 lbs) of acute hazardous waste listed in 40 CFR 261.31 or 40 CFR 261.33(e);
3. 100 kilograms (220 lbs) of any residue or contaminated soil, water, or other debris resulting from the cleanup of a spill, into or on any land or water, of any acute hazardous waste listed in 40 CFR 261.31 or 40 CFR 261.33(e).

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—123.3(455F) Regional collection center license and license renewal. A license or license renewal will be issued under the following conditions:

123.3(1) *License.*

a. An RCC shall not operate without a license issued by the department. RCCs in existence prior to January 14, 2019, will automatically be issued an operating license.

b. A satellite facility shall not be required to obtain a license.

123.3(2) *Compliance.* An RCC and satellite facility must be in compliance with current local, state and federal statutes and regulations regarding the management, storage, transportation and disposition of HHM, HHW and HW from VSQGs.

123.3(3) *Construction.* An RCC shall not be constructed without review of the site plan and written approval of the site plan by the department. The approved plans and specifications shall constitute a condition of the initial operating license.

123.3(4) *Inspection prior to commencing initial operation.* The department shall be notified before an RCC or satellite facility begins operations. No HHM or HW from VSQGs shall be accepted by the RCC or satellite facility until the facility has been inspected and approved by the department.

123.3(5) *Duration and renewal of license.* The initial license issued may be renewed for a period of five years. If the license applicant is a private agency under contract with a local government, the license shall not extend past the end date of the contract. An entity designated as an environmental management system pursuant to Iowa Code section 455J.7 may opt out of the license renewal requirement provided

the entity is in compliance with 123.3(2) and there has been no change in the provisions of the current license. Any change in the provisions of the current license requires department notification as described in 123.3(7).

123.3(6) *Request and approval of initial license or license renewal.* A new RCC shall file a request for a license on a form provided by the department. An established RCC shall file a request for license renewal 45 calendar days prior to the expiration of the current license, via hard-copy request or electronically, on a form provided by the department. A renewal shall be issued within 30 business days if the facility is in compliance with Iowa Code chapters 455B, 455D and 455F and the conditions of the current license.

123.3(7) *License modification.* An RCC shall request to modify its license by notifying the department of changes to any provision of its license via hard-copy or electronic correspondence. An RCC shall notify the department within 30 calendar days of a planned change to the provisions of its license and within 7 calendar days of an unplanned change to the provisions of its license. Upon approval of a request to modify an RCC license, the department will issue a license modification within 14 business days of approving the license modification request.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—123.4(455F) Site, structure, storage, and staff qualifications. RCCs, satellite facilities and mobile units shall each meet the following criteria.

123.4(1) *Siting.* A site selected for an RCC, satellite facility or mobile unit shall meet the following criteria:

a. An RCC, satellite facility or mobile unit used for the collection of VSQG waste and HHMs shall be sited on public property or on private property if an agreement exists that guarantees public access. Documentation of the private property agreement for RCCs and satellite facilities shall be provided to the department upon request or upon application and renewal for license.

b. The site shall provide adequate secondary containment in case of a spill or other possible on-site contamination.

c. The site shall meet all applicable zoning requirements.

d. The site shall be adequately sized to accommodate all structures, units and activities that will take place on the site.

e. RCCs and satellite facilities shall each have adequate security to prevent unauthorized access. Adequate security may include, but is not limited to, a fence and locking gate.

f. All mobile units and the containers used to package collected materials shall comply with applicable Iowa department of transportation rules and guidelines. At each mobile unit site, the mobile unit shall rest on a pad of a chemical-resistant, impervious, smooth material that provides secondary containment in case of a spill. A temporary surface created by securing an impervious tarp to the unloading/receiving area will meet the requirements of an impervious surface. A plan for conducting mobile unit collection events must consider the possibility of inclement weather. The plan must ensure that collected HHM and VSQG hazardous waste have protection from the elements and must minimize the risk of environmental contamination.

123.4(2) *Structures.* RCC or satellite facility structures shall each meet the following criteria:

a. All structures shall be sized to adequately accommodate the collection, sorting, bulking and lab packing, packaging for disposal, and temporary storage of HHM and HW from VSQGs.

b. All permanent structures shall meet the requirements of applicable fire codes and building codes.

c. RCC structures and satellite facility structures shall each be designed to prevent run-on entering from adjacent areas.

d. All receiving areas shall have a storage capacity of at least one day's processing capacity.

e. All receiving, sorting, bulking, transfer and storage area surfaces shall be constructed of a chemical-resistant, impervious, smooth material so designed to be easily cleaned, nonreactive with the waste, and with proper drainage, in the form of sloped flooring, plastic-lined pits or concrete sumps, according to applicable codes. Areas used for the receiving, bulking, transferring, lab packing and storing

of HHM, HHW and VSQG hazardous waste shall be provided with secondary containment and shall be protected from exposure to the weather.

123.4(3) *Storage.* All full containers of HHW and hazardous wastes from VSQGs must be stored in a building designed in accordance with Group H occupancy requirements and local, state and federal fire codes. It is required that HW or HHW accumulated for disposal not be accumulated on site for more than 180 days. Once the capacity limit of a collection site or time limit is reached, all waste collected shall be collected by a licensed hazardous waste contractor.

123.4(4) *Staff qualifications.* Prior to handling any HHM or HW, RCC and satellite facility staff shall each have received applicable training conducted by trainers who meet Occupational Safety and Health Administration (OSHA) instructor qualification standards. Training shall include but is not limited to the following:

a. OSHA 24-hour health and safety training as described in 29 CFR 1910.120.

b. Annual 8-hour refresher training as described in 29 CFR 1910.120.

c. Hazardous materials chemistry.

d. Personnel and site safety.

e. Proper lab packing techniques.

f. Proper transporting of hazardous materials.

g. When applicable, U.S. Department of Transportation hazardous materials training for the operation of a mobile unit used in the collection and transportation of HHM and HW from VSQGs.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—123.5(455F) Operations plans and procedures.

123.5(1) RCCs and satellite facilities must each prepare and maintain on site a current plan of operations.

123.5(2) Operations plan. The operations plan shall include, at a minimum, the following information:

a. Schedule of operations, including hours of operation for RCCs or satellite facilities.

b. Site selection procedures for mobile unit collections.

c. Standard receiving procedures for HHM and VSQG HW.

d. Procedures for managing unknown materials.

e. Procedures for handling open or leaking containers.

f. Procedures for managing large quantities of wastes.

g. Recycling and reuse procedures for usable materials.

h. Disposal of nonhazardous waste.

i. Personal protection equipment (PPE).

j. Initial training requirements and continuing education of staff.

k. An emergency response plan, such as the facility's response to spills, fires or weather-related events.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—123.6(455F) Closure notification. RCCs and satellite facilities shall each notify the department via hard-copy or electronic correspondence at least 60 calendar days prior to ceasing operations.

123.6(1) The notification shall include, at a minimum, the following information:

a. A description of how the RCC or satellite facility will notify the public within its service area that the RCC or satellite facility is closing and how HHM and HW from VSQGs should be managed after closure of the facility.

b. A description of how all HHM, HHW and HW from VSQGs will be removed from the RCC or satellite facility and properly managed within 60 calendar days of the RCC's or satellite facility's ceasing operations.

c. A description of how final waste disposal costs will be paid.

123.6(2) After removal of HHW and VSQG HW, a final inspection shall be conducted by department staff.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—123.7(455F) Regional collection center reporting requirements. On a form supplied by the department, each RCC shall submit to the department a correctly completed RCC semiannual report. The report shall include, but not be limited to, the pounds of materials managed through a reuse program, by hazardous waste contractors, and by nonhazardous waste contractors. All hazardous waste contractor invoices shall be attached. Such invoices shall depict hazardous material types, net weight of hazardous materials, and associated collection and disposal costs charged by the hazardous waste contractor to the RCC. RCC semiannual reports shall be submitted by September 15 for the portion of the current calendar year January 1 through June 30, and by March 15 for the portion of the previous calendar year July 1 through December 31.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

These rules are intended to implement Iowa Code chapter 455F.

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CHAPTERS 124 to 130
Reserved

TITLE IX
SPILLS AND HAZARDOUS CONDITIONS

CHAPTER 131
NOTIFICATION OF HAZARDOUS CONDITIONS

[Prior to 7/1/83, DEQ Ch 41]
[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—131.1(455B) Definitions. For purposes of this chapter:

"Corrosive" means causing or producing visible destruction or irreversible alterations in human skin tissue at the site of contact, or in the case of leakage of a hazardous substance from its packaging, causing or producing a severe destruction or erosion of other materials through chemical processes.

"Department" means the department of natural resources.

"Hazardous condition" means any situation involving the actual, imminent or probable spillage, leakage, or release of a hazardous substance onto the land, into a water of the state or into the atmosphere which, because of the quantity, strength and toxicity of the hazardous substance, its mobility in the environment and its persistence, creates an immediate or potential danger to the public health or safety or to the environment.

"Hazardous substance" means any substance or mixture of substances that presents a danger to the public health or safety and includes, but is not limited to, a substance that is toxic, corrosive, or flammable, or that is an irritant or that, in confinement, generates pressure through decomposition, heat, or other means. The following are examples of substances which, in sufficient quantity, may be hazardous: acids; alkalis; explosives; fertilizers; heavy metals such as chromium, arsenic, mercury, lead and cadmium; industrial chemicals; paint thinners; paints; pesticides; petroleum products; poisons; radioactive materials; sludges; and organic solvents. "Hazardous substances" may include any hazardous waste identified or listed by the administrator of the United States Environmental Protection Agency under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976, or any toxic pollutant listed under Section 307 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous substance designated under Section 311 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous material designated by the secretary of transportation under the Hazardous Materials Transportation Act (49 CFR §172.101).

"Irritant" means a substance causing or producing dangerous or intensely irritating fumes upon contact with fire or when exposed to air.

"Toxic" means causing or producing a dangerous physiological, anatomic or biochemical change in a biological system.

567—131.2(455B) Report of hazardous conditions. Any person manufacturing, storing, handling, transporting, or disposing of a hazardous substance shall notify the department at (515)281-8694 and the local police department or the office of the sheriff of the affected county of the occurrence of a hazardous condition as soon as possible but not later than six hours after the onset of the hazardous condition or discovery of the hazardous condition. A sheriff or police chief who has been notified of a hazardous condition shall immediately notify the department. Reports made pursuant to this rule shall be confirmed in writing as provided in 131.2(2).

131.2(1) *Verbal report.* The verbal report of such a hazardous condition should provide information on as many items listed in 131.2(2) as available data will allow.

131.2(2) *Written report.* The written report of such a hazardous condition shall be submitted to the department within 30 days and contain the following information:

a. The exact location of the hazardous condition.

b. The time and date of onset or discovery of the hazardous condition.

c. The name of the material, the manufacturer's name and the volume of each material involved in the hazardous condition in addition to contaminants within the material if they by themselves could cause a hazardous condition.

d. The medium (land, water or air) in which the hazardous condition occurred or exists.

e. The name, address and telephone number of the party responsible for the hazardous condition.

f. The time and date of the verbal report to the department of the hazardous condition.

g. The weather conditions at the time of the hazardous condition onset or discovery.

h. The name, mailing address and telephone number of the person reporting the hazardous condition.

i. The name and telephone number of the person closest to the scene of the hazardous condition who can be contacted for further information and action.

j. Any other information, such as the circumstances leading to the hazardous condition, visible effects and containment measures taken that may assist in proper evaluation by the department.

131.2(3) *Reporting of subsequent findings.* All subsequent finding and laboratory results should be reported and submitted in writing to the department as soon as they become available.

These rules are intended to implement Iowa Code section 455B.115.

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[Filed emergency 10/31/80—published 11/26/80, effective 10/31/80]
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CHAPTER 132
TRANSPORTATION OF RADIOACTIVE MATERIALS IN IOWA

[Prior to 7/1/83, DEQ Ch 42]

[Prior to 12/3/86, Water, Air and Waste Management[900]]

Rescinded IAB 3/20/02, effective 4/24/02

CHAPTER 133
RULES FOR DETERMINING CLEANUP ACTIONS AND RESPONSIBLE PARTIES

567—133.1(455B,455E) Scope.

133.1(1) These rules establish the procedures and criteria the department will use to determine the parties responsible and cleanup actions necessary to meet the goals of the state pertaining to the protection of the groundwater. These rules pertain to the cleanup of groundwater itself and soils and surface water where groundwater may be impacted. They may also be used as guidelines in other environmental protection activities authorized by Iowa Code chapter 455B. Where specific federal or state programs or funds exist to address situations that are also governed by these rules, the rules and standards of the specific programs or funds will be integrated and utilized to achieve an equitable, expeditious and environmentally sound resolution of the particular contamination situation. These rules apply specifically to point source contamination only.

133.1(2) These rules apply specifically to cleanup actions required to abate, prevent or remediate a hazardous condition, the presence of a hazardous substance or waste, the release of a regulated substance, or the discharge of a pollutant as those terms are defined in Iowa Code chapter 455B.

133.1(3) These rules shall not limit the department's authority to require remedial or preventative action, or to take remedial or preventative action, as necessary to protect the public health, the environment, or the quality of life. The department will make its evaluation on a case-by-case basis, considering site characteristics, and where more than one contaminant is present or there is no established action level, will consider the toxicity, mobility and persistence of contaminants involved. The evaluation may include the potential synergistic, antagonistic, or cumulative effects of the contaminants involved in a particular case.

133.1(4) Persons subject to these rules retain all applicable appeal rights provided in Iowa Code chapter 455B.

133.1(5) This chapter is applicable to releases of petroleum from underground storage tanks subject to regulation under Iowa Code chapter 455B, Division IV, Part 8, to the extent they are not inconsistent with the corrective action rules in 567—135.6(455B) to 567—135.17(455B). This subrule is not intended to limit the authority of the department to establish liability against responsible parties other than owners and operators as defined in Iowa Code sections 455B.471(5) and 455B.471(6).

567—133.2(455B,455E) Definitions.

"Action level" means, for any contaminant, the HAL, if one exists; if there is no HAL, then the NRL, if one exists; if there is no HAL or NRL, then the MCL. If there is no HAL, NRL, or MCL, an action level may be established by the department based on current technical literature and recommended guidelines of EPA and recognized experts, on a case-by-case basis.

"Active cleanup" means removal, treatment, or isolation of a contaminant from groundwater or associated environment through the directed efforts of humans.

"AFS" means the Special Publication 30, "Investigation and Monetary Values of Fish and Freshwater Mussel Kills," published by the American Fisheries Society.

"Aggravated risk" means a contamination situation which presents a potentially catastrophic or an immediate and substantial risk of harm to human life or health or to the environment. Examples include exposure of humans, animals or the food chain to acutely toxic substances, contamination of a drinking water supply, threat of fire or explosion, or similar situations.

"Air or air resources" means those naturally occurring constituents of the atmosphere, including those gases essential for human, plant, and animal life.

"Background" means groundwater quality unaffected by human activities, and generally shall be determined by historical data of the geological services bureau or other government agencies for the type of aquifer or location involved in a given case. If available data is not adequate, background may be established by groundwater samples upgradient of a source or potential source of a substance which is detected in or has a reasonable probability of entering the groundwater.

"Best available technology" means those processes which most effectively remove, treat, or isolate contaminants from groundwater or associated environment, as determined through professional judgment considering actual equipment or techniques currently in use, published technical articles and research results, engineering reference materials, consultation with known experts in the field, and guidelines or rules of other regulatory agencies.

"Best management practices" means maintenance procedures, schedules of activities, prohibition of practices, and other management practices, or a combination thereof, which, after problem assessment and evaluation of alternatives is determined to be the most effective means of preventing or abating contamination at a location.

"Biological resources" means fish, wildlife and other biota belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the state of Iowa, the United States, or local government. Fish and wildlife include freshwater aquatic and terrestrial species; game, nongame, and commercial species; and threatened and endangered species. Other biota encompass shellfish, terrestrial and aquatic plants, and other living organisms not otherwise listed in this definition.

"Contaminant" means any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance which does not occur naturally in groundwater or which occurs naturally at a lower concentration, and includes all hazardous substances as defined in 42 U.S.C. 9601, and any element, compound, mixture, solution or substance designated pursuant to 40 CFR 302.4 as of September 13, 1988.

"Damages" means the costs of restoration, rehabilitation, and replacement of resources, or acquisition of equivalent resources, as determined in accordance with this chapter; the reasonable and necessary costs of the assessment, to include the cost of performing the assessment and administrative costs and expenses necessary for, and incidental to, the assessment; lost services to the public; and, in the event the damages claim is not resolved within six months after the incident leading to the damages, interest at the current rate published in the Iowa Administrative Bulletin by the department of revenue pursuant to Iowa Code section 421.7. The interest amount shall be computed from the date the amount of the claim is confirmed by a final ruling of the commission in a contested case decision.

"Drinking water supply" means any raw or finished water source that is or may be used by a public water system, as defined in Iowa Code section 455B.171, or as drinking water by one or more individuals.

"Geologic resources" means those elements of Earth's crust such as soils, sediments, rocks, and minerals, including petroleum and natural gas, that are not included in the definitions of groundwater and surface water resources.

"Groundwater" means any water of the state as defined in Iowa Code section 455B.171 which occurs beneath the surface of the earth in a saturated geologic formation of rock or soil.

"Groundwater resources" means water in a saturated zone or stratum beneath the surface of land or water and the rocks or sediments through which groundwater moves. It includes groundwater resources that meet the definition of drinking water supplies.

"HAL" means a lifetime health advisory level for a contaminant, established by the United States Environmental Protection Agency (EPA). Health advisories represent the concentration of a single contaminant, based on current toxicological information, in drinking water which is not expected to cause adverse health effects over lifetime exposure.

"Hazardous substance" means a hazardous substance as defined in Iowa Code section 455B.381.

"MCL" means the enforceable maximum contaminant level established by the EPA pursuant to the Safe Drinking Water Act.

"Natural resources" or *"resources"* means land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the United States, the state of Iowa, or local government. These natural resources have been categorized into the following five groups: surface water resources, groundwater resources, air resources, geologic resources, and biological resources.

"NRL" means the negligible risk level for carcinogens established by the EPA, which is an estimate of one additional cancer case per million people exposed over a lifetime to the contaminant (1×10^{-6}).

"Passive cleanup" means the removal or treatment of a contaminant in groundwater, or associated environment, through management practices or the construction of barriers, trenches and other similar facilities for prevention of contamination, as well as the use of natural processes such as groundwater recharge, natural decay and chemical or biological decomposition.

"Point source" means any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, motor vehicle, rolling stock, or aircraft, or any site or area where a contaminant has been deposited, stored, disposed of, or placed, or otherwise come to be located.

"Preventative" or *"prevention"* refers, in the context of these rules, to actions or efforts to minimize or stop further contamination in a situation where contamination already exists or is imminent.

"Remedial action plan" means a written report which includes all relevant information, findings, and conclusions from a site assessment, including all analytical results and identification of contaminant migration pathways; identification and evaluation of cleanup alternatives, including both active and passive measures using best available technology and best management practices; a recommended cleanup action or combination of action, including identification of expected cleanup levels consistent with the cleanup goal of 133.4(3)*"b"*; a monitoring network and schedule to document cleanup levels; and a proposed schedule of implementation.

"Responsible person" means any person who is legally liable for the contamination in question or who is legally responsible for abating contamination under any applicable law, including Iowa Code chapters 455B and 455E, and the common law. This may include the person causing, allowing or otherwise participating in the activities or events which cause the contamination, persons who have failed to conduct their activities so as to prevent the release of contaminants into groundwater, property owners who are obligated to abate a condition, or persons responsible for or successor to such persons.

"Significant risk" means:

1. The presence in groundwater of a contaminant in excess of an action level;
2. The presence of a contaminant in the soils, surface water, or other environment in proximity to groundwater which may reasonably be expected to contaminate the groundwater to an action level; or
3. The presence of a contaminant or contaminants in the groundwater, or in the soils, surface water or other environment in proximity of groundwater which may be expected to contaminate groundwater in quantities, concentrations, or combinations which may significantly adversely impact the public health, safety, environment, or quality of life. This criterion would normally be applied where there is no established action level or where combinations of more than one contaminant are present.

"Site assessment plan" means a written proposal for study of a contamination situation to determine the types, amounts, and sources of contaminants present, hydrogeological characteristics of the site, and the vertical and horizontal extent of contamination, with a goal of developing an adequate remedial action plan. The proposal must include: recommendations for collection of relevant historical data such as site management practices, inventory records, literature searches, photographs and personal interviews; a methodology for obtaining groundwater flow information including well placements, construction and elevation, bore logs, static groundwater table measurements, groundwater elevations, groundwater gradients (isopleth), and information on soil transmissivity, porosity and permeability; and a methodology for identifying contaminant plumes, including additional monitoring wells to identify the horizontal and vertical extent of contamination, a site plot showing the estimated configuration of contamination, and a sampling schedule and list of constituents to be analyzed. The plan development may require preliminary field investigations.

"Surface water resources" means the waters of the state, including the sediments suspended in water or lying on the bank, bed, or shoreline. This term does not include groundwater or water or sediments in ponds, lakes, or reservoirs designed for waste treatment under applicable laws regulating waste treatment.

[**ARC 8470B**, IAB 1/13/10, effective 2/17/10]

567—133.3(455B,455E) Documentation of contamination and source.

133.3(1) *Sampling and analytical procedures.* Unless rules for specific programs under USEPA or department authority provide otherwise, or unless other methods are approved by the department for a

specific situation, samples taken and analyses made to document contamination or cleanup levels under this chapter shall be conducted in accordance with the following:

a. *Samples.* "A Compendium of Superfund Field Operations Methods," USEPA, Office of Emergency and Remedial Response, Washington, D.C. 20460 (EPA/540/P-87/001, OSWER Directive 93.55.0-14, December 1987).

b. *Analyses.* "Test Methods for Evaluation of Solid Waste, Physical-Chemical Methods (SW-846)," USEPA, Third Edition, November 1986, as revised through December 1988. Until the department adopts rules regarding certification of laboratories, analyses shall be conducted at a laboratory that certifies to the department that the appropriate analytical procedure is utilized, or a laboratory which has been approved under EPA's Contract Laboratory Program. Upon adoption of rules by the department regarding certification of laboratories, all analyses shall be made at a certified laboratory. The parties, both the department and person responsible for investigating, shall have the opportunity to split samples for independent analysis, and where appropriate a sample portion shall be retained for a reasonable period of time for possible reanalysis.

133.3(2) *Department determination of contamination.* When the department receives or obtains evidence of groundwater contamination or the release or presence of contaminants in the environment associated with groundwater, where contamination of the groundwater may reasonably be expected, the department shall make reasonable efforts to document the source of contamination, and shall require responsible persons to take appropriate preventative, investigatory and remedial actions. Evidence of contamination may include but is not limited to the following:

a. Water samples indicating the presence of a contaminant at levels above background.

b. Soil or surface water samples indicating the presence of a contaminant at levels above background, where release to the groundwater is likely.

c. Known releases of contaminants into the environment in quantities and locations that could reasonably be expected to cause groundwater contamination.

d. Other events that the department determines could potentially cause groundwater contamination.

The amount and type of evidence necessary to document contamination or potential contamination will vary with the circumstances of each case, including the amount and type of contaminant involved, site topography and geologic conditions, and potential adverse effects. Normally, a reasonable number of water and soil samples will be taken or analyses obtained by the department. However, where a significant quantity of contaminants is known to have been released into the environment, for example from a spill, which could reach groundwater, the department is not required to collect samples.

133.3(3) *Department determination of source.* The department shall determine whether the contamination is or likely was caused by a particular source or sources, for example a known spill of contaminants or current or past facilities or activities in the vicinity which involved products or substances which could be a likely source. If no such person or event can be identified, the department shall make reasonable efforts to determine whether there is a relatively restricted area of more concentrated contaminants in the vicinity which is or is likely to be a source of the contamination. This subrule does not require the department to identify a specific person or persons responsible for the contamination, but to determine whether the contamination has or has likely come from a relatively defined source.

133.3(4) *Determination of responsible persons.* Where a source or likely source of contamination is identified, the person or persons responsible for that source or sources shall conduct necessary preventative, investigatory and remedial actions.

a. Identification. The persons responsible or potentially responsible initially shall be identified by the department through such measures as on-site observations; interviews with witnesses and local officials; review of public records, including department files; and interviews with or information obtained from potentially responsible persons. Where there may be more than one source, or the source is otherwise not conclusively identified, persons who handle or have handled materials or wastes in the vicinity of the contamination, which could be the source, shall investigate and provide information satisfactory to the department to confirm or disaffirm that their activities are a source of

the contamination. Investigation by the responsible or potentially responsible person may include inspection of inventory or other records, and soil and groundwater monitoring to better define the source. Such monitoring shall conform to the requirements of 133.4(3)*"a,"* provided that a full-scale assessment may not be required for this purpose.

b. Notification. The department shall notify in writing the persons determined responsible under the above procedures, and include a brief statement of the facts upon which the department concluded that they are responsible, and the actions required; provided that where immediate action is necessary, verbal notification may be given, followed up with written notification. The persons notified may provide information disputing or supplementing the information relied on by the department, which shall be considered by the department.

c. Responsible persons may be jointly and severally liable, and the department is not required to name all potentially responsible parties in directing responsive actions to contamination.

567—133.4(455B,455E) Response to contamination.

133.4(1) *Prevention of further contamination.* In all cases where an active source of contamination is identified, such as leaking tanks or current practices, which may be readily corrected, the source shall be removed, repaired or otherwise contained, or the contaminating practices ceased, immediately upon discovery of the source. In addition, readily accessible contaminants, for example concentrated contaminants spilled on the ground or accessible through a recovery well or system, shall be promptly removed to avoid or minimize further contamination in the groundwater.

133.4(2) *Aggravated risk.* Where the contamination presents an aggravated risk, the preventative, investigatory and remedial measures provided in subrules 133.4(1) and 133.4(3) shall be expedited to remove such risk. In addition, the following actions shall be taken by the responsible parties, if necessary, to protect the public health or environment:

a. Providing alternate water supplies.

b. Installing security fencing or other measures to limit access.

c. Extraordinary measures to control the source of release.

d. Removal of hazardous substances to an approved site for storage, treatment or disposal.

e. Placing physical barriers to deter the spread of the release.

f. Recommending to appropriate authorities the evacuation of threatened individuals.

g. Using other materials to restrain the spread of the contaminant or to mitigate its effects.

h. Executing damage control or salvage operations.

133.4(3) *Significant risk.* In cases of significant risk, the following investigatory and remedial measures shall be implemented:

a. *Investigation.* The responsible party shall determine the extent and levels of contamination through a site assessment conducted under the supervision of a registered professional engineer, an expert in the field of hydrogeology, or other qualified person. A site assessment plan shall be submitted to the department within 45 days of notice by the department, unless a shorter time is required or a longer time is authorized by the department. The plan shall be approved by the department prior to initiation of the assessment, unless otherwise approved by the department. The site assessment shall be conducted within a reasonable time and a remedial action plan shall be submitted to the department, within the time directed or approved by the department. The department may require further investigation by the responsible person in order to adequately assess the extent of contamination, and may require the remedial action plan to be supplemented if necessary.

b. *Required cleanup actions.*

(1) Groundwater. The goal of groundwater cleanup is use of best available technology and best management practices as long as it is reasonable and practical to remove all contaminants, and in any event until water contamination remains below the action level for any contaminant, and the department determines that the contamination is not likely to increase and no longer presents a significant risk. Where site conditions and available technology are such that attainment of these goals would be impractical, the department may establish an alternative cleanup level or levels, including such other conditions as will adequately protect the public health, safety, environment, and quality of life.

(2) Other. Where significant amounts of contaminants are documented as being present in the soils or other environment, such that groundwater contamination is occurring or is likely, active cleanup of the contaminated soils or other environment shall be implemented to the extent reasonable and necessary to prevent or minimize release to the groundwater; passive cleanup may be allowed in extraordinary circumstances.

133.4(4) *Other.* Where significant risk is not currently present, the responsible person may be required to monitor the groundwater and implement reasonable management or other preventative measures to minimize further contamination.

567—133.5(455B,455E) Report to commission. Department actions taken pursuant to this chapter shall be reported to the commission.

567—133.6(455B) Compensation for damages to natural resources.

133.6(1) *Applicability.* This rule applies to persons who, by release of a hazardous substance to the environment, cause injury to, destruction of, or loss of natural resources held in trust by the state for the public. In most cases this would involve the destruction of aquatic life or other wildlife under the ownership of the state, as provided in Iowa Code section 481A.2. This rule relates to the compensation to the state and public for the natural resource damages and is in addition to any other legal recourse for the event or action that caused the destruction or damage.

133.6(2) *Liability to the state.* Persons who cause injury to, destruction of, or loss of natural resources of the state are liable to the state as provided by Iowa Code section 455B.392(1)(c). This rule establishes the methodologies and criteria for evaluating the extent and value of the damage and establishes the methods of compensation. If the person and the department cannot agree to the proper resolution of a particular case, the issues of liability, damage and compensation will be established through contested case proceedings, as provided by 567—Chapter 7.

133.6(3) *Assessment.* When natural resources are destroyed or damaged by an identifiable source, the degree and value of the losses shall be assessed by collecting, compiling, and analyzing relevant information, statistics, or data through prescribed methodologies to determine damages, as set forth in this rule.

a. *General.* Except as specified otherwise in this rule, the definitions, methodologies, and criteria in 43 CFR 11 may be used to assess natural resource damages.

b. *Fish loss.* Assessment of damages for fish kills shall be in accordance with the following:

(1) Normally investigators will follow the methods prescribed by AFS to determine numbers of fish killed, by species and size.

(2) During periods of ice cover, where local conditions prevent using these methods, or in other appropriate circumstances, for example when the resources are known to have been diminished by prior incidents, investigators will utilize the best information available to determine numbers of fish killed by species and size. Information may include existing or prior data on population levels in the affected water body or nearby water bodies with similar characteristics, including any historical fish kill data.

(3) The monetary valuation of fish shall be the replacement values as published in AFS for all fish lost except the following: channel catfish, flathead catfish, blue catfish, northern pike, muskellunge, northern pike/muskellunge hybrid, rainbow trout, brown trout, brook trout, white bass, yellow bass, white bass/striped bass hybrid, largemouth bass, smallmouth bass, spotted bass, crappie, rock bass, bluegill, redear sunfish, warmouth, pumpkinseed, freshwater drum, yellow perch, walleye, sauger, and walleye/sauger hybrid. The value of these fish shall be $15 each, unless AFS establishes a higher value. Notwithstanding the above, the value of each fish classified by the department as an endangered or threatened species shall be $1,000.

(4) The value of lost services to the public shall be the number of fishing trips lost over the period of the resource loss, as determined through local creel survey information or through interpolation from the most recent statewide creel survey. Each trip shall be valued at $30.

(5) The cost of the investigation shall include salaries plus overhead for the time of staff, including support staff, involved in investigating the fish kill and performing the assessment; meals and lodging for

staff while they are in the field conducting the assessment; mileage, valued at the current rate established pursuant to Iowa Code section 18.117; costs borne by the department associated with containment or cleanup operations; and any other costs directly associated with the investigation and assessment.

133.6(4) *Compensation.* The department will extend to the responsible person the opportunity to reach voluntary agreement as to the amount of damages and the compensation method. If the person disputes liability or the damage amount, the department will make a demand for payment and the person may appeal and demand contested case procedures under 567—Chapter 7. The method of compensation shall be solely in the discretion of the department.

a. *Direct monetary payment.* Compensation will normally be by direct monetary payment to the department. The money received will be used to replace, restore or rehabilitate the lost or damaged resources. Resource enhancement projects, support of educational programs relating to resource protection or enhancement, or resource acquisition of equal or greater value also may be funded. If practical, such alternatives should provide similar services to the public and should be in the vicinity of the loss.

b. *Indirect monetary payment.* In appropriate cases, an equal or greater amount of compensation may be made by monetary payment to another government agency or private nonprofit group in the natural resource field for the same purposes as provided in paragraph *"a."*

c. *Direct funding of projects.* With the approval and oversight of the department, the person may be allowed to contract directly for the same purposes as provided in paragraph *"a."*

This rule is intended to implement Iowa Code section 455B.392.

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This chapter is intended to implement Iowa Code section 455E.5(5) and Iowa Code chapter 455B, Division III, Part 1 and Division IV, Part 4.

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CHAPTER 134
UNDERGROUND STORAGE TANK LICENSING AND CERTIFICATION PROGRAMS

PART A
CERTIFICATION OF GROUNDWATER PROFESSIONALS

567—134.1(455G) Definition. A "groundwater professional" is a person who provides subsurface soil contamination and groundwater consulting services, or who contracts to perform or who supervises remediation or corrective action services at leaking underground storage tank sites. A person who engages only in installation or removal of underground storage tanks and piping is not a "groundwater professional" for the purposes of this chapter.

567—134.2(455G) Certification requirements.

134.2(1) A groundwater professional must be certified as provided in 134.3(455G) before engaging in activities described in 134.1(455G), except that a person engaging in activities described in 134.1(455G) need not be certified if that person is under direct supervision of a certified groundwater professional when engaging in such activities.

134.2(2) In order to be certified as a groundwater professional, a person must be one or more of the following:

a. A person certified by the American Institute of Hydrology as a Professional Hydrologist, Professional Hydrogeologist, or Professional Hydrologist (Groundwater).

b. A person certified by the National Water Well Association or Association of Groundwater Scientists and Engineers as a Groundwater Professional.

c. A person certified by the American Board of Industrial Hygiene as an Industrial Hygienist.

d. A professional engineer registered in Iowa.

e. A professional geologist certified by a national organization (e.g., American Institute of Professional Geologists, American Association of Petroleum Geologists, Society of Independent Earth Scientists).

f. Any person with five years of direct or related experience and training as a groundwater professional or in the field of earth sciences. This must include a minimum of at least two years of education and training, and two years of experience as a groundwater professional.

g. Any person with a license, certification, or registration to practice hydrogeology or groundwater hydrology issued by any state in the United States or by a national organization, provided that the license, certification, or registration process requires, at a minimum, both of the following:

(1) Possession of a bachelor's degree from an accredited college.

(2) Five years of related professional experience.

134.2(3) In order to be certified as a groundwater professional, the applicant must complete the two-day risk-based correction action (RBCA) course and pass a certification examination offered or authorized by the department.

a. An applicant who fails an initial examination may take a second examination.

b. Failure of the second examination will result in termination of the application. A person may reapply for groundwater professional certification. The applicant must complete a regularly scheduled course of instruction before retaking the certification examination.

c. Professional engineers who qualify for an exemption from taking the certification examination under subrule 134.3(6) must attend the RBCA initial course of instruction in order to be certified.

567—134.3(455G) Certification procedure.

134.3(1) *Application.* Application for certification shall be made by completing a form provided by the department and submitting evidence of meeting the requirements found in rule 134.2(455G)(i.e., copy of certificate, license, description of experience and training).

134.3(2) *Certification fee.* The initial certification and each renewal application must be accompanied by a nonrefundable fee in the form of a check or money order payable to the Department of Natural Resources. The certification fee is $200 every two years and must be renewed biennially by

January 1 of each even-numbered year (i.e., 1994, 1996, etc.). No proration of certification fees will be done. The department will assess a fee for each training course and examination, based upon the cost of preparation and administration.

134.3(3) Rescinded IAB 1/9/02, effective February 13, 2002.

134.3(4) *Certification issuance and renewal.*

a. Upon receipt, review and acceptance of the application and certificate fee, the department shall furnish the applicant with a certificate showing the name of the individual and the expiration date.

b. In order to remain valid, a groundwater professional certificate must be renewed prior to the expiration date specified on the certificate. Renewal applications must be made on a form provided by the department and must be received by the department or postmarked at least 60 days prior to the expiration date of the registration or certification then in effect. The renewal application must be accompanied by the registration or certification fee specified in subrule 134.3(2) and proof of completing the continuing education requirements in 134.3(5).

134.3(5) *Continuing education.* All groundwater professionals are required to complete at least 12 hours of continuing education during each two-year certification period.

a. The initial course of instruction required in subrule 134.2(3) may be applied toward the first certification period's continuing education requirements. Continuing education credits may not be carried forward to the next certification period.

b. Continuing education must be in the areas relating to underground storage tank contamination assessment and corrective action activities. Courses other than those provided by the department must be submitted to the department for prior approval as meeting the continuing education requirement.

134.3(6) *Exemption from examination.* The department may provide for an exemption from the certification examination requirements for a professional engineer registered pursuant to Iowa Code chapter 542B upon submission of sufficient proof of exemption to the Iowa comprehensive petroleum underground storage tank fund board as provided in Iowa Code section 455G.18(8). The person must be qualified in the field of geotechnical, hydrological, environmental, groundwater, or hydrogeological engineering. A groundwater professional exempted under this provision must meet the continuing education requirements of subrule 134.3(5).

567—134.4(455G) Suspension, revocation and denial of certification.

134.4(1) *General policy.* It is the policy of the department to enforce standards of professional and ethical conduct which are generally accepted within the professions which qualify persons for certification in Iowa as groundwater professionals. The department intends to rely on written standards of professional and ethical conduct and competency which are applicable to persons who qualify for certification by virtue of certification by or membership in a professional organization or state licensure as provided in Iowa Code section 455G.18(2).

It is the policy of the department to investigate and enforce standards of conduct by certified groundwater professionals which fall within the scope of their professional relationships with the department, their clients and other state regulatory agencies including the Iowa comprehensive petroleum underground storage tank fund board and their agents.

134.4(2) *Lack of qualification.* The department may suspend, revoke or deny certification as a groundwater professional for any of the following reasons:

a. A material misstatement of fact in an application for certification.

b. Failure to provide the fee for certification.

c. Loss of license, certification, or registration necessary to meet the certification requirements in subrule 134.2(2).

d. Insufficient proof of qualifications required under rule 134.2(455G).

e. Failure to successfully complete the certification requirements.

f. Receipt of a "certificate of noncompliance" with a child support obligation and failure to provide a "withdrawal of a certificate of noncompliance" from the child support recovery unit as provided in Iowa Code chapter 252J.

g. Default on an obligation owed to or collected by the state as provided in Iowa Code section 421.17(34)*"e."*

134.4(3) *Discipline based on a single act or omission.* The department may suspend, revoke or deny certification based on substantial evidence of a single act or failure to act. The severity of the sanction may be based on the gravity of the act or omission and on the degree of culpability such as whether it was negligent, knowing, willful, or with such a degree of reckless disregard as to equate with intentional conduct. Single acts or omissions that may be grounds for discipline include, but are not limited to, the following:

a. Fraudulent omissions or misstatements of material fact in any reports, correspondence or communications with the department.

b. Violation of an ethical standard which the person knew or should have known and which results in or reasonably could have resulted in material consequences.

c. Failure to report the presence of contamination to the parties reasonably believed to be responsible for reporting the contamination to the department as provided in 567—Chapter 131 and 567—135.6(455B).

d. Knowingly making a material false statement, representation or certification on any application, record, report, or document required to be maintained or submitted by department rule or which is voluntarily submitted to the department.

e. Gross incompetence in the performance of groundwater professional services and corrective action.

f. Material misstatement of facts or misrepresentation of information required to be provided pursuant to Iowa Code chapters 455G and 455B, division IV, part 8.

134.4(4) *Discipline based on repeated acts or omissions.* The department may suspend, revoke or deny certification, based on substantial evidence of repeated acts or omissions which, when taken together indicate a lack of competency, professionalism, ethical conduct, or adherence to standards of performance generally expected by the profession. The severity of the sanction may be based on the gravity of the acts or omissions and the degree of culpability. Disciplinary sanctions under this subrule will not be applied without providing the person with at least one written notice of the deficiency and a written warning that future repetition may result in discipline. Conduct or omissions which may be a basis for discipline include but are not limited to the following:

a. Repeated incidents of substandard field investigation may result in suspension or revocation.

b. Repeated incidents of substandard, inaccurate or incomplete site cleanup reports and failure to follow site cleanup report instructions may result in suspension or revocation.

c. Conduct warranting a sanction after prior suspension shall result in a more severe sanction.

134.4(5) *Disciplinary procedure.*

a. Prior to issuance of a final department action imposing a disciplinary sanction of suspension, revocation or denial of certification, the department shall conduct such lawful investigation as it deems necessary to substantiate material facts sufficient to warrant a disciplinary sanction. The decision to impose a disciplinary sanction shall be made by the administrator of the environmental protection division.

b. Written notice of a sanction shall be sent by restricted certified mail to the person against whom the sanction is imposed. The notice shall provide a brief explanation of the facts relied upon and the sanction to be imposed. The notice shall inform the recipient of applicable appeal rights.

c. A person may appeal a decision imposing a suspension, revocation or denial of certification within 30 days of receipt of the notice. Upon timely receipt of the notice of appeal, contested case procedures, including informal settlement, shall apply as provided in 561—Chapter 7. In accordance with 561—subrule 7.5(2), the department shall initiate pleading by the filing of a petition.

d. Notwithstanding 561—subrule 7.15(7), the sanction imposed shall not take effect until after a contested case hearing and issuance of a proposed decision. If a timely appeal has not been filed, the

sanction is effective after 30 days from receipt of the notice. A party may request stay of the sanction, as provided in 561—subrule 7.15(7), after issuance of a proposed decision.

134.4(6) *Noncompliance with support order procedures.* Upon receipt of a certification of noncompliance with a support obligation as provided in Iowa Code section 252J.7, the department will initiate procedures to deny an application for certification or renewal, or to suspend a certification in accordance with Iowa Code section 252J.8(4). The department shall issue a notice by restricted certified mail to the person of its intent to deny or suspend groundwater professional certification based on receipt of a certification of noncompliance. The suspension or denial shall be effective 30 days after receipt of the notice unless the person provides the department with a withdrawal of the certificate of noncompliance from the child support recovery unit as provided in Iowa Code section 252J.8(4)*"c."* Pursuant to Iowa Code section 252J.8(4), the person does not have a right to a hearing before the department to contest the denial or suspension action under this subrule but may seek a hearing in district court in accordance with Iowa Code section 252J.9.

567—134.5(455G) Penalty. A groundwater professional who fails to obtain certification with the department of natural resources as required in this chapter is subject to a civil penalty of $50. A groundwater professional who knowingly or intentionally makes a false statement or misrepresentation which results in a mistaken classification of a site shall be guilty of a serious misdemeanor and shall have the groundwater professional certification revoked.

These rules are intended to implement Iowa Code section 455G.18.

PART B
CERTIFICATION OF UST COMPLIANCE INSPECTORS

567—134.6(455B) Definition.

"UST compliance inspector" means a person who inspects a regulated underground storage tank (UST) to satisfy the requirements of 567—135.20(455B) for compliance with UST technical standards in 567—Chapter 135.

567—134.7(455B) Certification requirements for UST compliance inspectors. A person retained by an owner or operator of a UST facility for the purpose of establishing compliance with the annual UST compliance inspection required by the department under 567—135.20(455B) must hold a current UST compliance inspector certification issued by the department. Inspector certification will be issued by the department only to a person who:

1. Is an Iowa-licensed UST installer or installation inspector under 591—Chapter 15, except that the requirement as set forth under 591—subrule 15.3(4) shall not be applicable to a certified UST compliance inspector.
2. Attends the required training approved by the department as provided in 567—134.10(455B).
3. Achieves a passing grade of 85 percent on a certification examination administered or approved by the department as provided in 567—134.10(455B).
4. Submits an accurate and complete application.
5. Is not found to be in violation of this chapter and has not had a certification revoked by the department pursuant to 567—134.16(455B) or by the underground storage tank fund board pursuant to 591—Chapter 15.

567—134.8(455B) Temporary certification.

134.8(1) Until training and testing procedures are developed, the department may issue a temporary inspector certification to any person who:

a. Is an Iowa-licensed installer or installation inspector as provided in 567—134.7(455B), numbered paragraph "1."

b. Completes the U.S. EPA UST Web-based training modules: "Introduction to the Underground Storage Tanks (UST) Program" and "Basic UST Inspector Training" with a minimum passing grade of 85 percent.

134.8(2) A person issued a temporary UST compliance inspector certification must complete the approved training and pass the examination in accordance with 567—134.10(455B) by April 1, 2007. Failure to achieve a passing grade on the examination before April 1, 2007, will result in revocation of temporary certification.

567—134.9(455B) Application for inspector certification.

134.9(1) The applicant shall be an individual.

134.9(2) An applicant for inspector certification shall submit, in addition to all applicable fees, an application on forms provided by the department. The application shall contain the following information:

a. Evidence that the applicant meets the experience and qualification prerequisites contained in 567—134.7(455B).

b. The applicant's name, address and telephone number.

c. Other information necessary for a determination of the applicant's qualifications.

134.9(3) Training and certification fees. An initial nonrefundable application fee of $150 in the form of a check or money order payable to the Department of Natural Resources must accompany the initial application for certification and $50 for each renewal application. The $150 application fee covers the cost of the certification examination. The department will assess an additional fee for each training course based upon the cost of administration.

134.9(4) An application for certification must be received by the department no later than 60 days prior to the announced date of the certification examination.

134.9(5) An application must be complete upon submission.

134.9(6) An applicant meeting the requirements of this rule will be granted admission to the examination for inspector certification.

567—134.10(455B) Training and certification examination.

134.10(1) Prior to taking the compliance inspector examination, the applicant must:

a. Complete the U.S. EPA UST Web-based training modules: "Introduction to the Underground Storage Tanks (UST) Program" and "Basic UST Inspector Training" with a minimum passing grade of 85 percent.

b. Attend the department's inspector training course or designated approved course.

134.10(2) The department will establish administrative and technical content for the examination and the standards and criteria against which the department will evaluate candidates in determining the fitness of candidates for inspector certification.

134.10(3) At least once in each calendar year, the department will schedule a date and location for the examination for certification of inspectors.

134.10(4) Only applicants who have been authorized by the department to take an examination will be admitted to an examination or issued a certification as a result of passing an examination. Authorization to take an examination will be based on the applicant's compliance with the requirements of this chapter.

134.10(5) To receive a passing grade on the examination, the applicant for certification must achieve a minimum score of 85 percent. An applicant who fails an initial examination may take a second examination.

134.10(6) The application of an applicant who fails the second examination will be terminated. An applicant who fails the second examination may reapply for inspector certification but may not retake the examination until the applicant has successfully completed a regularly scheduled course of instruction that is administered or approved by the department. Successful completion means attendance at all sessions of training and attainment of the minimum passing grade established by the department for the approved training course.

567—134.11(455B) Renewal of certification.

134.11(1) *Renewal period.* Certification shall be for a two-year period and must be renewed by January 1 of each odd-numbered year, beginning January 1, 2009. Applications for renewal must be submitted on a form provided by the department and no later than 60 days prior to the expiration date. If a certified inspector fails to renew the certification by the expiration date, the department may grant, upon a showing of good cause, a 30-day grace period during which the applicant may submit the application and payment of the renewal fee as provided in 134.9(3).

134.11(2) *Continuing education.* Certified inspectors must successfully complete eight hours of training approved by the department to maintain certification.

134.11(3) *Minimum inspections.* In order to renew certification, an inspector must have conducted at least 25 compliance inspections each year.

567—134.12(455B) Professional liability insurance requirements. All certified compliance inspectors are required to have professional liability insurance with minimum liability limits of $1 million per occurrence and in the aggregate. All persons covered by the certification provisions of this chapter shall provide written proof of coverage upon request of the department.

567—134.13(455B) Licensed company. A company employing certified UST compliance inspectors shall be registered with the department as a licensed UST compliance company. A company shall lose its license if it fails to employ at least one certified inspector or if it employs uncertified individuals to do compliance inspections required by the department. The annual license fee is $50.

567—134.14(455B) Compliance inspection. The UST compliance inspector shall conduct a compliance inspection in accordance with the standards set out in this rule and with department written instructions and guidelines. The inspector shall notify the department of the date of a site inspection at least ten days prior to the inspection or another time frame approved by the department.

134.14(1) Inspection process. The inspector shall record the inspection on a form provided by the department and conduct the inspection to address all items contained on the inspection form. The department may approve an alternative inspection form if requested by the inspector. The completed inspection form must be maintained by the inspector or licensed company for five years. Upon completion of the site inspection, the inspector shall send an inspection report to the owner and operator within ten business days, except for the notice of a potential suspected or confirmed release as provided in paragraph *"b."* At a minimum, the report shall satisfy the following:

a. The inspector shall notify the owner and operator of any compliance violations or deficiencies and those specific actions necessary to correct the violations or deficiencies in accordance with 567—Chapter 135.

b. The inspector shall immediately upon discovery notify the owner and operator of a suspected release as provided in 567—135.6(455B). The notice shall advise the owner and operator of their duty to report the condition to the department within 24 hours or within 6 hours if a hazardous condition exists as defined in 567—131.1(455B) and of their duty to take necessary steps to investigate and confirm suspected releases within the time frames specified in 567—135.6(455B). The inspector shall record in the inspection report submitted to the department the date and time of the notice to the owner and operator.

c. The inspector shall notify the owner and operator of applicable time frames to correct violations or deficiencies if established by rule, or within 60 days of receipt of the inspection report or another reasonable time period approved by the department.

d. The inspector may enter the initial site inspection results electronically as provided in 134.14(2) and complete a follow-up final electronic report as provided below or wait until completion of the follow-up activities to submit a final electronic report. In either case, a final electronic report shall be submitted to the department and a copy provided to the owner and operator as provided in 134.14(2), within the following time frames:

(1) Within 10 business days of the inspection, if the results of the inspection find no violations or deficiencies requiring corrective action.

(2) Within 10 business days of the inspector's receipt of all necessary documentation of all action required to correct violations and deficiencies.

(3) In any case, no later than 90 days of the site inspection.

134.14(2) Electronic inspection reporting. The inspector shall prepare an electronic report in accordance with the following:

a. The inspector shall enter the results of the site inspection discovered at the time of the inspection and any actions taken to correct violations and deficiencies on an Internet-based electronic format developed by the department and in accordance with guidance. The department's software will be capable of generating an inspection report.

b. The department will develop a generally compatible electronic platform using XML language. The department will provide the XML schema file format to describe the data needed to allow an inspector to transfer multiple site inspection results in an electronic batch process over the Internet using the department's inspection Web site.

c. The inspector shall provide a print copy of the electronically generated inspection report to the owner and operator or an alternative report approved by the department.

134.14(3) Any evidence of violations or deficiencies observed during the inspection must be photographed using a digital camera with at least a 1-2 megapixel resolution. The digital photographs must be submitted as part of the electronic inspection report and maintained by the inspector for five years as part of the inspector's records.

134.14(4) The inspector must provide any inspection records provided by the owner and operator to the department upon request.

134.14(5) Inspection technical requirements. An inspector of a UST system must check for compliance with the technical standards of 567—Chapter 135 following the department's guidance. The inspection of a UST system currently in operation shall include, but not be limited to, the following:

a. The material currently stored in the UST.

b. The type of tank and lines currently at the site as compared to the registered information on the department's database.

c. Checking site records demonstrating operational compliance, 567—subrule 135.4(5).

d. Checking release detection records, 567—subrule 135.5(6).

e. Visually checking for releases or other violations by opening covers of dispensers, manways, and containment sumps for submersible pumps and other piping connections for:

(1) Indications of a product release and leaking equipment.

(2) Deteriorating product lines or excessive bends in product lines or flex connectors.

(3) Proper anchoring of breakaways (dispensers only).

f. Current operating status of cathodic protection system, if present.

g. Presence and operational condition of spill and overfill equipment, 567—paragraph 135.3(1)*"c."*

Any problems observed during the inspection must be photographed using a digital camera with at least a 1-2 megapixel resolution.

134.14(6) Conflict of interest. A compliance inspector shall not conduct a compliance inspection if the compliance inspector is the owner or operator of the UST system, an employee of the owner or operator of the UST system, or a person having daily on-site responsibility for the operation and maintenance of the UST system.

[**ARC 8124B**, IAB 9/9/09, effective 10/14/09]

567—134.15(455B) Disciplinary actions.

134.15(1) The department may impose disciplinary actions which may include, but are not limited to, notices of deficiency, probationary notices, suspension of a certification or license and, pursuant to 567—134.16(455B), revocation of a certification or license.

134.15(2) A notice of deficiency or probationary notice shall not be an appealable decision. The recipient of a notice may contest the basis for the notice in writing, and such response shall be made part

of the certification record. A person subject to a notice to suspend or revoke a certification may appeal the notice as provided in 567—Chapter 7.

134.15(3) The department may suspend the certification of a certified inspector or licensed company for good cause, and based on a single act or omission or repeated acts or omissions. The suspension may require the certified inspector to take remedial measures intended to correct or prevent future acts and omissions. Good cause includes, but is not limited to:

a. A violation of these rules.

b. Negligent misrepresentation of material facts in a compliance report.

c. Negligent failure to identify a material violation of UST operation and maintenance standards set out in 567—134.14(455B).

d. Repeated failure to conduct compliance inspections and submit reports in accordance with the standards set out in 567—134.14(455B).

e. Incompetence on the part of the certified inspector as evidenced by errors in the performance of duties and activities for which the certification was issued.

f. Repeated failure to submit reports of inspection activities to the department or the owner and operator as provided in 567—134.14(455B).

134.15(4) The suspension of a company license or inspector certification shall prevent the company or person from engaging in activities for which certification or licensure is required.

134.15(5) The department may require that the certified inspector successfully complete a special training program, examination or other remedial measures sponsored or approved by the department and designed to strengthen the specific weakness in the certified inspector's performance of duties as identified in the suspension order.

134.15(6) A certified inspector or licensed company shall immediately surrender the certificate or license, as applicable, to the department as of the effective date of a suspension order. The department may reinstate the certification or license if it is determined the person has satisfied the terms of the suspension order and the certification has not expired.

567—134.16(455B) Revocation of inspector certification or company license.

134.16(1) The department may revoke the inspector certification or company license for one or more of the following:

a. Willful disregard of, or willful or repeated violations of, this chapter or 567—Chapter 135.

b. Fraudulent omissions or misstatements of material facts in a compliance inspection report or in other written or oral communications with the department.

c. A knowing and willful failure to detect and report a material violation of UST operation and maintenance standards as part of a compliance inspection required by 567—135.20(455B).

d. Acts or omissions warranting suspension after having certification or license previously suspended.

e. The revocation of a certification as an installer or installation inspector under 591—Chapter 15.

134.16(2) A certified inspector or licensed company shall immediately surrender certification or licensing documents after the effective date of a revocation decision.

These rules are intended to implement Iowa Code section 455B.474.

PART C
LICENSING OF UST PROFESSIONALS

567—134.17(455B) Definitions. As used herein:

"Board" means the Iowa comprehensive petroleum underground storage tank fund board.

"Cathodic protection tester" means a licensed individual who provides installation, maintenance and testing services on underground storage tank corrosion protection systems.

"Certificate of noncompliance" means a document provided by the child support recovery unit certifying that the named obligor is not in compliance with a support order or with a written agreement for payment of support entered into by the unit and the obligor.

"Child support recovery unit" means the child support recovery unit created by Iowa Code section 252B.2.

"Deductible" means the portion of a claim paid by insureds on the policy issued by the board.

"Department" means the Iowa department of natural resources.

"Install" or *"installation"* means the physical construction of a UST system including, but not limited to, activities such as excavating, backfilling, testing, placement of the tank, underground piping, release detection devices, corrosion protection systems, spill and overfill devices and any associated administrative activities such as notifications, record keeping and record submissions.

"Installation inspector" means a licensed individual who is engaged in the inspection and approval of the installation of new or upgraded underground storage tank systems.

"Installer" means a licensed individual or licensed company engaged in the installation of a new underground storage tank system or the upgrading of underground storage tank systems.

"In the aggregate" means for all claims or suits in a single year seeking damages under an insurance policy issued by the board.

"Licensed company" means a person, or company which employs a person who meets all of the qualifications to install, upgrade, repair, test or line underground storage tank systems.

"Licensed individual" means an individual who has received a license to perform any of the activities regulated under this chapter.

"Liner" means a licensed company or an individual who provides services to install underground storage tank lining and to repair underground storage tanks.

"Maintenance" means the normal operational upkeep to prevent a UST system from releasing a regulated substance or to ensure that a release is detected.

"Modification" means to change a UST system currently in use by the installation of new UST system components. "Modification" includes, but is not limited to, the addition of corrosion protection to a previously lined tank, installation of new underground piping or replacement of existing underground piping, changing the primary release detection method to one of the methods listed in OAR 340-150-0450 through 340-150-0470, or adding secondary containment. "Modification" does not include those activities defined in this rule as "repair" or "replacement."

"Obligor" means a natural person as defined in Iowa Code section 252B.1 who has been ordered by a court or administrative agency to pay support.

"OSHA" means the Occupational Safety and Health Act.

"Precision test" means a tank and line tightness test that meets the requirements in rule 567—135.4(455B).

"Removal" means the process of removing and disposing of an underground storage tank system no longer in service or the process of abandoning an underground storage tank system in place, in accordance with rule 567—135.9(455B).

"Remover" means a licensed individual who is engaged in permanent closure activities by removal or filling in place of underground storage tank systems in accordance with rule 567—135.15(455B).

"Repair" means to restore any portion of a UST system that has failed. "Repair" does not include the activities defined in this rule by "modification" or "replacement."

"Replacement" means to effect a change in any part of a UST system above grade by exchanging one unit for a like or similar unit. "Replacement" does not include activities defined in this rule as "repair" or "modification."

"Self-insured retention" means the portion of a claim paid by insureds who self-insure a portion of their risk as part of a policy issued by the board. Expenses included as a part of the self-insured retention are the cost of claims settlements or suits, the cost of adjusting, legal fees, court costs and any other investigative cost associated with the claim.

"Service technician" means a nonlicensed individual who works for a licensed individual or a licensed company or who is certified by a manufacturer to conduct modification or replacement activities at UST facilities.

"Tester" means a licensed company or individual who tests tanks, lines, leak detection systems, or monitoring systems as required by 567—Chapter 135 and this chapter. For the purposes of this

definition, an owner, operator or an employee of an owner or operator performing leak detection or cathodic protection monitoring, as required by 567—Chapter 135, is not a tester.

"Testing" means the process of utilizing a system to test underground storage tank systems or any part thereof for tightness, leak detection, cathodic protection or monitoring.

"Underground storage tank professional" means an individual licensed under Part C of this chapter.

"Underground storage tank system" means tank or tanks and associated piping intended to contain and dispense petroleum products and for which proof of financial responsibility is, or on a date definite will be required to be maintained pursuant to the Federal Resource Conservation and Recovery Act, 40 CFR 280, and the regulations in effect on December 31, 1994, adopted pursuant to that Act or successor Acts or amendments.

"Unit" means the child support recovery unit created in Iowa Code section 252B.2.

"U.S. EPA" means the United States Environmental Protection Agency.

"Withdrawal of a certificate of noncompliance" means a document provided by the unit certifying that the certificate of noncompliance is withdrawn and that the licensing authority may proceed with issuance, reinstatement, or renewal of an obligor's license.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.18(455B) Applicability of Part C. All persons and companies that are currently licensed under the former board rules in rescinded 591—Chapter 15 shall be subject to Part C of this chapter. All persons conducting underground storage tank installations and installation inspections as provided in 567—subparagraph 135.3(1)*"e"*(2) and installers, installation inspectors, liners, testers, and removers shall be licensed by the department in accordance with Part C of this chapter. Service technicians as defined in rule 567—134.17(455B) are exempt from licensure under Part C of this chapter.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.19(455B) General licensing requirements. Applications for licenses shall be submitted on a form provided by the department along with all required supporting documentation. Existing licenses as of [insert the effective date of these amendments] and new licenses shall expire December 31, 2010. Subsequently, licenses shall be issued and renewed on a two-year calendar basis, beginning January 1, 2011. All applicants must be at least 18 years of age. The applicant shall not have been issued a certificate of noncompliance from the child support recovery unit.

134.19(1) *Licensing classifications.* A separate license will be issued for:

a. UST installers and installation inspectors;

b. UST removers;

c. UST testers;

d. Cathodic protection testers; and

e. UST liners.

134.19(2) *Individual and company licenses.* A company employing licensed individuals for installation, upgrading, removal, lining or testing of underground storage tank systems shall be registered as a licensed company. A company shall have its license revoked if it fails to employ at least one licensed individual or if it employs unlicensed individuals to do work requiring a license. Individuals who are not companies as defined in rule 567—134.17(455B) are required to have an individual license only.

134.19(3) *License fees.* A $200 fee shall be submitted with a company license application and with an individual license application. Companies and individuals are licensed separately as set forth in subrule 134.19(2). Individuals may apply for multiple individual licenses at once, paying only one $200 processing fee. All fees are nonrefundable.

134.19(4) *License issuance.* Upon receipt, review, and acceptance of the application and application fee, the department shall furnish the applicant with a license showing the name of the individual/company and the expiration date. In order to remain valid, the license shall be renewed prior to the expiration date specified on the license.

134.19(5) *Environmental liability insurance.* All license holders, including licensed companies, are required to have environmental liability insurance with minimum liability of $1 million per occurrence,

as well as in the aggregate. Current license holders shall have 45 days from August 19, 2009, to upgrade their environmental liability insurance.

a. Licensed company. A licensed company is required to provide environmental liability insurance for all licensed activities of the company and its licensed UST professionals.

b. Licensed individuals. Each licensed installer, installation inspector, remover, liner, cathodic protection tester, and tester is required to provide proof of environmental liability insurance covering licensed activities. The insurance may be provided by the licensed company employing the licensed individual or by the individual licensee.

c. Insurance exception. UST professionals employed by owners or operators of underground storage tank systems to work only on the owner's or operator's private system(s) are exempt from insurance requirements.

d. Forms of acceptable insurance. All parties covered by the licensing provisions of Part C of this chapter shall provide evidence of environmental liability insurance to the department upon request.

(1) Environmental liability insurance may be provided by a private insurer authorized to do business in Iowa.

(2) Evidence of environmental liability insurance may be provided using methods of self-insurance as outlined in 567—Chapter 136.

134.19(6) *Examinations and course of instruction.* Prior to the issuance of a license as an installer, installation inspector, remover, liner, tester, or cathodic protection tester, the applicant shall successfully complete a department or department-approved course of instruction and pass a qualification examination approved by the department.

a. Examination requirements for all license holders.

(1) A passing grade of not less than 85 percent is required on the Iowa examination.

(2) Candidates who have failed the examination may not perform work unless supervised by an appropriately licensed individual.

(3) A fee reflecting the actual costs of developing and administering each course of instruction and examination shall be charged.

(4) Nothing in Part C of this chapter shall limit the right of the department to require additional educational requirements of license holders.

b. Exceptions to completion of the course of instruction or examination. All license holders, except cathodic protection testers, are required to complete the course of instruction. Cathodic protection testers are only required to maintain NACE certification, STI cathodic protection certification or equivalent certification approved by the department. Testers may qualify for reciprocity under paragraph 134.19(6)*"c"* if the department approves the public or private certification or training program completed. For testers, the department will approve or deny the certification based upon a review of the course of instruction, applicable manuals and handouts, and the examination.

c. Reciprocity. Persons who are certified under another state or federal regulatory program which has been approved by the department may be eligible for licensure in Iowa without having to take a course of instruction or pass the examination. However, these individuals shall still pay the $200 application fee and qualify for license renewal by fulfilling continuing education requirements.

d. Repeat examination attempts. An applicant who fails an initial examination may take a second examination within one calendar year without having to retake the course of instruction. Failure of the second examination will result in termination of the application. A person may reapply for licensure. The applicant shall complete a course of instruction before retaking the examination.

134.19(7) *Continuing education.* Each person licensed under Part C of this chapter shall complete a department-approved refresher course every two years, except for licensed cathodic protection testers. Cathodic protection testers shall maintain NACE or STI certification or another certification approved by the department. Beginning with the first application for license renewal, each UST professional shall provide evidence to the department, prior to submission of the application for renewal, that at least 12 credit hours of department-approved continuing education have been satisfactorily completed since the last license was issued or renewed. The department may limit the number of credits granted for similar

courses during a renewal period. The requirement for continuing education may be met only by those continuing education offerings which have been approved by the department.

a. Form of approval. Approval may take the form of:

(1) Program approval granted by the department to the sponsor or instructor of a continuing education offering;

(2) Individual requests for credit granted by the department to an installer or inspector for a continuing education offering whose sponsor or instructor did not seek program approval; or

(3) Blanket approval granted by the department to continuing education offerings sponsored by the department or other professional organizations whose standards have been approved by the department.

b. Procedures for department approval of continuing education offerings.

(1) Application for program approval shall be made by the sponsor or instructor to the department and include an agenda or an outline of the content of the proposed continuing education offering.

(2) Application shall be made at least 45 days prior to the desired effective date of approval.

(3) The application shall be reviewed by the department, and notice of approval or denial of program approval shall be sent to the sponsor or instructor. Credit hours may be limited by the department based on program content.

c. Proof of participation. A certificate of satisfactory completion of a department-approved continuing education offering issued by the sponsor or instructor constitutes sufficient evidence of satisfactory completion for purposes of meeting the continuing education requirement.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.20(455B) License renewal procedures.

134.20(1) Renewal applications shall be made on a form provided by the department and received by the department or postmarked no later than November 1 of the expiration year of the license at issue. The renewal application shall be accompanied by the $200 renewal fee as specified in subrule 134.19(3) and proof of environmental liability insurance as required under subrule 134.19(5). Applications received after the November 1 deadline, but before the January 1 expiration date, will be accepted and will require an additional $50 late fee.

134.20(2) To be eligible for renewal, the licensee shall fulfill all continuing education requirements, along with any other requirements set forth in each license classification rule under Part C of this chapter. The department will consider all past disciplinary actions against the licensee when evaluating renewal eligibility.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.21(455B) Conflict of interest. A licensed individual or a licensed company may not conduct a UST installation inspection at any facility at which the licensee is engaged in professional services which are regulated under Part C of this chapter, e.g., installations, modifications, repairs, or replacements of UST systems. A person working for a licensed company as an installer, liner, remover, or tester shall not provide services as an installation inspector on sites where UST systems are being installed or lined by the person's prior employer until six months after leaving the prior employer's licensed company. If a licensed individual leaves the employment of a licensed company, the licensed company shall notify the department within 30 days of that occurrence.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.22(455B) Duty to report. Any UST professional licensed under Part C of this chapter shall timely report suspected and confirmed releases within 24 hours of discovery (6 hours if a hazardous condition exists) as described in rule 567—135.6(455B) to the owner and operator on a form prescribed by the department. The UST professional shall recommend to the owner and operator any release confirmation actions or other investigatory and response actions which in the UST professional's judgment would be consistent with the requirements of rule 567—135.6(455B). The UST professional shall submit a copy of the form to the department within seven days of discovering a confirmed

release. The UST professional is not responsible for reporting a suspected release as described in rule 567—135.6(455B) directly to the department.
[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.23(455B) OSHA safety requirements. All licensed individuals and companies regulated under Part C of this chapter shall conduct their work as required by OSHA safety requirements defined under 29 CFR § 1910 (2006). OSHA standards apply whenever flammable, combustible, or hazardous materials are present, especially during the following activities:

1. Excavating, placing underground storage tank systems in excavations, and ballasting underground storage tank systems with flammable, combustible, or hazardous materials.
2. Purging, cleaning, and removal of underground storage tank systems which have contained flammable, combustible, or hazardous materials.
3. Testing as a part of an installation or after the system has been placed in service.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.24(455B) Installers.

134.24(1) *Licensure qualifications.* An installer of an underground storage tank system shall apply for a license as an installer and shall indicate on the license application the types of installations and upgrade procedures the installer intends to use. In addition to the licensing requirements listed under rule 567—134.19(455B), an installer must:

a. Provide documentation of at least two years of relevant experience;

b. Provide documentation of manufacturer certification for past installations and proof of current certification for future work including, but not limited to, tank systems, piping systems, leak detection and monitoring systems, and corrosion protection systems; and

c. Have completed at least 40 hours of OSHA training.

134.24(2) *Renewal qualifications.* To be eligible for license renewal, an installer shall:

a. Fulfill the department's continuing education requirements in rule 567—134.19(455B);

b. Maintain manufacturer certification if available and notify the department within 30 days if the certification is lost; and

c. Complete the annual eight-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) refresher course.

134.24(3) *Responsibilities of installers.* A licensed installer shall be on site during the performance of all work, including subcontracted work, for which the owner/operator has contracted to have completed by the installer. The licensed installer is responsible for all UST-related work at the site and must ensure that the performance of the work and the finished work conform to industry standards and codes and manufacturers' requirements. The licensed installer is responsible for ensuring that all local installation permits and notice requirements are satisfied. Tank installation includes all work associated with the placement of the tanks, pipes, pumps, dispensers, gauging systems, monitoring systems, corrosion protection, containment devices, and ancillary systems which, if installed incorrectly, could cause or delay detection of a leak. Tank installation specifically includes excavation, equipment placement, backfilling, piping, electrical work, testing calibration, and start-up. Tank installation also includes installation of the appropriate equipment to meet National Emissions Standards for Hazardous Air Pollutants (NESHAP) requirements (40 CFR § 63.6580, Subpart ZZZZ), including submerged fill and vapor balance systems (Stage 1 vapor recovery) and the testing of those systems. Installers shall have on their person at all times while on a UST job site a 40-hour general site worker program identification card or any valid refresher card that complies with OSHA standards.

134.24(4) *Documentation of work performed.* Installing a new UST system or upgrading a UST system requires an installer to submit a copy of DNR Form 148, signed by the owner, to the department. Each licensed installer responsible for the new system installation or the upgrading of an existing system shall sign DNR Form 148 as required by 567—paragraph 135.3(3)*"e."*
[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.25(455B) Testers. A tester of underground storage tank systems shall apply for licensing as a tester and note on the license application the systems and method(s) of testing the tester will use. In addition to the licensing requirements listed under rule 567—134.19(455B), a tester shall provide documentation of at least two years of relevant experience, documentation of manufacturer certification for past testing, and proof of current certification for future work.

134.25(1) *Renewal qualifications.* To be eligible for license renewal, a tester shall fulfill the department's continuing education requirements in rule 567—134.19(455B) and shall maintain manufacturer certification or notify the department within 30 days if the certification is lost.

134.25(2) *Documentation of work performed.* A copy of the test results shall be attached to DNR Form 148 when testing is done in connection with a new installation or the upgrading of an existing underground storage tank system. A precision test is required when the system is covered and is ready to be placed into service; a volumetric, nonvolumetric, or vacuum test may be used as a method for testing the system and a hydrostatic pressure test may be used for testing the lines. Systems used for leak detection or monitoring (such as statistical inventory reconciliation, vapor or water monitoring wells, or tracer-type tests) shall not be acceptable as a precision test at the completion of the installation of a new system or the upgrading of an existing system. Automatic in-tank gauging may be acceptable if third-party U.S. EPA approval as a precision test has been received for testing tanks.

a. The test results shall identify the tanks tested, the test method employed, and the results of the test. Test results shall be dated and signed by the licensed tester who performed the tests.

b. The original DNR Form 148 without attachments shall be mailed to the department.

134.25(3) *Exception to inspection requirement.* Installation inspectors are not required for the testing of underground storage tank systems, lines, leak detection, and cathodic protection as required by 567—Chapter 135 after the system has been put into service.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.26(455B) Liners. In addition to the licensing requirements listed under rule 134.19(455B), a liner shall provide documentation of at least two years of relevant experience, provide documentation of manufacturer certification for past linings and proof of current certification for future work, and have completed at least 40 hours of OSHA training.

134.26(1) *Renewal qualifications.* To be eligible for license renewal, a liner shall:

a. Fulfill the department's continuing education requirements in rule 567—134.19(455B);

b. Maintain manufacturer certification and immediately notify the department if the certification is lost; and

c. Complete the annual eight-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) refresher course.

134.26(2) *Lining system investigation and installation requirements.*

a. *Inspection of internal lining.* A steel underground storage tank that satisfies the corrosion protection requirement as set forth in 567—subparagraph 135.3(2)*"b"*(1) by the addition of an internal lining shall be internally inspected within ten years of the date the tank was lined and every five years thereafter. The purpose of the inspection is to determine if the lining continues to perform according to the manufacturer's specifications, state and federal rules, and national standards and codes and to determine if the tank is still structurally sound. The department accepts both manned entry and video camera periodic inspections. The lining method employed must be specifically designed for the purpose, be compatible with the product stored, and meet acceptable federal and state standards as set forth in 567—Chapter 135.

b. *Integrity testing for tanks.* Liners shall verify structural integrity, to include thickness and strength of the underground storage tanks, whenever tanks are physically entered (manned entry) for periodic inspections. The following standards must be used for lining and periodic inspections and integrity testing:

(1) Physical (manned entry) inspection. American Petroleum Institute (API) Standard 1631: Interior Lining and Periodic Inspection of Underground Storage Tanks.

(2) Video camera inspection. API Standard 1631; "Recommended Practice for Inspecting Buried Lined Steel Tanks Using a Video Camera" developed by Ken Wilcox Associates Inc. (KWA), Methods A and C; and ASTM G-158 (approved prediction models).

(3) Repairs to lining. Standard 631 of the National Leak Prevention Association (NLPA): Entry, Cleaning, Interior Inspection, Repair and Lining of Underground Storage Tanks. Repaired lining must meet the requirements of API 1631 § 8.

(4) Documentation of the inspection. API 1631—Form C: Tank Re-Inspection Affidavit. Liners shall document any defects noted in the system including, but not limited to, holes and perforations using API 1631—Form C: Tank Re-Inspection Affidavit and shall include photographs of all methods of repair.

134.26(3) *Responsibilities of liners.* While on UST job sites, liners shall have on their person at all times a 40-hour general site worker program identification card or any valid refresher card that complies with OSHA standards.

134.26(4) *Documentation of work performed.* A liner shall submit the API 1631 report form to the department, certifying that all work was performed in accordance with applicable industry standards.
[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.27(455B) Installation inspectors. In addition to the licensing requirements listed under rule 134.19(455B), an installation inspector shall provide documentation of at least one year of experience with underground storage installations, testing, inspecting, or design; documentation of manufacturer certification for past work; and proof of current certification for future work. An engineer who intends to apply for licensure as an installation inspector and who has met the requirements in Iowa to be a registered professional engineer (P.E.) may be exempt from the educational requirement so long as UST installation is in the scope of the engineer's P.E. license and regular practice as provided for in rule 567—134.19(455B). Engineers, however, are not exempt from fulfilling the examination requirement.

134.27(1) *Renewal qualifications.* To be eligible for license renewal, an installation inspector shall fulfill the department's continuing education requirements in rule 567—134.19(455B) and shall maintain manufacturer certification or notify the department within 30 days if the certification is lost.

134.27(2) *Documentation of work performed.*

a. A copy of the inspection report must be submitted within 14 days after the inspection is complete. Both the inspection form and DNR Form 148 must be received by the department before the UST system can be activated.

b. A licensed installation inspector shall inspect the job site a minimum of three times during the course of the new tank installation or system upgrade.

c. For new installations, the first inspection shall occur before the UST system is installed. The second inspection shall occur before the covering of the system, when all tanks and pipes are exposed. The inspector shall witness testing of the primary and secondary piping and testing of the secondary containment, including sumps, under-dispenser containment (UDC), and secondary containment leak detection equipment. The final inspection shall occur when all components are operational and the system has been covered, but before actual operation. The installation inspector shall be present on site, shall visually observe all inspections, and shall be able to attest to the results. A video or other recording device showing the work completed by the installer shall not be used nor shall it be an acceptable method of providing independent inspection of the work completed.

134.27(3) *Inspection required.* When concrete is cut or excavation is required that could affect the integrity or operation of the UST system or when a component that routinely contains product is installed, replaced or repaired, one inspection is required. This inspection shall occur when the component is uncovered and replaced or repaired but before operation recommences. Whenever secondary containment, such as UDC or sump, is installed, at least one inspection is required after the equipment is installed and before the sytem is backfilled.

134.27(4) *Inspection not required.* Replacing, repairing or installing the following does not require an inspection: drop tubes, overfill devices, spill buckets, installation of ATG systems, dispensers, submersible turbine pumps, automatic line leak detectors, internal lining and periodic inspections

or lining repair, cathodic protection systems, interstitial sensors, flex connectors, and line and tank tightness testing.

134.27(5) *Pre-work notification requirement.*

a. A licensed company/individual hired by an owner/operator to perform work shall notify the owner's/operator's licensed installation inspector of choice prior to commencing work. Additionally, the owner/operator is responsible for supplying the name of the installation inspector if it is not a governmental entity to any state or local agency with rules affecting installations or upgrades.

b. The pre-work notice given to the installation inspector shall include, at a minimum, the following information:

(1) Description of the work planned.

(2) The licensed individual responsible for the work to be performed.

(3) A schedule of the work to be performed.

(4) A copy of the UST notification of intent to install form submitted to the department.

c. The installation inspector shall review the work plan, and any required changes by the installation inspector must be submitted to the company/individual prior to the beginning of the described work. An inspection schedule must be agreed upon before work commences. Changes to the work schedule, to include the inspection schedule, because of weather or unforeseen job-site conditions shall be agreed upon as soon as the extenuating circumstances are recognized.

134.27(6) *Pre-installation and installation checklists.*

a. The licensed company/individual performing the work shall submit to both the installation inspector and the department a notification of intent to install form 30 days prior to an installation or upgrade.

b. Installation inspectors are required to use the department's installation inspection checklist. The installation inspection checklist must be submitted within 14 days following the tank installation inspection.

134.27(7) *Conflict of interest.* In addition to the conflict-of-interest provisions outlined in rule 567—134.21(455B), the following apply to installation inspectors:

a. If the installation inspector establishes a contract to perform inspection services for an owner/operator, or performs more than five inspections per calendar year for any one owner/operator, then the installation inspector is required to disclose that relationship in writing to the department within 30 days of the fifth inspection.

b. The department may require the owner/operator to seek alternative inspection services for any reason deemed prudent to ensure quality installations.

134.27(8) *Miscellaneous requirements.* An installation inspector has the right to postpone work or to stop work on a job if standards as outlined in Part C of this chapter are not followed by the installer. Furthermore, once an installation inspector has been placed on a job, that installation inspector cannot be replaced without the department's approval. Installation inspectors must verify that any local permit and notice requirements are in place.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.28(455B) Removers. In addition to the licensing requirements listed under rule 567—134.19(455B), a remover shall provide documentation of at least two years of removal or other relevant experience and complete at least 40 hours of OSHA training. An engineer who intends to apply for licensure as a remover and who has met the requirements in Iowa to be a registered professional engineer (P.E.) may be exempt from the licensure requirements under rule 134.19(455B) so long as UST-related work is within the scope of the engineer's P.E. license and regular practice. Engineers are not exempt from fulfilling the examination requirement in subrule 134.19(6).

134.28(1) *Renewal qualifications.* To be eligible for license renewal, a remover shall:

a. Fulfill the department's continuing education requirements in rule 567—134.19(455B);

b. Comply with all local permitting and notice requirements;

c. Comply with department-issued UST closure guidance; and

d. Complete the annual eight-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) refresher course.

134.28(2) *Responsibilities and documentation of work performed.* A licensed remover shall be on site during the performance of all UST closure-related work, including subcontracted work, for which the owner/operator has contracted to have completed by the remover. Removers are responsible for ensuring that all work performed complies with the safety requirements of OSHA. Removers shall submit to the department a notification of closure form 30 days prior to the scheduled removal or fill in place as required in 567—subrule 135.15(2). Removers shall submit to the department the closure report within 45 days of removal or fill in place as required in 567—paragraph 135.15(3)*"e."* Removers shall ensure that all local permits and notice requirements are satisfied. Removers shall have on their person at all times while on a UST job site a 40-hour general site worker program identification card or any valid refresher card that complies with OSHA standards. The closure investigation required by 567—subrule 135.15(3) may be conducted by a licensed remover if the remover is a certified groundwater professional licensed under Part A of this chapter. If the remover is not a certified groundwater professional, the remover may subcontract with a certified groundwater professional.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

567—134.29(455B) Disciplinary actions.

134.29(1) *General policy.* It is the policy of the department to enforce standards of professional and ethical conduct which are generally accepted within the professions which qualify a person for licensure in Iowa under Part C of this chapter. The department intends to investigate and enforce standards of conduct by a licensee which fall within the scope of the licensee's professional relationship with the department, the licensee's clients, and other state regulatory agencies. The department may impose disciplinary actions which may include, but are not limited to, notice of deficiency; probationary notices; and suspension, revocation, and denial of a license. The criteria identified in subrules 134.20(1) and 134.20(2) will be utilized by the department in deciding whether to issue an initial license or to renew a previously issued license.

134.29(2) *Notice of deficiency or probation.* A notice of deficiency or probationary notice shall not be an appealable decision. The recipient of a notice may contest the basis for the notice in writing, and such response shall be made part of the licensee's record. A person subject to a notice to suspend or revoke a license may appeal the notice as provided in 567—Chapter 7.

134.29(3) *Suspension.*

a. The department may suspend the license of any individual or company for good cause for either a single act or omission or repeated acts or omissions. The suspension of a company or individual licensee shall prevent the company or individual licensee from engaging in activities for which the license is required. The suspension may require the licensee to take remedial measures intended to correct or prevent future acts or omissions. Good cause includes, but is not limited to:

(1) A violation of these rules.

(2) Negligent misrepresentation of material facts in a report submitted to the department.

(3) Incompetence on the part of the licensee as evidenced by errors in the performance of duties and activities for which the license was issued.

(4) Repeated failure to submit reports of activities to the department or the owner/operator as provided in this chapter.

b. The department may require that the licensee complete a special training program, examination, or other remedial measures sponsored or approved by the department and designed to strengthen the specific weakness in the licensee's performance of duties as identified in the suspension order.

c. A licensed company or individual shall immediately surrender the applicable license to the department as of the effective date of a suspension order. The department may reinstate the license if it is determined that the company or individual has satisfied the terms of the suspension order and the license is not expired.

134.29(4) *Revocation.*

a. The department may revoke the license of a company or individual for one or more of the following:

(1) Willful disregard of, or willful or repeated violations of, this chapter or 567—Chapter 135.

(2) Fraudulent omissions or misstatements of material facts in a report or in other written or oral communications with the department.

(3) A knowing and willful failure to detect and report a material violation of UST operation and maintenance standards.

(4) Acts or omissions warranting suspension after a license was previously suspended.

b. A licensee shall immediately surrender the license after the effective date of the revocation decision.

[**ARC 7946B**, IAB 7/15/09, effective 8/19/09]

These rules are intended to implement Iowa Code section 455B.474 and chapter 252J.

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CHAPTER 135
TECHNICAL STANDARDS AND CORRECTIVE ACTION REQUIREMENTS FOR OWNERS AND OPERATORS OF UNDERGROUND STORAGE TANKS

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—135.1(455B) Authority, purpose and applicability.

135.1(1) *Authority.* Iowa Code chapter 455B, division IV, part 8, authorizes the department to regulate underground tanks used for storage of regulated substances, and to adopt rules relating to detection, prevention and correction of releases of regulated substances from such tanks, maintenance of financial responsibility by owners or operators of such tanks, new tank performance standards, notice and reporting requirements, and designation of regulated substances.

135.1(2) *Purpose.* The purpose of these rules is to protect the public health and safety and the natural resources of Iowa by timely and appropriate detection, prevention and correction of releases of regulated substances from underground storage tanks (UST).

135.1(3) *Applicability.*

a. The requirements of this chapter apply to all owners and operators of a UST system as defined in 135.2(455B) except as otherwise provided in paragraphs *"b," "c,"* and *"d"* of this subrule. Any UST system listed in paragraph *"c"* of this subrule must meet the requirements of 135.1(4).

b. The following UST systems are excluded from the requirements of this chapter:

(1) Any UST system holding hazardous wastes listed or identified under Subtitle C of the Solid Waste Disposal Act, or a mixture of such hazardous waste and other regulated substances.

(2) Any wastewater treatment tank system that is part of a wastewater treatment facility regulated under Section 402 or 307(b) of the federal Clean Water Act.

(3) Equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment tanks.

(4) Any UST system whose capacity is 110 gallons or less.

(5) Any UST system that contains a de minimus concentration of regulated substances.

(6) Any emergency spill or overflow containment UST system that is expeditiously emptied after use.

c. Deferrals. Rules 567—135.3(455B), 567—135.4(455B), 567—135.5(455B), 567—135.6(455B) and 567—135.9(455B) do not apply to any of the following types of UST systems:

(1) Wastewater treatment tank systems;

(2) Any UST systems containing radioactive material that are regulated under the federal Atomic Energy Act of 1954 (42 U.S.C. 2011 and following);

(3) Any UST system that is part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50 Appendix A;

(4) Airport hydrant fuel distribution systems; and

(5) UST systems with field-constructed tanks.

d. Deferrals. Rule 567—135.5(455B) does not apply to any UST system that stores fuel solely for use by emergency power generators. All new and replacement UST systems for emergency power generators must meet the secondary containment requirements in subrule 135.3(9) and the leak detection and delivery prohibition requirements in subrule 135.3(8).

e. Nonpetroleum underground storage tank systems. Rules 567—135.8(455B) to 567—135.12(455B) do not apply to any nonpetroleum underground storage tank system except as otherwise provided for by the department.

135.1(4) *Interim prohibition for deferred UST systems.*

a. No person may install a UST system listed in 135.1(3)*"c"* for the purpose of storing regulated substances unless the UST system (whether of single- or double-wall construction):

(1) Will prevent releases due to corrosion or structural failure for the operational life of the UST system;

(2) Is cathodically protected against corrosion, constructed of noncorrodible material, steel clad with a noncorrodible material, or designed in a manner to prevent the release or threatened release of any stored substance; and

(3) Is constructed or lined with material that is compatible with the stored substance.

b. Notwithstanding paragraph *"a"* of this subrule, a UST system without corrosion protection may be installed at a site that is determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life. Owners and operators must maintain records that demonstrate compliance with the requirements of this paragraph for the remaining life of the tank.

NOTE: The National Association of Corrosion Engineers Standard RP-02-85, "Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," may be used as guidance for complying with 135.1(4)*"b."*

567—135.2(455B) Definitions.

"Aboveground release" means any release to the surface of the land or to surface water. This includes, but is not limited to, releases from the aboveground portion of a UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from a UST system.

"Active remediation" means corrective action undertaken to reduce contaminant concentrations by other than passive remediation or monitoring.

"Ancillary equipment" means any devices including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from a UST.

"Appurtenances" means devices such as piping, fittings, flanges, valves, dispensers and pumps used to distribute, meter, or control the flow of regulated substances to or from an underground storage tank.

"Asbestos-cement pipe" (AC refers to asbestos-cement) means a pipe or conduit constructed of asbestos fiber, Portland cement, and water, which can be used to transport water.

"ASTM" means the American Society of Testing and Materials.

"Backflow preventer" means a check valve used to ensure water flows in one direction and designed to prevent contamination from an end user, such as a home, from getting into the general water supply. An approved backflow preventer shall be a reduced-pressure backflow preventer or an antisiphon device which complies with the standards of the American Water Works Association and has been approved by the Foundation for Cross-Connection Control and Hydraulic Research.

"Bedrock" means the rock, usually solid, underlying soil or any other unconsolidated surficial cover.

"Below-ground release" means any release to the subsurface of the land and to groundwater. This includes, but is not limited to, releases from the below-ground portions of an underground storage tank system and below-ground releases associated with overfills and transfer operations as the regulated substance moves to or from an underground storage tank.

"Beneath the surface of the ground" means beneath the ground surface or otherwise covered with earthen materials.

"Best available technology" means those practices which most appropriately remove, treat, or isolate contaminants from groundwater, soil or associated environment, as determined through professional judgment considering actual equipment or techniques currently in use, published technical articles, site hydrogeology and research results, engineering and groundwater professional reference materials, consultation with experts in the field, capital and operating costs, and guidelines or rules of other regulatory agencies.

"Best management practices" means maintenance procedures, schedule of activities, prohibition of practices, and other management practices, or a combination thereof, which, after problem assessment, is determined to be the most effective means of monitoring and preventing additional contamination of the groundwater and soil.

"Carcinogenic risk" means the incremental risk of a person developing cancer over a lifetime as a result of exposure to a chemical, expressed as a probability such as one in a million (10^{-6}). For

carcinogenic chemicals of concern, probability is derived from application of certain designated exposure assumptions and a slope factor.

"Cast iron pipe" means a pipe or conduit used as a pressure pipe for transmission of water, gas, or sewage or as a water drainage pipe. It comprises predominantly a gray cast iron tube historically used uncoated, with newer types having various coatings and linings to reduce corrosion and improve hydraulics.

"Cathodic protection" is a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current.

"Cathodic protection tester" means a person who can demonstrate an understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. At a minimum, such persons must have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems.

"CERCLA" means the Comprehensive Environmental Response, Compensation, and Liability Act of 1980.

"Certified groundwater professional" means a person certified pursuant to 1995 Iowa Code section 455G.18 and 567—Chapter 134.

"Change-in-service" means changing the use of a tank system from a regulated to a nonregulated use.

"Chemicals of concern" means the compounds derived from petroleum-regulated substances which are subject to evaluation for purposes of applying risk-based corrective action decision making. These compounds are benzene, ethylbenzene, toluene, and xylenes (BTEX) and naphthalene, benzo(a)pyrene, benz(a)anthracene, and chrysene. (NOTE: Measurement of these last four constituents may be done by a conversion method from total extractable hydrocarbons, see subrule 135.8(3).)

"Class A operator" means a person responsible for managing resources and personnel to achieve and maintain compliance with regulatory requirements under this chapter. This includes ensuring appropriate individuals are trained in the proper operation and maintenance of the underground storage tank system, the maintenance of all required records, the procedures for response to emergencies caused by releases or spills, and assuring financial responsibility and documentation to the department or its representatives as required.

"Class B operator" means a person who implements applicable underground storage tank regulatory requirements and standards. This includes implementing the day-to-day aspects of operating, maintaining, and record keeping for underground storage tanks at one or more facilities. A Class B operator typically monitors, maintains and ensures that release detection methods, record-keeping, and reporting requirements are met; release prevention equipment, record-keeping, and reporting requirements are met; all relevant equipment complies with performance standards; and appropriate individuals are trained to properly respond to emergencies caused by releases and spills.

"Class C operator" means an on-site employee who typically controls or monitors the dispensing or sale of regulated substances and who is the first line of response to events indicating emergency conditions.

"Compatible" means the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the UST.

"Conduit" means underground structures which act as pathways and receptors for chemicals of concern, including but not limited to gravity drain lines and sanitary or storm sewers.

"Connected piping" means all underground piping including valves, elbows, joints, flanges, and flexible connectors attached to a tank system through which regulated substances flow. For the purpose of determining how much piping is connected to any individual UST system, the piping that joins two UST systems should be allocated equally between them.

"Consumptive use" with respect to heating oil means consumed on the premises.

"Corrective action" means an action taken to reduce, minimize, eliminate, clean up, control or monitor a release to protect the public health and safety or the environment. Corrective action includes, but is not limited to, excavation of an underground storage tank for the purpose of repairing a leak or removal of a tank, removal of contaminated soil, disposal or processing of contaminated soil, cleansing of groundwaters or surface waters, natural biodegradation, institutional controls, technological controls and site management practices. Corrective action does not include replacement of an underground storage tank. Corrective action specifically excludes third-party liability.

"Corrective action meeting process" means a series of meetings organized by department staff with owners or operators and other interested parties such as certified groundwater professionals, funding source representatives, and affected property owners. The purpose of the meeting process is to develop and agree on a corrective action plan and the terms for implementation of the plan.

"Corrective action plan" means a plan which specifies the corrective action to be undertaken by the owner or operator in order to comply with requirements in this chapter and which is incorporated into a memorandum of agreement or other written agreement between the department and the owner or operator. The plan may include but is not limited to provisions for additional site assessment, site monitoring, Tier 2 revisions, Tier 3 assessment, excavation, and other soil and groundwater remedial action.

"Corrosion expert" means a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks.

"Department" means Iowa department of natural resources.

"Dielectric material" means a material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate UST systems from the surrounding soils. Dielectric bushings are used to electrically isolate portions of the UST systems (e.g., tank from piping).

"Dispenser" means equipment that is used to transfer a regulated substance from underground piping through a rigid or flexible hose or piping located aboveground to a point of use outside the underground storage tank system, such as a motor vehicle.

"Drinking water well" means any groundwater well used as a source for drinking water by humans and groundwater wells used primarily for the final production of food or medicine for human consumption in facilities routinely characterized with the Standard Industrial Codes (SIC) group 283 for drugs and 20 for foods.

"Ductile iron pipe" means a pipe or conduit commonly used for potable water distribution and for the pumping of sewage. The predominant wall material is ductile iron, a spheroidized graphite cast iron, and commonly has an internal cement mortar lining to inhibit corrosion from the carried water and various types of external coatings to inhibit corrosion from the environment.

"Electrical equipment" means underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electrical cable.

"Enclosed space" means space which can act as a receptor or pathway capable of creating a risk of explosion or inhalation hazard to humans and includes "explosive receptors" and "confined spaces." Explosive receptors means those receptors designated in these rules which are evaluated for explosive risk. Confined spaces means those receptors designated in these rules for evaluation of vapor inhalation risks.

"Excavation zone" means the volume containing the tank system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the UST system is placed at the time of installation.

"Existing tank system" means a tank system used to contain an accumulation of regulated substances or for which installation has commenced on or before January 14, 1987. Installation is considered to have commenced if:

The owner or operator has obtained all federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system; and if,

1. Either a continuous on-site physical construction or installation program has begun; or,

2. The owner or operator has entered into contractual obligations, which cannot be canceled or modified without substantial loss, for physical construction at the site or installation of the tank system to be completed within a reasonable time.

"Farm tank" is a tank located on a tract of land devoted to the production of crops or raising animals, including fish, and associated residences and improvements. A farm tank must be located on the farm property. "Farm" includes fish hatcheries, rangeland and nurseries with growing operations.

"Flow-through process tank" is a tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow-through process tanks do not include tanks used for the storage of materials prior to their introduction into the production process or for the storage of finished products or by-products from the production process.

"Free product" refers to a regulated substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water).

"Gasket" means any type of pipe seals made of a variety of rubbers including but not necessarily limited to styrene-butadiene rubber (SBR), nitrile-butadiene rubber (NBR or nitrile), ethylene propylene diene monomer (EPDM), neoprene (CR), and fluoroelastomer rubber (FKM), which are used to seal pipe connections.

"Gathering lines" means any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production or gathering operations.

"Groundwater ingestion pathway" means a pathway through groundwater by which chemicals of concern may result in exposure to a human receptor as specified in rules applicable to Tier 1, Tier 2 and Tier 3.

"Groundwater plume" means the extent of groundwater impacted by the release of chemicals of concern.

"Groundwater to water line pathway" means a pathway through groundwater which leads to a water line.

"Groundwater vapor to enclosed space pathway" means a pathway through groundwater by which vapors from chemicals of concern may lead to a receptor creating an inhalation or explosive risk hazard.

"Hazardous substance UST system" means an underground storage tank system that contains a hazardous substance defined in Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (but not including any substance regulated as a hazardous waste under subtitle C) or any mixture of such substances and petroleum, and which is not a petroleum UST system.

"Hazard quotient" means the ratio of the level of exposure of a chemical of concern over a specified time period to a reference dose for that chemical of concern derived for a similar exposure period. Unless otherwise specified, the hazard quotient designated in these rules is one.

"Heating oil" means petroleum that is No. 1, No. 2, No. 4-light, No. 4-heavy, No. 5-light, No. 5-heavy, and No. 6 technical grades of fuel oil; other residual fuel oils (including Navy Special Fuel Oil and Bunker C); and other fuels when used as substitutes for one of these fuel oils. Heating oil is typically used in the operation of heating equipment, boilers, or furnaces.

"Highly permeable soils" means for the purpose of UST closures: fractured bedrock, any soils with a hydraulic conductivity rate greater than 0.3 meters per day, or any soil material classified by the Unified Soil Classification System as published by the United States Department of the Interior or ASTM designation as (1) GW - well graded gravel, gravel-sand mixtures, little or no fines, (2) GP - poorly graded gravel, gravel-sand mixtures, little or no fines, (3) SW - well graded sands, gravelly sands, little or no fines, or (4) SP - poorly graded sands, gravelly sands, little or no fines.

"Hydraulic conductivity" means the rate of water movement through the soil measured in meters per day (m/d) as determined by the following methods. For a saturated soil, the Bouwer-Rice method or its equivalent shall be used. For unsaturated soil, use a Guelph permeameter or an equivalent in situ

constant-head permeameter in a boring finished above the water table. If an in situ method cannot be used for unsaturated soil because of depth, or if the soil is homogeneous and lacks flow-conducting channels, fractures, cavities, etc., laboratory measurement of hydraulic conductivity is acceptable.

If laboratory methods are used, collect undisturbed soil samples using a thin-walled tube sampler in accordance with American Society of Testing and Materials (ASTM) Standard D1587. Samples shall be clearly marked, preserved and transported to the laboratory. The laboratory shall measure hydraulic conductivity using a constant-head permeameter in accordance with ASTM Standard D2434 or a falling-head permeameter in accordance with accepted methodology.

"Hydraulic lift tank" means a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices.

"Institutional controls" means the restriction on use or access (for example, fences, deed restrictions, restrictive zoning) to a site or facility to eliminate or minimize potential exposure to a chemical(s) of concern. Institutional controls include any of the following:

1. A law of the United States or the state;
2. A regulation issued pursuant to federal or state laws;
3. An ordinance or regulation of a political subdivision in which real estate subject to the institutional control is located;
4. A restriction on the use of or activities occurring at real estate which are embodied in a covenant running with the land which:

- Contains a legal description of the real estate in a manner which satisfies Iowa Code section 558.1 et seq.;
- Is properly executed, in a manner which satisfies Iowa Code section 558.1 et seq.;
- Is recorded in the appropriate office of the county in which the real estate is located;
- Adequately and accurately describes the institutional control; and
- Is in the form of a covenant as set out in Appendix C or in such a manner reasonably acceptable to the department.

5. Any other institutional control the owner or operator can reasonably demonstrate to the department which will reduce the risk from a release throughout the period necessary to ensure that no applicable target risk is likely to be exceeded.

"Liquid trap" means sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extraction operations (including gas production plants), for the purpose of collecting oil, water, and other liquids. These liquid traps may temporarily collect liquids for subsequent disposition or reinjection into a production or pipeline stream, or may collect and separate liquids from a gas stream.

"Maintenance" means the normal operational upkeep to prevent an underground storage tank system from releasing product.

"MCLs" means the drinking water primary maximum contaminant levels set out in 567—41.3(455B).

"Memorandum of agreement" means a written agreement between the department and the owner or operator which specifies the corrective action that will be undertaken by the owner or operator in order to comply with requirements in this chapter and the terms for implementation of the plan. The plan may include but is not limited to provisions for additional site assessment, site monitoring, Tier 2 revisions, Tier 3 assessment, excavation, and other soil and groundwater remedial action.

"Motor fuel" means petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No. 1 or No. 2 diesel fuel, or any grade of gasohol, and is typically used in the operation of a motor engine.

"New tank system" means a tank system that will be used to contain an accumulation of regulated substances and for which installation has commenced after January 14, 1987. (See also "Existing Tank System.")

"Noncarcinogenic risk" means the potential for adverse systemic or toxic effects caused by exposure to noncarcinogenic chemicals of concern, expressed as the hazard quotient.

"Noncommercial purposes" with respect to motor fuel means not for resale.

"Non-drinking water well" means any groundwater well (except an extraction well used as part of a remediation system) not defined as a drinking water well including a groundwater well which is not properly plugged in accordance with department rules in 567—Chapters 39 and 49.

"Nonresidential area" means land which is not currently used as a residential area and which is zoned for nonresidential uses.

"On the premises where stored" with respect to heating oil means UST systems located on the same property where the stored heating oil is used.

"Operational life" refers to the period beginning when installation of the tank system has commenced until the time the tank system is properly closed under rule 567—135.15(455B).

"Operator" means any person in control of, or having responsibility for, the daily operation of the UST system.

"Overfill release" is a release that occurs when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment.

"Owner" means:

1. In the case of a UST system in use on July 1, 1985, or brought into use after that date, any person who owns a UST system used for storage, use, or dispensing of regulated substances; and

2. In the case of any UST system in use before July 1, 1985, but no longer in use on that date, any person who owned such UST immediately before the discontinuation of its use.

"Owner" does not include a person, who, without participating in the management or operation of the underground storage tank or the tank site, holds indicia of ownership primarily to protect that person's security interest in the underground storage tank or the tank site property, prior to obtaining ownership or control through debt enforcement, debt settlement, or otherwise.

"Pathway" means a transport mechanism by which chemicals of concern may reach a receptor(s) or the location(s) of a potential receptor.

"Permanent closure" means removing all regulated substances from the tank system, assessing the site for contamination, and permanently removing tank and piping from the ground or filling the tank in place with a solid inert material and plugging all piping. Permanent closure also includes partial closure of a tank system such as removal or replacement of tanks or piping only.

"Person" means an individual, trust, firm, joint stock company, federal agency, corporation, state, municipality, commission, political subdivision of a state, or any interstate body. "Person" also includes a consortium, a joint venture, a commercial entity, and the United States government.

"Person who conveys or deposits a regulated substance" means a person who sells or supplies the owner or operator with the regulated substance and the person who transports or actually deposits the regulated substance in the underground tank.

"Petroleum UST system" means an underground storage tank system that contains petroleum or a mixture of petroleum with de minimus quantities of other regulated substances. Such systems include those containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

"Pipe" or *"piping"* means a hollow cylinder or tubular conduit that is constructed of nonearthen materials and that routinely contains and conveys regulated substances from the underground tank(s) to the dispenser(s) or other end-use equipment. Such piping includes any elbows, couplings, unions, valves, or other in-line fixtures that contain and convey regulated substances from the underground tank(s) to the dispenser(s). This definition does not include vent, vapor recovery, or fill lines.

"Pipeline facilities (including gathering lines)" are new and existing pipe rights-of-way and any associated equipment, facilities, or buildings.

"Point of compliance" means the location(s) at the source(s) of contamination or at the location(s) between the source(s) and the point(s) of exposure where concentrations of chemicals of concern must meet applicable risk-based screening levels at Tier 1 or other target level(s) at Tier 2 or Tier 3.

"Point of exposure" means the location(s) at which an actual or potential receptor may be exposed to chemicals of concern via a pathway.

"Polybutylene pipe" (PB refers to polybutylene) means a water supply pipe comprised of a form of plastic resin that was used extensively from 1978 until 1995. The piping systems were used for

underground water mains and as interior water distribution piping. Polybutylene mains are usually blue in color, but may be gray, black, or white. The pipe is usually ½ inch or 1 inch in diameter, and it may be found entering a residence through the basement wall or floor, concrete slab or through the crawlspace; frequently it enters the residence near the water heater.

"Polyethylene pipe" (PE refers to polyethylene) means a water supply pipe comprised of thermoplastic material produced from the polymerization of ethylene. PE pipe is manufactured by extrusion in sizes ranging from ½ inch to 63 inches. PE pipe is available in rolled coils of various lengths or in straight lengths of up to 40 feet. PE pipe is available in many forms and colors, including single-extrusion colored or black pipe, black pipe with co-extruded color striping, and black or natural pipe with a co-extruded colored layer. PE pipe has been demonstrated to be very permeable to petroleum while still retaining its flexible structure.

"Polyvinyl chloride pipe" (PVC refers to polyvinyl chloride) means a pipe made from a plastic and vinyl combination material. The pipes are durable, hard to damage, and long-lasting. A PVC pipe is very resistant and does not rust, nor is it likely to rot or wear over time. PVC piping is most commonly used in water systems, underground wiring, and sewer lines.

"Portland cement" means hydraulic cement (cement that not only hardens by reacting with water but also forms a water-resistant product) and is produced by pulverizing clinkers consisting essentially of hydraulic calcium silicates, usually containing one or more forms of calcium sulfate as an inter ground addition.

"Potential receptor" means a receptor not in existence at the time a Tier 1, Tier 2 or Tier 3 site assessment is prepared, but which could reasonably be expected to exist within 20 years of the preparation of the Tier 1, Tier 2 or Tier 3 site assessment or as otherwise specified in these rules.

"Preferential pathway" means conditions which act as a pathway permitting contamination to migrate through soils and to groundwater at a faster rate than would be expected through naturally occurring undisturbed soils or unfractured bedrock including but not limited to wells, cisterns, tile lines, drainage systems, utility lines and envelopes, and conduits.

"Protected groundwater source" means a saturated bed, formation, or group of formations which has a hydraulic conductivity of at least 0.44 meters per day (m/d) and a total dissolved solids of less than 2,500 milligrams per liter (mg/l) or a bedrock aquifer with total dissolved solids of less than 2,500 milligrams per liter (mg/l) if bedrock is encountered before groundwater.

"Public water supply well" means a well connected to a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

"Receptor" means enclosed spaces, conduits, protected groundwater sources, drinking and non-drinking water wells, surface water bodies, and public water systems which when impacted by chemicals of concern may result in exposure to humans and aquatic life, explosive conditions or other adverse effects on health, safety and the environment as specified in these rules.

"Reference dose" means a designated toxicity value established in these rules for evaluating potential noncarcinogenic effects in humans resulting from exposure to a chemical(s) of concern. Reference doses are designated in Appendix A.

"Regulated substance" means an element, compound, mixture, solution or substance which, when released into the environment, may present substantial danger to the public health or welfare or the environment. Regulated substance includes:

1. Substances designated in Table 302.4 of 40 CFR Part 302 (September 13, 1988),

2. Substances which exhibit the characteristics identified in 40 CFR 261.20 through 261.24 (May 10, 1984) and which are not excluded from regulation as a hazardous waste under 40 CFR 261.4(b) (May 10, 1984),

3. Any substance defined in Section 101(14) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 (but not including any substance regulated as a hazardous waste under subtitle C), and

4. Petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute). The term

"regulated substance" includes but is not limited to petroleum and petroleum-based substances comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

"Release" means any spilling, leaking, emitting, discharging, escaping, leaching or disposing of a regulated substance, including petroleum, from a UST into groundwater, surface water or subsurface soils.

"Release detection" means determining whether a release of a regulated substance has occurred from the UST system into the environment or into the interstitial space between the UST system and its secondary barrier or secondary containment around it.

"Repair" means to restore a tank or UST system component that has caused a release of product from the UST system.

"Replace" or *"replacement"* means the installation of a new underground tank system or component, including dispensers, in substantially the same location as an existing tank system or component in lieu of that tank system or component.

"Residential area" means land used as a permanent residence or domicile, such as a house, apartment, nursing home, school, child care facility or prison, land zoned for such uses, or land where no zoning is in place.

"Residential tank" is a tank located on property used primarily for dwelling purposes.

"Risk-based screening level (RBSL)" means the risk-based concentration level for chemicals of concern developed for a Tier 1 analysis to be met at the point(s) of compliance and incorporated in the Tier 1 Look-up Table in Appendix A.

"SARA" means the federal Superfund Amendments and Reauthorization Act of 1986.

"Secondary containment tank" or *"secondary containment piping"* means a tank or piping which is designed with an inner primary shell and a liquid-tight outer secondary shell or jacket which extends around the entire inner shell, and which is designed to contain any leak through the primary shell from any part of the tank or piping that routinely contains product, and which also allows for monitoring of the interstitial space between the shells and the detection of any leak.

"Septic tank" is a watertight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle is distributed for disposal through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility.

"Service line" means a pipe connected to a business or residence from a water main, typically of a size not exceeding 6 inches in diameter, and including its gaskets and other appurtenances. For purposes of this chapter, service lines refer to pipes specifically used for drinking water transmission.

"Site assessment investigation" means an investigation conducted by a registered groundwater professional to determine relevant site historical data, the types, amounts, and sources of petroleum contaminants present, hydrogeological characteristics of the site, full vertical and horizontal extent of the contamination in soils and groundwater, direction and rate of flow of the contamination, ranges of concentration of the contaminants by analysis of soils and groundwater, the vertical and horizontal extent of the contamination exceeding department standards, and the actual or potential threat to public health and safety and the environment.

"Site cleanup report" means the report required to be submitted by these rules and in accordance with department guidance which may include the results of Tier 2 or Tier 3 assessment and analysis.

"Site-specific target level (SSTL)" means the risk-based target level(s) for chemicals of concern developed as the result of a Tier 2 or Tier 3 assessment which must be achieved at applicable point(s) of compliance at the source to meet the target level(s) at the point(s) of exposure.

"Soil leaching to groundwater pathway" means a pathway through soil by which chemicals of concern may leach to groundwater and through a groundwater transport pathway impact an actual or potential receptor.

"Soil plume" means the vertical and horizontal extent of soil impacted by the release of chemicals of concern.

"Soil to water line pathway" means a pathway which leads from soil to a water line.

"Soil vapor to enclosed space pathway" means a pathway through soil by which vapors from chemicals of concern may lead to a receptor creating an inhalation or explosive risk hazard.

"Storm water or wastewater collection system" means piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water run-off resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of storm water and wastewater does not include treatment except where incidental to conveyance.

"Surface impoundment" is a natural topographic depression, constructed excavation, or diked area formed primarily of earthen materials (although it may be lined with manufactured materials) that is not an injection well.

"Surface water body" means general use segments as provided in 567—paragraph 61.3(1)*"a"* and designated use segments of water bodies as provided in 567—paragraph 61.3(1)*"b"* and 567—subrule 61.3(5).

"Surface water criteria" means, for chemicals of concern, the Criteria for Chemical Constituents in Table 1 of rule 567—61.3(455B), except that "1,000 ug/L" will be substituted for the chronic levels for toluene for Class B designated use segments.

"Surface water pathway" means a pathway which leads to a surface water body.

"Tank" is a stationary device designed to contain an accumulation of regulated substances and constructed of nonearthen materials (e.g., concrete, steel, plastic) that provide structural support.

"Target level" means the allowable concentrations of chemicals of concern established to achieve an applicable target risk which must be met at the point(s) of compliance as specified in these rules.

"Target risk" refers to an applicable carcinogenic and noncarcinogenic risk factor designated in these rules and used in determining target levels (for carcinogenic risk assessment, target risk is a separate factor, different from exposure factors, both of which are used in determining target levels).

"Technological controls" means a physical action which does not involve source removal or reduction, but severs or reduces exposure to a receptor, such as caps, containment, carbon filters, point of use water treatment, etc.

"Tier 1 level" means the groundwater and soil levels in the Tier 1 Look-up Table set out in rule 135.9(455B) and Appendix A.

"Tier 1 site assessment" means the evaluation of limited site-specific data compared to the Tier 1 levels established in these rules for the purpose of determining which pathways do not require assessment and evaluation at Tier 2 and which sites warrant a no further action required classification without further assessment and evaluation.

"Tier 2 site assessment" means the process of assessing risk to actual and potential receptors by using site-specific field data and designated Tier 2 exposure and fate and transport models to determine the applicable target level(s).

"Tier 3 site assessment" means a site-specific risk assessment utilizing more sophisticated data or analytic techniques than a Tier 2 site assessment.

"Under-dispenser containment (UDC)" means containment underneath a dispenser that will prevent leaks from the dispenser from reaching soil or groundwater. Such containment must:

- Be intact and liquid-tight on its sides and bottom and at any penetrations;
- Be compatible with the substance conveyed by the piping; and
- Allow for visual inspection and monitoring and access to the components in the containment system.

"Underground area" means an underground room, such as a basement, cellar, shaft or vault, providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor.

"Underground release" means any below-ground release.

"Underground storage tank" or *"UST"* means any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances,

and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. This term does not include any:

a. Farm or residential tank of 1100 gallons or less capacity used for storing motor fuel for noncommercial purposes. Iowa Code section 455B.471 requires those tanks existing prior to July 1, 1987, to be registered. Tanks installed on or after July 1, 1987, must comply with all 567—Chapter 135 rules;

b. Tank used for storing heating oil for consumptive use on the premises where stored;

c. Septic tank;

d. Pipeline facility (including gathering lines) regulated under:

(1) The Natural Gas Pipeline Safety Act of 1968 (49 U.S.C. App. 1671, et seq.), or

(2) The Hazardous Liquid Pipeline Safety Act of 1979 (49 U.S.C. App. 2001, et seq.), or

(3) Which is an intrastate pipeline facility regulated under state laws comparable to the provisions of the law referred to in *"d"*(1) or *"d"*(2) of this definition;

e. Surface impoundment, pit, pond, or lagoon;

f. Storm-water or wastewater collection system;

g. Flow-through process tank;

h. Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations; or

i. Storage tank situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

The term "underground storage tank" or "UST" does not include any pipes connected to any tank which is described in paragraphs *"a"* through *"j"* of this definition.

"Underground utility vault" means any constructed space accessible for inspection and maintenance associated with subsurface utilities.

"Unreasonable risk to public health and safety or the environment" means the Tier 1 levels for a Tier 1 site assessment, the applicable target level for a Tier 2 site assessment, and the applicable target level for a Tier 3 site assessment.

"Upgrade" means the addition or retrofit of some systems such as cathodic protection, lining, or spill and overfill controls to improve the ability of an underground storage tank system to prevent the release of product.

"UST system" or *"tank system"* means an underground storage tank, connected underground piping, underground ancillary equipment, and containment system, if any.

"Utility envelope" means the backfill and trench used for any subsurface utility line, drainage system and tile line.

"Wastewater treatment tank" means a tank that is designed to receive and treat an influent wastewater through physical, chemical, or biological methods.

"Water line" means a hollow cylinder or tubular conduit that routinely contains and conveys potable water and is constructed of nonearthen materials, including but not limited to asbestos-cement, copper, high-density polyethylene (HDPE), polybutylene, polyethylene, and wood. Such piping includes any elbows, couplings, unions, valves, or other in-line fixtures, as well as the gaskets, which contain and convey potable water.

"Water main pipe" means a main line to the water distribution system with feeder lines or service lines connected to it and which typically is 6 inches or greater in diameter, and includes its gaskets and other appurtenances.

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567—135.3(455B) UST systems—design, construction, installation and notification.

135.3(1) *Performance standards for new UST systems.* In order to prevent releases due to structural failure, corrosion, or spills and overfills for as long as the UST system is used to store regulated substances, all owners and operators of new UST systems must meet the following requirements.

a. Tanks. Each tank must be properly designed and constructed, and any portion underground that routinely contains product must be protected from corrosion, in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory as specified below:

(1) The tank is constructed of fiberglass-reinforced plastic; or

NOTE: The following industry codes may be used to comply with 135.3(1)*"a"*(1): Underwriters Laboratories Standard 1316, "Standard for Glass-Fiber-Reinforced Plastic Underground Storage Tanks for Petroleum Products"; Underwriters Laboratories of Canada CAN4-S615-M83, "Standard for Reinforced Plastic Underground Tanks for Petroleum Products"; or American Society of Testing and Materials Standard D4021-86, "Standard Specification for Glass-Fiber-Reinforced Polyester Underground Petroleum Storage Tanks."

(2) The tank is constructed of steel and cathodically protected in the following manner:

1. The tank is coated with a suitable dielectric material;

2. Field-installed cathodic protection systems are designed by a corrosion expert;

3. Impressed current systems are designed to allow determination of current operating status as required in 135.4(2)*"c"*; and

4. Cathodic protection systems are operated and maintained in accordance with 135.4(2) or according to guidelines established by the department; or

NOTE: The following codes and standards may be used to comply with 135.3(1)*"a"*(2): Steel Tank Institute "Specification for STI-P3 System of External Corrosion Protection of Underground Steel Storage Tanks"; Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks"; Underwriters Laboratories of Canada CAN4-S603-M85, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids," and CAN4-GO3.1-M85, "Standard for Galvanic Corrosion Protection Systems for Underground Tanks for Flammable and Combustible Liquids," and CAN4-S631-M84, "Isolating Bushings for Steel Underground Tanks Protected with Coatings and Galvanic Systems"; or National Association of Corrosion Engineers Standard RP-02-85, "Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and Underwriters Laboratories Standard 58, "Standard for Steel Underground Tanks for Flammable and Combustible Liquids."

(3) The tank is constructed of a steel-fiberglass-reinforced plastic composite; or

NOTE: The following industry codes may be used to comply with 135.3(1)*"a"*(3): Underwriters Laboratories Standard 1746, "Corrosion Protection Systems for Underground Storage Tanks," or the Association for Composite Tanks ACT-100, "Specification for the Fabrication of FRP Clad Underground Storage Tanks."

(4) The tank is constructed of metal without additional corrosion protection measures provided that:

1. The tank is installed at a site that is determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life; and

2. Owners and operators maintain records that demonstrate compliance with the requirements of 135.3(1)*"a"*(4)"1" for the remaining life of the tank; or

(5) The tank construction and corrosion protection are determined by the department to be designed to prevent the release or threatened release of any stored regulated substance in a manner that is no less protective of human health and the environment than 135.3(1)*"a"*(1) to (4).

b. Piping. The piping that routinely contains regulated substances and is in contact with the ground must be properly designed, constructed, and protected from corrosion in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory as specified below:

(1) The piping is constructed of fiberglass-reinforced plastic; or

NOTE: The following codes and standards may be used to comply with 135.3(1)*"b"*(1): Underwriters Laboratories Subject 971, "UL Listed Non-Metal Pipe"; Underwriters Laboratories Standard 567, "Pipe Connectors for Flammable and Combustible and LP Gas"; Underwriters Laboratories of Canada Guide ULC-107, "Glass Fiber Reinforced Plastic Pipe and Fittings for Flammable Liquids"; and Underwriters Laboratories of Canada Standard CAN 4-S633-M81, "Flexible Underground Hose Connectors."

(2) The piping is constructed of steel and cathodically protected in the following manner:

1. The piping is coated with a suitable dielectric material;

2. Field-installed cathodic protection systems are designed by a corrosion expert;

3. Impressed current systems are designed to allow determination of current operating status as required in 135.4(2)*"c"*; and

4. Cathodic protection systems are operated and maintained in accordance with 135.4(2) or guidelines established by the department; or

NOTE: The following codes and standards may be used to comply with 135.3(1)*"b"*(2): National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code"; American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage Systems"; American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems"; and National Association of Corrosion Engineers Standard RP-01-69, "Control of External Corrosion on Submerged Metallic Piping Systems."

(3) The piping is constructed of metal without additional corrosion protection measures provided that:

1. The piping is installed at a site that is determined by a corrosion expert to not be corrosive enough to cause it to have a release due to corrosion during its operating life; and

2. Owners and operators maintain records that demonstrate compliance with the requirements of 135.3(1)*"b"*(3)"1" for the remaining life of the piping; or

NOTE: National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code"; and National Association of Corrosion Engineers Standard RP-01-69, "Control of External Corrosion on Submerged Metallic Piping Systems," may be used to comply with 135.3(1)*"b"*(3).

(4) The piping construction and corrosion protection are determined by the department to be designed to prevent the release or threatened release of any stored regulated substance in a manner that is no less protective of human health and the environment than the requirements in 135.3(1)*"b"*(1) to (3).

c. Spill and overfill prevention equipment.

(1) Except as provided in subparagraph (2), to prevent spilling and overfilling associated with product transfer to the UST system, owners and operators must use the following spill and overfill prevention equipment:

1. Spill prevention equipment that will prevent release of product to the environment when the transfer hose is detached from the fill pipe (for example, a spill catchment basin); and

2. Overfill prevention equipment that will:

Automatically shut off flow into the tank when the tank is no more than 95 percent full; or

Alert the transfer operator when the tank is no more than 90 percent full by restricting the flow into the tank or triggering a high-level alarm; or

Restrict flow 30 minutes prior to overfilling, alert the operator with a high-level alarm one minute before overfilling, or automatically shut off the flow into the tank so that none of the fittings located on top of the tank are exposed to product due to overfilling.

(2) Owners and operators are not required to use the spill and overfill prevention equipment specified in subparagraph (1) if:

1. Alternative equipment is used that is determined by the department to be no less protective of human health and the environment than the equipment specified in subparagraph (1)"1" or "2" of this paragraph; or

2. The UST system is filled by transfers of no more than 25 gallons at one time.

d. Installation. All tanks and piping must be properly installed in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and in accordance with the manufacturer's instructions.

NOTE: Tank and piping system installation practices and procedures described in the following codes may be used to comply with the requirements of 135.3(1)*"d"*: American Petroleum Institute Publication 1615, "Installation of Underground Petroleum Storage System"; Petroleum Equipment Institute Publication RP100, "Recommended Practices for Installation of Underground Liquid Storage Systems"; or American National Standards Institute Standard 831.3, "Petroleum Refinery Piping,"

and American National Standards Institute Standard 831.4, "Liquid Petroleum Transportation Piping System."

e. Certification of installation. All owners and operators must ensure that one or more of the following methods of certification, testing, or inspection is used to demonstrate compliance with paragraph *"d"* of this subrule by providing a certification of compliance on the UST notification form in accordance with 135.3(3).

(1) The installer has been certified by the tank and piping manufacturers; or

(2) The installer has been certified or licensed by the department as provided in 567—Chapter 134, Part C; or

(3) The installation has been inspected and certified by a registered professional engineer with education and experience in UST system installation; or

(4) The installation has been inspected and approved by an inspector certified or licensed by the Iowa comprehensive petroleum underground storage tank fund board; or

(5) All work listed in the manufacturer's installation checklists has been completed; or

(6) The owner and operator have complied with another method for ensuring compliance with paragraph *"d"* that is determined by the department to be no less protective of human health and the environment.

135.3(2) *Upgrading of existing UST systems.*

a. Alternatives allowed. Not later than December 22, 1998, all existing UST systems must comply with one of the following requirements:

(1) New UST system performance standards under 135.3(1);

(2) The upgrading requirements in paragraphs *"b"* through *"d"* below; or

(3) Closure requirements under rule 567—135.15(455B), including applicable requirements for corrective action under rules 567—135.7(455B) to 567—135.12(455B).

Replacement or upgrade of a tank system on a petroleum contaminated site classified as a high or low risk in accordance with subrule 135.12(455B) shall be a double wall tank or a tank equipped with a secondary containment system with monitoring of the space between the primary and secondary containment structures in accordance with 135.5(4)*"g"* or other approved tank system or methodology approved by the Iowa comprehensive petroleum underground storage tank fund board.

b. Tank upgrading requirements. Steel tanks must be upgraded to meet one of the following requirements in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory:

(1) *Interior lining.* A tank may be upgraded by internal lining if:

1. The lining is installed in accordance with the requirements of 135.4(4), and

2. Within ten years after lining, and every five years thereafter, the lined tank is internally inspected and found to be structurally sound with the lining still performing in accordance with original design specifications.

(2) *Cathodic protection.* A tank may be upgraded by cathodic protection if the cathodic protection system meets the requirements of 135.3(1)*"a"*(2)"2," "3," and "4" and the integrity of the tank is ensured using one of the following methods:

1. The tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion holes prior to installing the cathodic protection system; or

2. The tank has been installed for less than ten years and is monitored monthly for releases in accordance with 135.5(4)*"d"* through *"h"*; or

3. The tank has been installed for less than ten years and is assessed for corrosion holes by conducting two tightness tests that meet the requirements of 135.5(4)*"c."* The first tightness test must be conducted prior to installing the cathodic protection system. The second tightness test must be conducted between three and six months following the first operation of the cathodic protection system; or

4. The tank is assessed for corrosion holes by a method that is determined by the department to prevent releases in a manner that is no less protective of human health and the environment than 135.3(2)*"b"*(2)"1" to "3."

(3) *Internal lining combined with cathodic protection.* A tank may be upgraded by both internal lining and cathodic protection if:

1. The lining is installed in accordance with the requirements of 135.4(4); and
2. The cathodic protection system meets the requirements of 135.3(1)*"a"*(2)"2," "3," and "4."

NOTE: The following codes and standards may be used to comply with subrule 135.3(2): American Petroleum Institute Publication 1631, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"; National Leak Prevention Association Standard 631, "Spill Prevention, Minimum 10-Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection"; National Association of Corrosion Engineers Standard RP-02-85, "Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems"; and American Petroleum Institute Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems."

c. *Piping upgrading requirements.* Metal piping that routinely contains regulated substances and is in contact with the ground must be cathodically protected in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and must meet the requirements of 135.3(1)*"b"*(2)"2," "3," and "4."

NOTE: The codes and standards listed in the note following 135.3(1)*"b"*(2) may be used to comply with this requirement.

d. *Spill and overfill prevention equipment.* To prevent spilling and overfilling associated with product transfer to the UST system, all existing UST systems must comply with new UST system spill and overfill prevention equipment requirements specified in 135.3(1)*"c."*

135.3(3) *Notification requirements.*

a. Except as provided in 135.3(3)*"b,"* the owner of an underground storage tank existing on or before July 1, 1985, shall complete and submit to the department a copy of the notification form provided by the department by May 1, 1986.

b. The owner of an underground storage tank taken out of operation between January 1, 1974, and July 1, 1985, shall complete and submit to the department a copy of the notification form provided by the department by May 8, 1986, unless the owner knows the tank has been removed from the ground. For purposes of this subrule, "owner" means the person who owned the tank immediately before the discontinuation of the tank's use.

c. An owner or operator who brings into use an underground storage tank after July 1, 1985, shall complete and submit to the department a copy of the notification form provided by the department within 30 days of installing the tank in the ground. The owner or operator shall not allow the deposit of any regulated substance into the tank without prior approval of the department or until the tank has been issued a tank registration tag and is covered by an approved financial responsibility mechanism in accordance with 567—Chapter 136.

d. All owners and operators of new UST systems must certify in the notification form compliance with the following requirements:

(1) Installation of tanks and piping under 135.3(1)*"e"*;
(2) Cathodic protection of steel tanks and piping under 135.3(1)*"a"* and *"b"*;
(3) Financial responsibility under 567—Chapter 136, Iowa Administrative Code;
(4) Release detection under 135.5(2) and 135.5(3).

e. All owners and operators of new UST systems must ensure that the installer certifies in the notification form that the methods used to install the tanks and piping comply with the requirements in 135.3(1)*"d."*

f. Exemption from reporting requirement. Paragraphs *"a"* to *"c"* do not apply to an underground storage tank for which notice was given pursuant to Section 103, Subsection c, of the Comprehensive Environmental Response, Compensation and Liabilities Act of 1980. (42 U.S.C. Subsection 9603(c))

g. Reporting fee. The notice by the owner to the department under paragraphs *"a"* to *"c"* shall be accompanied by a fee of $10 for each tank included in the notice.

h. Notification requirement for installing a tank. A person installing an underground storage tank and the owner or operator of the underground storage tank must notify the department of their intent to install the tank 30 days prior to installation. Notification shall be on a form provided by the department.

i. Notification requirements for a person who sells, installs, modifies or repairs a tank. A person who sells, installs, modifies, or repairs a tank used or intended to be used in Iowa shall notify, in writing, the purchaser and the owner or operator of the tank of the obligations specified in paragraphs 135.3(3)*"c"* and *"j"* and the financial assurance requirements in 567—Chapter 136. The notification must include the prohibition on depositing a regulated substance into tanks which have not been registered and issued tags by the department. A standard notification form supplied by the department may be used to satisfy this requirement.

j. It is unlawful for a person to deposit or accept a regulated substance in an underground storage tank that has not been registered and issued permanent or annual tank management tags in accordance with rule 567—135.3(455B). It is unlawful for a person to deposit or accept a regulated substance into an underground storage tank if the person has received notice from the department that the underground storage tank is subject to a delivery prohibition or if there is a "red tag" attached to the UST fill pipe or fill pipe cap as provided in subrule 135.3(8).

(1) The department may provide written authorization to receive a regulated substance when there is a delay in receiving tank tags or at new tank installations to allow for testing the tank system.

(2) The department may provide known depositors of regulated substances lists of underground storage tank sites that have been issued tank tags, those that have not been issued tank tags, and those subject to a delivery prohibition pursuant to subrule 135.3(8). These lists do not remove the requirement for depositors to verify that current tank tags are affixed to the fill pipe prior to delivering product. Regulated substances cannot be delivered to underground storage tanks without current tank tags or those displaying a delivery prohibition "red tag" as provided in subrule 135.3(8).

(3) A person shall not deposit a regulated substance in an underground storage tank after receiving written or oral notice from the department that the tank is not covered by an approved form of financial responsibility in accordance with 567—Chapter 136.

k. If an owner or operator fails to register an underground storage tank within 30 days after installation or obtain annual renewal tags by April 1, the owner or operator shall pay an additional $250 upon registration of the tank or application for tank tag renewal. The imposition of this fee does not preclude the department from assessing an additional administrative penalty in accordance with Iowa Code section 455B.476.

135.3(4) *Farm and residential tanks.*

a. The owner or operator of a farm or residential tank of 1100 gallons or less capacity used for storing motor fuel for noncommercial purposes is subject to the requirements of this subrule.

b. Farm and residential tanks, installed before July 1, 1987, shall be reported on a notification form by July 1, 1989, but owners or operators are not required to pay a registration fee.

c. Farm and residential tanks that were installed on or after July 1, 1987, shall be in compliance with all the underground storage tank regulations.

135.3(5) *Registration tags and annual management fee.*

a. Tanks of 1100 gallons or less capacity that have registered with the department will be issued a permanent registration tag.

b. The owner or operator of tanks over 1100-gallon capacity must submit a tank management fee of $65 per tank by January 15 of each year. The owner or operator must also submit written proof that the tanks are covered by an approved form of financial responsibility in accordance with 567—Chapter 136. Upon proper payment of the fee and acceptable proof of financial responsibility, a one-year registration tag will then be issued for the period from April 1 to March 31. The department shall refund a tank management fee if the tank is permanently closed prior to the effective date of April 1 for that year.

c. The owner or operator shall affix the tag to the fill pipe of the underground storage tank where it will be readily visible.

d. A person who conveys or deposits a regulated substance shall inspect the underground storage tank to determine the existence or absence of a current registration tag, a current annual tank management

fee tag, or a delivery prohibition "red tag" as provided in subrule 135.3(8). If the tag is not affixed to the fill pipe or fill pipe cap or if a delivery prohibition "red tag" is displayed, the person shall not deposit the substance in the tank.

e. The owner or operator must return the tank tags upon request of the department for failure to meet the requirements of rules 567—135.3(455B) to 567—135.5(455B) or the financial responsibility rules in 567—Chapter 136 after permanent tank closure or when tanks are temporarily closed for over 12 months, or when the tank system is suspected to be leaking and the responsible party fails to respond as required in subrule 135.8(1). The department will not return the tags until the tank system is in full compliance with the technical requirements of this chapter and financial responsibility requirements of 567—Chapter 136.

135.3(6) *Petroleum underground storage tank registration amnesty program.*

a. A petroleum underground storage tank required to be registered under 135.3(3) and 135.3(4), which has not been registered prior to July 1, 1988, may be registered under the following conditions:

(1) The tank registration fee under 135.3(3)*"g"* shall accompany the registration.

(2) The storage tank management fee under 135.3(5) shall be paid for past years in which the tank should have been registered.

b. If a tank is registered under this subrule on or prior to October 1, 1989, penalties under Iowa Code section 455B.477 shall be waived.

135.3(7) *Exemption certificates from the environmental charge on petroleum diminution.*

a. An owner or operator of a petroleum underground storage tank that is exempt, deferred, or excluded from regulation under Iowa Code sections 455G.1 to 455G.17, can apply for an exemption certificate from the department to exempt a tank from the environmental charge on petroleum diminution. Exempted tanks include those listed in 135.1(3)*"b"* and *"c"* and those excluded in the definition of "underground storage tank" in 567—135.2(455B). Application for the exemption certificate shall be made on the form provided by the department.

b. An exemption certificate is not required for those classes of tanks that the Iowa comprehensive petroleum underground storage tank fund board has waived from the exemption certificate requirement.

c. The department shall revoke and require the return of the exemption certificate if the petroleum underground storage tank becomes subject to Iowa Code sections 455G.1 to 455G.17.

135.3(8) *Delivery prohibition process.*

a. Identifying sites subject to delivery response prohibition action.

(1) Annual registration tag and tank management fee process. Owners and operators shall certify to the following on a form prepared by the department when applying for annual tank tags pursuant to subrule 135.3(5):

1. Installation and performance of an approved UST and piping release detection method as provided in rule 567—135.5(455B), including an annual line tightness test and a line leak detector test if applicable.

2. Installation of an approved overfill and spill protection system as provided in paragraph 135.3(1)*"c."*

3. Installation of an approved corrosion protection system as provided in paragraphs 135.3(1)*"a"* and *"b."*

4. If the UST system has been out of operation for more than three months, that the UST system has been temporarily closed in accordance with rule 567—135.15(455B) and a certification of temporary closure has been submitted to the department.

5. If the UST system has been removed or filled in place within the last 12 months, the date of removal or filling in place and whether a closure report has been submitted as provided in rule 567—135.15(455B).

(2) Sites with provisional status. If the UST system has been classified as operating under provisional status as provided in paragraph 135.3(8)*"c,"* owners and operators when applying for annual tank tags pursuant to subrule 135.3(5) must certify on a form prepared by the department that the owners and operators are in compliance with an approved provisional status remedial plan as provided in paragraph 135.3(8)*"c."*

(3) Compliance inspections. The department may initiate a delivery prohibition response action based on: (1) a finding resulting from a third-party compliance inspection conducted pursuant to rule 567—135.20(455B); (2) a department investigation and inspection conducted pursuant to Iowa Code section 455B.475; or (3) review of a UST system check or other documentation submitted in response to a suspected release under rule 567—135.6(455B) or in response to a confirmed release under rule 567—135.7(455B).

b. Delivery prohibition eligibility criteria. A delivery prohibition response action may be initiated upon a finding that the UST system is out of compliance with department rules and meets the eligibility criteria as specified below. Reinstatement criteria define the standards and process for owners and operators to document that they have taken corrective action sufficient to authorize resumption of fuel to the USTs. Prior to initiation of the delivery prohibition, owners and operators are afforded a minimum level of procedural due process such as prior notice and the opportunity to present facts to dispute the finding. Where notice and the opportunity to take corrective action prior to initiation of a delivery prohibition response action are required, notice by the department or by a certified compliance inspector as provided in rule 567—135.20(455B) shall be sufficient.

If the department finds that any one of the following criteria has been satisfied, the department may initiate a delivery prohibition response action following the notice procedures outlined in paragraph *"e"* of this subrule. After initiation of the delivery prohibition response action, the department will offer the owner or operator an opportunity to establish reinstatement criteria by written documentation and, if requested, an in-person meeting.

(1) An approved release detection method for USTs or UST piping is not installed, such as automatic tank gauging, groundwater monitoring wells and line leak detectors, and there is no record that an approved method such as inventory control, statistical inventory reconciliation, or interstitial space monitoring has been employed during the previous three months. If the owner or operator claims to have documentation that an approved release detection method has been conducted, the owner or operator will be given two business days to produce the documentation.

REINSTATEMENT CRITERIA: The owner or operator must submit results of a passing UST system precision tightness test at the 0.1 gallon-per-hour leak rate in paragraphs 135.5(4)*"c"* and 135.5(5)*"b."* The owner or operator must also document installation and operation of an approved release detection system. This may include proof that a contract has been signed with a qualified statistical inventory reconciliation provider or that a qualified inventory control method has been implemented and training has been provided to onsite supervisory personnel.

(2) No documentation of a required annual line tightness test or line leak detector test has been provided, and the owner or operator has failed to conduct the required testing within 14 days of written notice by the department or a certified compliance inspector as provided in rule 567—135.20(455B).

REINSTATEMENT CRITERIA: The owner or operator must provide documentation of a passing line precision tightness test at the 0.1 gallon-per-hour leak rate in paragraph 135.5(5)*"b"* and a line leak detector test as provided in paragraph 135.5(5)*"a."*

(3) Overfill and spill protection is not installed.

REINSTATEMENT CRITERION: The owner or operator must provide documentation that overfill and spill protection equipment has been installed.

(4) A corrosion protection system is not installed or there is no record that an impressed current corrosion protection system has been in operation for the prior six months.

REINSTATEMENT CRITERIA: A manned entry tank integrity inspection must be completed prior to installation of a corrosion protection system, and the owner or operator must submit results of a passing UST system precision tightness test at the 0.1 gallon-per-hour leak rate in paragraphs 135.5(4)*"c"* and 135.5(5)*"b."* A corrosion protection analysis must be completed and approved by the department.

(5) The owner or operator has failed to provide proof of financial responsibility in accordance with 567—Chapter 136.

REINSTATEMENT CRITERION: The owner or operator must submit acceptable proof of financial responsibility in accordance with 567—Chapter 136.

(6) A qualified UST system release detection method is installed and is being used but the documentation or the absence of documentation is sufficient to question the reliability of the release detection over the past 12-month period. The owner or operator shall be notified of the deficiencies, shall be given at least two business days to produce documentation of compliance and, if necessary, shall be required to conduct a leak detection system analysis and a system tightness test within 14 days. If the owner or operator fails to produce documentation of compliance or to conduct the system analysis and the UST system precision tightness test at the 0.1 gallon-per-hour leak rate in paragraphs 135.5(4)*"c"* and 135.5(5)*"b,"* the department may initiate a delivery prohibition response action. Notice by the department or a compliance inspector as provided in rule 567—135.20(455B) shall be sufficient to initiate a delivery prohibition response action.

REINSTATEMENT CRITERIA: The owner or operator must submit documentation that the leak detection method analysis sufficiently documents compliance and explains the reasons for the accuracy and reliability concerns. If necessary, the owner or operator must submit passing results of a UST system precision tightness test at the 0.1 gallon-per-hour leak rate in paragraphs 135.5(4)*"c"* and 135.5(5)*"b."*

(7) The owner or operator has failed to document completion of a three-year corrosion protection test or to repair defective corrosion protection equipment within 30 days after notice of the violation by the department or a certified compliance inspector as provided in rule 567—135.20(455B).

REINSTATEMENT CRITERION: The owner or operator must submit documentation of a three-year corrosion protection test as provided in rule 567—135.3(455B).

(8) The owner or operator has failed to complete a compliance inspection required by rule 567—135.20(455B) within 60 days after written notice of the violation by the department.

REINSTATEMENT CRITERION: The owner or operator must submit a compliance inspection report as provided in rule 567—135.20(455B).

(9) The owner or operator has failed to take necessary abatement action in response to a confirmed release as provided in subrules 135.7(2) and 135.7(3).

REINSTATEMENT CRITERION: The owner or operator must document compliance with the abatement provisions in subrules 135.7(2) and 135.7(3).

(10) The owner or operator has failed to undertake and document release investigation and confirmation steps within seven days in response to a suspected release as provided in paragraph 135.6(3)*"a."*

REINSTATEMENT CRITERION: The owner or operator must document release confirmation and system check as provided in paragraph 135.6(3)*"a."*

c. Provisional status. The department may classify a UST system as operating under a provisional status when the department documents a pattern of UST operation and maintenance violations under rules 567—135.3(455B) through 567—135.5(455B) and suspected release and confirmed release response actions under rules 567—135.6(455B) and 567—135.7(455B). The department shall provide the owner or operator with a notice specifying the basis for the proposed classification and a proposed remedial action plan. The objective of the remedial action plan is to provide the owner and operator an opportunity to undertake certain remedial actions sufficient to establish a reasonable likelihood that future regulatory compliance will be achieved.

The remedial action plan may include but is not limited to provisions for owner/operator training, development of a facility-specific compliance manual, more frequent third-party compliance inspections than otherwise required under rule 567—135.20(455B), monthly reporting, and retention of a third-party compliance manager/consultant. If the owner or operator and the department cannot reach agreement on a remedial action plan, the department may initiate enforcement action by issuance of an administrative order pursuant to 567—Chapter 10. This provision does not grant the owner or operator an entitlement to this procedure, and the department reserves all discretion to undertake an enforcement action and assess penalties as provided in Iowa Code sections 455B.476 and 455B.477.

d. Administrative orders. The department may impose a delivery prohibition as a remedy for violations of the operation and maintenance provisions in rules 567—135.3(455B) through 567—135.5(455B) and the suspected and confirmed release response actions in rules 567—135.6(455B)

and 567—135.7(455B). This remedy may be in addition to the assessment of penalties as provided in Iowa Code section 455B.476 and other appropriate injunctive relief necessary to correct violations.

e. Due process prior to initiation of a delivery prohibition response action.

(1) Prior to imposing a delivery prohibition response action under paragraph 135.3(8)*"b"* above, the department will provide notice to the owner or operator or, if notice to the owner or operator cannot be confirmed, to a person in charge at the UST facility of the basis for the finding and the intent to initiate a delivery prohibition response action. Notice may be by verbal contact, by facsimile, or by regular or certified mail to the UST facility address or the owner's or operator's last-known address. The owner and operator will be given a minimum of one business day to provide documentation that the finding is inaccurate or that reinstatement criteria in subparagraphs 135.3(8)*"b"*(1) through (5) have been satisfied. Additional days and the opportunity for a telephone or in-person conference may be provided the owner and operator to contest the factual basis for a finding under subparagraphs 135.3(8)*"b"*(6) through (10). Additional procedural due process may be afforded the owner and operator on a case-by-case basis sufficient to satisfy Constitutional due process standards.

If insufficient information is submitted to change the finding, the department will notify the owner or operator and a person in charge at the UST facility of the final decision to impose the delivery prohibition response action.

(2) Provisional status. Upon a finding that an owner or operator under provisional status has failed to comply with the terms of a remedial action plan as provided above, the department may initiate a delivery prohibition response action by giving actual notice to the owner or operator of the basis for the finding of noncompliance and the department's intent to initiate a delivery prohibition response action. The delivery prohibition response action shall not be imposed without providing the owner or operator the opportunity for an evidentiary hearing consistent with the provisions for suspension and revocation of licenses under 567—Chapter 7.

f. Delivery prohibition procedure. Upon oral or written notice that the delivery prohibition response action has been imposed, the owner or operator and any person in charge of the UST facility shall be notified that they are not authorized to receive any further delivery of regulated substances until conditions for reinstatement of eligibility are satisfied. Owners and operators are required to immediately remove and return to the department the current annual tank management fee tags or the tank registration tags if there are no tank management fee tags. Owners and operators are required to provide the department with names and contact information for all persons who convey or deposit regulated substances to the USTs. The department will attempt to notify known persons who convey or deposit regulated substances to the USTs that they are not authorized to deliver to the USTs until further notice by the department as provided in paragraph 135.3(3)*"j"* and subrule 135.3(5).

If the tank tags are not returned within three business days, the department shall visit the site, remove the tags, and affix a "red tag" to the fill pipes or fill pipe caps of all affected USTs. It is unlawful for any person to deposit or accept a regulated substance into a UST that has a "red tag" affixed to the fill pipe or fill pipe cap. The department may allow the owner and operator to dispense and sell the remainder of existing fuel unless the department determines there is an immediate risk of a release or other risk to human health, safety or the environment. The department shall confirm in writing the basis for the delivery prohibition response action, contacts made prior to the action, and steps the owner or operator must take to reinstate fuel delivery.

135.3(9) *Secondary containment requirements for new and replacement UST system installations.* All new and replacement underground storage tank systems and appurtenances used for the storage and dispensing of petroleum products installed after November 28, 2007, shall have secondary containment in accordance with this subrule. The secondary containment provision includes the installation of turbine sumps, transition or intermediate sumps and under-dispenser containment (UDC).

a. The secondary containment may be manufactured as an integral part of the primary containment or constructed as a separate containment system.

b. Installation of any new or replacement turbine pumps involving the direct connection to the tank shall have secondary containment.

c. Any replacement of ten feet or more of piping shall have secondary containment.

d. All piping replacements requiring secondary containment shall be constructed with transition or intermediate containment sumps.

e. The design and construction of all primary and secondary containment shall meet the performance standards in subrule 135.3(1) and paragraphs 135.5(3)*"b"* and 135.5(4)*"g."* At a minimum, the secondary containment must:

(1) Contain regulated substances released from the tank system until detected and removed;

(2) Prevent the release of regulated substances into the environment at any time during the operational life of the underground storage tank system; and

(3) Be checked for evidence of a release at least every 30 days as provided in paragraph 135.5(2)*"a."*

f. Secondary containment with interstitial monitoring in accordance with paragraphs 135.5(3)*"b,"*135.5(4)*"g"* and 135.5(5)*"d"* shall become the primary method of leak detection for all new and replacement tanks and piping installed after November 28, 2007.

g. Testing and inspection. Secondary containment systems shall be liquid-tight and must be inspected and tested every two years. The sensing devices must be tested every two years.

(1) Inspections for secondary containment sumps (spill catchment basins, turbine sumps, transition or intermediate sumps, and under-dispenser containment) shall:

1. Consist of a visual inspection by an Iowa-licensed installer or Iowa-certified inspector every two years. Sumps must be intact (no cracks or perforations) and liquid-tight, including sides and bottom.

2. Sumps must be maintained and kept free of debris, liquid and ice at all times.

3. Regulated substances spilled into any spill catchment basin, turbine sump, transition/intermediate sump or under-dispenser containment shall be immediately removed.

(2) Sensing devices used to monitor the interstitial space shall be tested at least every two years for proper function.

h. Under-dispenser containment. When installing a new motor fuel dispenser or replacing a motor fuel dispenser, a UDC shall be installed whenever:

(1) A motor fuel dispenser is installed at a location where there previously was no dispenser (new UST system or new dispenser location at an existing UST system); or

(2) An existing motor fuel dispenser is removed and replaced with another dispenser and the equipment used to connect the dispenser to the underground storage tank system is replaced. This equipment includes flexible connectors or risers or other transitional components that are beneath the dispenser and connect the dispenser to the piping. A UDC is not required when only the emergency shutoff or shear valves or check valves are replaced.

(3) A UDC shall also be installed beneath the motor fuel dispenser whenever ten feet or more of piping is repaired or replaced within ten feet of a motor fuel dispenser.

i. Exceptions from secondary containment standards. A tank owner or operator may request an exception from the secondary containment standard if the location of the UST system is greater than 1,000 feet from a community water system or potable drinking water well. A community water system includes the distribution piping.

(1) "Community water system (CWS)" means a public water system which has at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. "Public water supply system" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Such term includes: any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Such term does not include any "special irrigation district." A "public water supply system" is either a "community water system" or a "noncommunity water system."

(2) "Potable drinking water well" means any hole (dug, driven, drilled, or bored) that extends into the earth until it meets groundwater and that supplies water for a noncommunity public water

system or supplies water for household use (consisting of drinking, bathing, and cooking or other similar uses). Such wells may provide water to entities such as a single-family residence, a group of residences, businesses, schools, parks, campgrounds, and other permanent or seasonal communities. A "noncommunity water system" is defined in rule 567—40.2(455B) as a public water system that is not a community water system. A "noncommunity water system" is either a "transient noncommunity water system (TNC)" or a "nontransient noncommunity water system (NTNC)."

(3) To determine if a new or replacement underground storage tank, piping, or motor fuel dispenser system is within 1,000 feet of an existing community water system or an existing potable drinking water well, at a minimum the distance must be measured from the closest part of the new or replacement underground storage tank or piping or the motor fuel dispenser system to:

1. The closest part of the nearest existing community water system, including:

- The location of the wellhead(s) for groundwater and the location of the intake point(s) for surface water;
- Water lines, processing tanks, and water storage tanks; and
- Water distribution/service lines under the control of the community water system operator.

2. The wellhead of the nearest existing potable drinking water well.

(4) If a new or replacement underground storage tank, piping, or motor fuel dispenser that is not within 1,000 feet of an existing community water system will be installed, and a community water system that will be within 1,000 feet of the UST system is planned or a permit application has been submitted to the department under 567—Chapter 40, secondary containment and under-dispenser containment are required unless the permit is denied.

(5) If a new or replacement underground storage tank, piping, or motor fuel dispenser that is not within 1,000 feet of an existing potable drinking water well will be installed and the owner will be installing a potable drinking water well at the new facility, or a private water well permit has been submitted pursuant to 567—Chapter 38 and pursuant to applicable county and municipal ordinances for a potable drinking water well that will be within 1,000 feet of the UST system, secondary containment and under-dispenser containment are required unless the permit is denied.

j. Documentation for exception from secondary containment. The following documentation must be provided by the tank owner or operator when requesting an exception from the UST system secondary containment requirement.

(1) A statement from the manager of the local community water system that the community water system is not located or planned within 1,000 feet of the UST system location. This would include rural water systems.

(2) A map showing homes and businesses within 1,000 feet of the UST system location.

(3) Identification of the source of water for the business at the UST system location.

(4) The results of an on-foot search around businesses and homes within a 1,000-foot radius for possible potable drinking water wells. Documentation that there are no pending nonpublic water well permit applications within 1,000 feet of the UST system from any applicable municipal permitting authority, county department of health with department-delegated authority, or the department if there is not delegated permitting authority.

(5) Search results from the Geographic Information System (GIS) well mapping for well locations available from the Iowa Geological Survey.

(6) Documentation that the department's water supply section has no pending applications for a public water supply construction permit within 1,000 feet of a proposed UST system installation or replacement or motor fuel dispenser installation or replacement.

567—135.4(455B) General operating requirements.

135.4(1) *Spill and overfill control.*

a. Owners and operators must ensure that releases due to spilling or overfilling do not occur. The owner and operator must ensure that the volume available in the tank is greater than the volume of product to be transferred to the tank before the transfer is made and that the transfer operation is monitored constantly to prevent overfilling and spilling.

NOTE: The transfer procedures described in National Fire Protection Association Publication 385 may be used to comply with 135.4(1)*"a."* Further guidance on spill and overfill prevention appears in American Petroleum Institute Publication 1621, "Recommended Practice for Bulk Liquid Stock Control at Retail Outlets," and National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code."

b. The owner and operator must report, investigate, and clean up any spills and overfills in accordance with 135.6(4).

135.4(2) *Operation and maintenance of corrosion protection.* All owners and operators of steel UST systems with corrosion protection must comply with the following requirements to ensure that releases due to corrosion are prevented for as long as the UST system is used to store regulated substances:

a. All corrosion protection systems must be operated and maintained to continuously provide corrosion protection to the metal components of that portion of the tank and piping that routinely contain regulated substances and are in contact with the ground.

b. All UST systems equipped with cathodic protection systems must be inspected for proper operation by a qualified cathodic protection tester in accordance with the following requirements:

(1) *Frequency.* All cathodic protection systems must be tested within six months of installation and at least every three years thereafter or according to another reasonable time frame established by the department; and

(2) *Inspection criteria.* The criteria that are used to determine that cathodic protection is adequate as required by this subrule must be in accordance with a code of practice developed by a nationally recognized association.

NOTE: National Association of Corrosion Engineers Standard RP-02-85, "Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," may be used to comply with 135.4(2)*"b"*(2).

c. UST systems with impressed current cathodic protection systems must also be inspected every 60 days to ensure the equipment is running properly.

d. For UST systems using cathodic protection, records of the operation of the cathodic protection must be maintained (in accordance with 135.4(5)) to demonstrate compliance with the performance standards in this subrule. These records must provide the following:

(1) The results of the last three inspections required in paragraph *"c"*; and

(2) The results of testing from the last two inspections required in paragraph *"b."*

135.4(3) *Compatibility.* Owners and operators must use a UST system made of or lined with materials that are compatible with the substance stored in the UST system.

NOTE: Owners and operators storing alcohol blends may use the following codes to comply with the requirements of subrule 135.4(3): American Petroleum Institute Publication 1626, "Storing and Handling Ethanol and Gasoline-Ethanol Blends at Distribution Terminals and Service Stations"; and American Petroleum Institute Publication 1627, "Storage and Handling of Gasoline-Methanol/Cosolvent Blends at Distribution Terminals and Service Stations."

135.4(4) *Repairs allowed.* Owners and operators of UST systems must ensure that repairs will prevent releases due to structural failure or corrosion as long as the UST system is used to store regulated substances. The repairs must meet the following requirements:

a. Repairs to UST systems must be properly conducted in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory.

NOTE: The following codes and standards may be used to comply with 135.4(4)*"a"*: National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code"; American Petroleum Institute Publication 2200, "Repairing Crude Oil, Liquified Petroleum Gas, and Product Pipelines"; American Petroleum Institute Publication 1631, "Recommended Practice for the Interior Lining of Existing Steel Underground Storage Tanks"; and National Leak Prevention Association Standard 631, "Spill Prevention, Minimum 10 Year Life Extension of Existing Steel Underground Tanks by Lining Without the Addition of Cathodic Protection."

b. Repairs to fiberglass-reinforced plastic tanks may be made by the manufacturer's authorized representatives or in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory.

c. Metal pipe sections and fittings that have released product as a result of corrosion or other damage must be replaced. Fiberglass pipes and fittings may be repaired in accordance with the manufacturer's specifications.

d. Repaired tanks and piping must be tightness tested in accordance with 135.5(4)*"c"* and 135.5(5)*"b"* within 30 days following the date of the completion of the repair except as provided in subparagraphs (1) to (3) below:

(1) The repaired tank is internally inspected in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory; or

(2) The repaired portion of the UST system is monitored monthly for releases in accordance with a method specified in 135.5(4)*"d"* through *"h"*; or

(3) Another test method is used that is determined by the department to be no less protective of human health and the environment than those listed above.

e. Within six months following the repair of any cathodically protected UST system, the cathodic protection system must be tested in accordance with 135.4(2)*"b"* and *"c"* to ensure that it is operating properly.

f. UST system owners and operators must maintain records of each repair for the remaining operating life of the UST system that demonstrate compliance with the requirements of this subrule.

135.4(5) *Reporting and record keeping.* Owners and operators of UST systems must cooperate fully with inspections, monitoring and testing conducted by the department, as well as requests for document submission, testing, and monitoring by the owner or operator pursuant to Section 9005 of Subtitle I of the Resource Conservation and Recovery Act, as amended.

a. *Reporting.* Owners and operators must submit the following information to the department:

(1) Notification for all UST systems (135.3(3)), which includes certification of installation for new UST systems (135.3(1)*"e"*);

(2) Reports of all releases including suspected releases (135.6(1)), spills and overfills (135.6(4)), and confirmed releases (135.7(2));

(3) Corrective actions planned or taken including initial abatement measures (135.7(3)), initial site characterization (567—135.9(455B)), free product removal (135.7(5)), investigation of soil and groundwater cleanup and corrective action plan (567—135.8(455B) to 567—135.12(455B)); and

(4) A notification before permanent closure or change-in-service (135.15(2)).

b. *Record keeping.* Owners and operators must maintain the following information:

(1) A corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used (135.3(1)*"a"*(4); (135.3(1)*"b"*(3)).

(2) Documentation of operation of corrosion protection equipment (135.4(2));

(3) Documentation of UST system repairs (135.4(4)*"f"*);

(4) Recent compliance with release detection requirements (135.5(6)); and

(5) Results of the site investigation conducted at permanent closure (135.15(5)).

c. *Availability and maintenance of records.* Owners and operators must keep the records required either:

(1) At the UST site and immediately available for inspection by the department; or

(2) At a readily available alternative site and be provided for inspection to the department upon request.

NOTE: In the case of permanent closure records required under 135.15(5), owners and operators are also provided with the additional alternative of mailing closure records to the department if they cannot be kept at the site or an alternative site as indicated above.

135.4(6) *Training required for UST operators.*

a. An owner or operator shall designate Class A, Class B, and Class C operators for each underground storage tank system or facility that has underground storage tanks regulated by the department, except for unstaffed facilities, which may designate only Class A and Class B operators.

b. A facility may not operate after December 31, 2011, unless operators have been designated and trained as required in this rule, or unless otherwise agreed upon by the department based on a finding of good cause for failure to meet this requirement and a plan for designation and training at the earliest practicable date.

c. Trained operators must be readily available to respond to suspected or confirmed releases, equipment shut-offs or failures, and other unusual operating conditions.

d. A Class A or Class B operator should be immediately available for telephone consultation with the Class C operator when a facility is in operation. Class A or Class B operators should be able to be on site at the storage tank facility within four hours.

e. For staffed facilities, a Class C operator must be on site whenever the UST facility is in operation.

f. For unstaffed facilities, a Class B operator must be geographically located such that the person can be on site within two hours of being contacted by the public, the owner or operator of the facility, or the department. Emergency contact information and emergency procedures must be prominently displayed at the site. An unstaffed facility shall have an emergency shutoff device as provided in 135.5(1) and a sign posted in a conspicuous place that includes the name and telephone number of the facility owner, an emergency response telephone number to contact the Class B operator, and information on local emergency responders.

g. Designated operators must successfully complete required training under subrule 135.4(9) no later than December 31, 2011.

h. A person may be designated for more than one class of operator.

i. When a facility is found to be out of compliance, the department may require the owner and operator to retrain the designated UST system Class A, B, or C operator under a plan approved by the department. The retraining must occur within 60 days from departmental notice for Class A and Class B operators and within 15 days for Class C operators.

135.4(7) *UST operator responsibilities.*

a. *Class A operator.*

(1) Class A operators have the primary responsibility to operate and maintain the underground storage tank system and facility. The Class A operator's responsibilities include managing resources and personnel to achieve and maintain compliance with regulatory requirements under this chapter in the following ways:

1. Class A operators assist the owner by ensuring that underground storage tank systems are properly installed and expeditiously repaired and inspected; financial responsibility is maintained; and records of system installation, modification, inspection and repair are retained and made available to the department and licensed compliance inspectors. The Class A operator shall properly respond to and report emergencies caused by releases or spills from UST systems, ensure that the annual tank management fees are paid, and ensure that Class B and Class C operators are properly trained.

2. Class A operators shall be familiar with training requirements for each class of operator and may provide required training for Class C operators.

3. Class A operators shall provide site drawings that indicate equipment locations for Class B and Class C operators.

(2) Department-licensed installers, installation inspectors, and compliance inspectors may perform Class A operator duties when employed or contracted by the tank owner to perform these functions so long as they are properly trained and designated as Class A operators pursuant to subrules 135.4(9) through 135.4(11). Class A operators who are also licensed compliance inspectors under 567—Chapter 134, Part C, may perform in-house facility inspections of the UST system, but shall not perform department-mandated compliance inspections pursuant to rule 567—135.20(455B). Compliance inspections of a UST facility required by rule 567—135.20(455B) must be completed by a third-party compliance inspector licensed under 567—Chapter 134, Part B.

(3) When there is a change in ownership or operator status, the new owner or operator is responsible for designating a Class A operator prior to bringing the UST system into operation. The Class A operator is responsible for ensuring that all necessary documentation for change of ownership is completed and

submitted to the department and that all compliance requirements of this chapter are satisfied prior to bringing the UST system into operation. The compliance requirements may be provided to the owner or operator using the department's checklist.

If the UST system was temporarily closed, the designated Class A operator must ensure the department's checklist for returning a UST into service is followed, all compliance requirements of this chapter have been met, and the necessary documentation is submitted to the department.

(4) When there is a change in UST ownership, property ownership or operator status, the designated Class A operator for the current owner and operator is responsible for notifying the department when the change is final and, if possible, prior to the new owner or operator taking possession of the site.

b. Class B operator.

(1) A Class B operator implements applicable underground storage tank regulatory requirements and standards in the field or at the tank facility. A Class B operator oversees and implements the day-to-day aspects of operation, maintenance, and record keeping for the underground storage tanks at facilities within four hours of travel time from the Class B operator's principal place of business. A Class B operator's responsibilities include, but are not limited to:

1. Performing mandated system tests at required intervals and making sure spill prevention, overfill control equipment, and corrosion protection equipment are properly functioning.

2. Assisting the owner by ensuring that release detection equipment is operational, release detection monitoring and tests are performed at the proper intervals, and release detection records are retained and made available to the department and compliance inspectors.

3. Making sure record-keeping and reporting requirements are met and that relevant equipment manufacturers' or third-party performance standards are available and followed.

4. Properly responding to, investigating, and reporting emergencies caused by releases or spills from USTs.

5. Performing UST release detection in accordance with rule 567—135.5(455B).

6. Monitoring the status of UST release detection.

7. Meeting spill prevention, overfill prevention, and corrosion protection requirements.

8. Reporting suspected and confirmed releases and taking release prevention and response actions according to the requirements of rule 567—135.6(455B).

9. Training and documenting Class C operators to make sure at least one Class C operator is on site during operating hours. Class B operators shall be familiar with Class C operator responsibilities and may provide required training for Class C operators.

(2) Department-licensed installers, installation inspectors, and compliance inspectors may perform Class B operator duties when employed or contracted by the tank owner to perform these functions so long as they are properly trained and designated as Class B operators under subrules 135.4(9) through 135.4(11). Class B operators who are also licensed compliance inspectors under 567—Chapter 134, Part C, may perform in-house facility inspections of the UST system, but cannot perform department-mandated compliance inspections pursuant to rule 567—135.20(455B). Compliance inspections of a UST facility pursuant to rule 567—135.20(455B) must be completed by a third-party compliance inspector licensed under 567—Chapter 134, Part B.

(3) The owner or operator of a site undergoing a change in ownership shall designate a Class B operator prior to bringing the UST system into operation. The Class B operator must conduct an inspection using the department's inspection checklist and submit the completed checklist along with the change of ownership form prior to operation. If a UST system was temporarily closed, the Class B operator shall ensure that the department's checklist for returning a UST to service is followed and that the necessary documentation is submitted to the department prior to operation of the UST system.

c. Class C operator. A Class C operator is an on-site employee who typically controls or monitors the dispensing or sale of regulated substances and is the first to respond to events indicating emergency conditions. A Class C operator must be present at the facility at all times during normal operating hours. A Class C operator monitors product transfer operations to ensure that spills and overfills do not occur. The Class C operator must know how to properly respond to spills, overfills and alarms when they do

occur. In the event of a spill, overfill or alarm, a Class C operator shall notify the Class A and Class B operators, as well as the department and appropriate local emergency authorities as required by rule.

(1) Within six months after October 14, 2009, written basic operating instructions, emergency contact names and telephone numbers, and basic procedures specific to the facility shall be provided to all Class C operators and readily available on site.

(2) There may be more than one Class C operator at a storage tank facility, but not all employees of a facility need be Class C operators.

135.4(8) *UST operator training course requirements.* Individuals must attend a department-approved training course covering material designated for each operator class. Individuals must attend every session of the training, take the examination, and attend examination review.

a. Class A operators. To be certified as a Class A operator, the applicant must successfully complete a department-approved training course that covers underground storage tank system requirements as outlined in 567—Chapters 134 to 136. The course must also provide a general overview of the department's UST program, purpose, groundwater protection goals, public safety and administrative requirements. The training must include, but is not limited to, the following:

(1) Components and materials of underground storage tank systems.

(2) A general discussion of the content of PEI/RP900-08, Recommended Practices for the Inspection and Maintenance of UST Systems, and PEI/RP500, Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment.

(3) Spill and overfill prevention, to include the American Petroleum Institute (API) Publication RP1621, "Recommended Practice for Bulk Liquid Stock Control at Retail Outlets," and National Fire Protection Association Standard 30, "Flammable and Combustible Liquids Code."

(4) Ensuring product delivery to the correct tank by using color-symbol codes in the API Standard RP1637, "Using the API Color-Symbol System to Mark Equipment and Vehicles for Product Identification at Service Stations and Distribution Terminals."

(5) Proper fuel ordering and delivery, including procedures in API RP1007, "Loading and Unloading of MC/DOT 406 Cargo Tank Motor Vehicles."

(6) Release detection methods and related reporting requirements.

(7) Corrosion protection and inspection requirements, including the requirement to have a department-licensed cathodic protection tester.

(8) Discussion of the benefits of monthly or frequent inspections and content and use of inspection checklists. Training materials for operators shall include the department's "Iowa UST Operator Inspection Checklist" or a checklist template similar to the department's document.

(9) Requirement and content of third-party compliance inspections.

(10) How to properly respond to an emergency, including hazardous conditions.

(11) Product and equipment compatibility, including the department's ethanol compatibility guidance and certification.

(12) Financial responsibility, including detailed explanation of liability, notice and claim procedures, and the six-month window to check for and report a release prior to insurance termination to maintain coverage for corrective action.

(13) Notification of installation and storage tank registration requirements.

(14) Requirement to use department-licensed companies and individuals for UST installation, testing, lining, and removal.

(15) Temporary and permanent closure procedures and requirements.

(16) NESHAP vapor recovery requirements.

(17) Conditions under which the department may stop fuel delivery and take enforcement action.

(18) Ensuring that annual tank management fees are paid.

(19) Ensuring that suspected and confirmed releases are investigated and reported according to subrule 135.6(1).

b. Class B operators. To be certified as a Class B operator, the individual must successfully complete a department-approved training course that provides in-depth understanding of UST system regulations applicable to this class. Training must also provide a general overview of the department's

UST program, purpose, groundwater protection goals, public safety and administrative requirements. Training shall cover the operation and maintenance requirements set forth in this chapter, including, but not limited to, the following:

(1) A general discussion of the content of PEI/RP900-08, Recommended Practices for the Inspection and Maintenance of UST Systems, and PEI/RP500, Recommended Practices for Inspection and Maintenance of Motor Fuel Dispensing Equipment.

(2) Components and materials of underground storage tank systems.

(3) Spill and overfill prevention.

(4) Ensuring product delivery to the correct tank by using color-symbol codes in the API Standard RP1637.

(5) Proper fuel ordering and delivery, including procedures from API RP1007.

(6) Methods of release detection and related reporting requirements.

(7) Corrosion protection and related testing.

(8) Discussion of the benefits of monthly or frequent inspections and content and use of inspection checklists. Training materials for operators shall include the department's "Iowa UST Operator Inspection Checklist" or a checklist template similar to the department's document.

(9) Requirement and content of third-party compliance inspections.

(10) Emergency response, reporting and investigating releases.

(11) Product and equipment compatibility, including the department's ethanol compatibility guidance and certification.

(12) Financial responsibility, including detailed explanation of liability, notice and claim procedures, and the six-month window to check for and report a release prior to insurance termination to maintain coverage for corrective action.

(13) Notification of installation and storage tank registration requirements.

(14) Requirement to use department-licensed companies and individuals for UST installation, testing, lining, and removal.

(15) Reporting and record-keeping requirements.

(16) Overview of Class C operator training requirements.

(17) NESHAP vapor recovery requirements.

(18) Conditions under which the department may stop fuel delivery and take enforcement action.

c. Class C operators. To be certified as a Class C operator, an individual must complete a department-approved training course that covers, at a minimum, a general overview of the department's UST program and purpose; groundwater protection goals; public safety and administrative requirements; and action to be taken in response to an emergency condition due to a spill or release from a UST system. Training must include written procedures for the Class C operator, including notification instructions necessary in the event of emergency conditions. The written instructions and procedures must be readily available on site. A Class A or Class B operator may provide Class C training.

135.4(9) *Examination and review requirement.* Class A and Class B operators must complete the department-approved training course and take an examination to verify their understanding and knowledge. The examination may include both written and practical (hands-on) testing activities. The trainer must follow up the examination with a review of missed test questions with the class or individual to ensure understanding of problem areas. Upon successful completion of the training course, the applicant will receive a certificate verifying the applicant's status as a Class A, Class B, or Class C operator.

a. Reciprocity. The department may waive the training course for operators upon a showing of successful completion of a training course and examination approved by another state or regulatory agency that the department determines are substantially equivalent to the UST requirements contained in this chapter.

b. Transferability to another UST site. Class A and Class B operators may transfer to other UST facilities in Iowa provided the operator is properly designated by the facility owner as a Class A or Class B operator according to 567—subrule 134.4(13). Class A and Class B operators transferring from other

states shall seek prior approval of training qualifications, unless the department has preapproved the out-of-state program as substantially equivalent to the requirements of this chapter.

135.4(10) *Timing of UST operator training.*

a. An owner shall ensure that Class A, Class B, and Class C operators are trained as soon as practicable after October 14, 2009, contingent upon availability of approved training providers, but not later than December 31, 2011, except as provided in paragraph 135.4(6)*"b."*

b. When a Class A or Class B operator is replaced, a new operator must be trained prior to assuming duties for that class of operator.

c. Class C operators must be trained before assuming the duties of a Class C operator. Within six months after October 14, 2009, written basic operating instructions, emergency contact names and telephone numbers, and basic procedures specific to the facility shall be provided to all Class C operators and readily available on site. A Class C operator may be briefed on these procedures concurrent with annual safety training required under Occupational Safety and Health Administration regulations, 29 CFR, Part 1910.

135.4(11) *Documentation of operator training.*

a. The owner of an underground storage tank facility shall maintain a list of designated operators. The list shall be made available to the department in accordance with subrule 135.4(5). The list shall represent the current Class A, Class B and Class C operators for the UST facility and must include:

(1) The name of each operator and the operator's class(es); contact information for Class A and Class B operators; the date each operator successfully completed initial training and refresher training, if any; the name of the company providing the training; and the name of the trainer.

(2) For all classes of operators, the site(s) for which an operator is responsible if more than one site.

b. A copy of the certificates of training for Class A and Class B operators shall be on file and readily available for inspection in accordance with subrule 135.4(5).

c. A copy of the certificates of training for Class B and Class C operators shall be available at each facility for which the operator is responsible.

d. Class A and Class B operator contact information, including names and telephone numbers and any emergency information, shall be conspicuously posted at unstaffed facilities near the dispensers and the station building.

[**ARC 8124B**, IAB 9/9/09, effective 10/14/09]

567—135.5(455B) Release detection.

135.5(1) *General requirements for all UST systems.*

a. Owners and operators of new and existing UST systems must provide a method, or combination of methods, of release detection that:

(1) Can detect a release from any portion of the tank and the connected underground piping that routinely contains product;

(2) Is installed, calibrated, operated, and maintained in accordance with the manufacturer's instructions, including routine maintenance and service checks for operability or running condition; and

(3) Meets the performance requirements in 135.5(4) or 135.5(5), with any performance claims and their manner of determination described in writing by the equipment manufacturer or installer. In addition, methods conducted in accordance with 135.5(4)*"b," "c,"* and *"d"* and 135.5(5)*"b"* after December 22, 1990, and 135.5(5)*"a"* after September 22, 1991, except for methods permanently installed prior to those dates, must be capable of detecting the leak rate or quantity specified for that method with a probability of detection of 0.95 and a probability of false alarm of 0.05.

b. When a release detection method operated in accordance with the performance standards in 135.5(4) and 135.5(5) indicates a release may have occurred, owners and operators must notify the department in accordance with rule 567—135.6(455B).

c. Owners and operators of all UST systems must comply with the release detection requirements of this rule by December 22 of the year listed in the following table:

Scheduled for Phase-in of Release Detection					
Year System Was Installed	Year When Release Detection is Required (by December 22 of the Year Indicated)				
	1989	1990	1991	1992	1993
Before 1965 or Date Unknown	RD	P			
1965-1969		P/RD			
1970-1974		P	RD		
1975-1979		P		RD	
1980-1988		P			RD
New Tanks	Immediately upon installation				

P = Must begin release detection for all pressurized piping in accordance with 135.5(2)*"b"*(1).

RD = Must begin release detection for tanks and suction piping in accordance with 135.5(2)*"a,"* 135.5(2)*"b"*(2), and 135.5(3).

d. Any existing UST system that cannot apply a method of release detection that complies with the requirements of this rule must complete the closure procedures in rule 567—135.15(455B) by the date on which release detection is required for that UST system under paragraph *"c."*

e. Any UST facility that uses pressurized piping and dispenses product in the absence of a Class A, B, or C operator shall comply with the following requirements:

(1) Employ automatic line leak detectors that do one or more of the following:

1. Shut down the submersible pump when a leak is detected.
2. Restrict the flow of product when a leak is detected.
3. Trigger an audible or visual alarm when a leak is detected.

(2) At facilities implementing 135.5(1)*"e"*(1)"2" or "3," the facility's operator shall be notified or shall conduct a visit through one of the following methods:

1. Notification of the Class B operator by immediate electronic communication.
2. Signage directing the customer to contact the Class B operator or a designated contact person. The sign must be immediately visible to the customer and state that slow flow or an audible or visual alarm is an indication of a possible release. The sign must provide a 24-hour telephone number of the Class B operator or designee and direct the customer to stop dispensing product.
3. Daily visit to the site by a Class A, B, or C operator or designee. Visits shall include observation of every automatic line leak detector for shutdown, alarm, or restricted flow conditions. Methods of observing for restricted flow conditions may include dispensing product into a proper container or personal vehicle, observing a customer dispense product into a vehicle, or another method approved by the department. Owners and operators shall maintain an onsite log of site visits to demonstrate compliance with this provision. The log shall include the name of the observer and method used to observe the status of the automatic line leak detectors.

(3) All UST facilities subject to 135.5(1)*"e"* must comply with its provisions by July 1, 2014.

135.5(2) *Requirements for petroleum UST systems.* Owners and operators of petroleum UST systems must provide release detection for tanks and piping as follows:

a. *Tanks.* Tanks must be monitored at least every 30 days for releases using one of the methods listed in 135.5(4)*"d"* to *"h"* except that:

(1) UST systems that meet the performance standards in 135.3(1) or 135.3(2), and the monthly inventory control requirements in 135.5(4)*"a"* or *"b,"* may use tank tightness testing (conducted in accordance with 135.5(4)*"c"*) at least every five years until December 22, 1998, or until ten years after the tank is installed or upgraded under 135.3(2)*"b,"* whichever is later;

(2) UST systems that do not meet the performance standards in 135.3(1) or 135.3(2) may use monthly inventory controls (conducted in accordance with 135.5(4)*"a"* or *"b"*) and annual tank tightness testing (conducted in accordance with 135.5(4)*"c"*) until December 22, 1998, when the tank must be upgraded under 135.3(2) or permanently closed under 135.15(2); and

(3) Tanks with capacity of 550 gallons or less may use weekly tank gauging (conducted in accordance with 135.5(4)*"b"*).

b. *Piping.* Underground piping that routinely contains regulated substances must be monitored for releases in a manner that meets one of the following requirements:

(1) *Pressurized piping.* Underground piping that conveys regulated substances under pressure must:

1. Be equipped with an automatic line leak detector conducted in accordance with 135.5(5)*"a"*; and

2. Have an annual line tightness test conducted in accordance with 135.5(5)*"b"* or have monthly monitoring conducted in accordance with 135.5(5)*"c."*

(2) *Suction piping.* Underground piping that conveys regulated substances under suction must either have a line tightness test conducted at least every three years and in accordance with 135.5(5)*"b,"* or use a monthly monitoring method conducted in accordance with 135.5(5)*"c."* No release detection is required for suction piping that is designed and constructed to meet the following standards:

1. The below-grade piping operates at less than atmospheric pressure;

2. The below-grade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released;

3. Only one check valve is included in each suction line;

4. The check valve is located directly below and as close as practical to the suction pump; and

5. A method is provided that allows compliance with "2" through "4" to be readily determined.

135.5(3) *Requirements for hazardous substance UST systems.* Owners and operators of hazardous substance UST systems must provide release detection that meets the following requirements:

a. Release detection at existing UST systems must meet the requirements for petroleum UST systems in 135.5(2). By December 22, 1998, all existing hazardous substance UST systems must meet the release detection requirements for new systems in paragraph *"b"* below.

b. Release detection at new hazardous substance UST systems must meet the following requirements:

(1) Secondary containment systems must be designed, constructed and installed to:

1. Contain regulated substances released from the tank system until they are detected and removed;

2. Prevent the release of regulated substances to the environment at any time during the operational life of the UST system; and

3. Be checked for evidence of a release at least every 30 days.

NOTE: The provisions of 40 CFR 265.193, Containment and Detection of Releases, as of September 13, 1988, may be used to comply with these requirements.

(2) Double-walled tanks must be designed, constructed, and installed to:

1. Contain a release from any portion of the inner tank within the outer wall; and

2. Detect the failure of the inner wall.

(3) External liners (including vaults) must be designed, constructed, and installed to:

1. Contain 100 percent of the capacity of the largest tank within its boundary;

2. Prevent the interference of precipitation or groundwater intrusion with the ability to contain or detect a release of regulated substances; and

3. Surround the tank completely (i.e., it is capable of preventing lateral as well as vertical migration of regulated substances).

(4) Underground piping must be equipped with secondary containment that satisfies the requirements of 135.5(3)*"b"*(1) above (e.g., trench liners, jacketing of double-walled pipe). In addition, underground piping that conveys regulated substances under pressure must be equipped with an automatic line leak detector in accordance with 135.5(5)*"a"*;

(5) Other methods of release detection may be used if owners and operators:

1. Demonstrate to the department that an alternate method can detect a release of the stored substance as effectively as any of the methods allowed in 135.5(4)*"b"* to *"h"* can detect a release of petroleum;

2. Provide information to the department on effective corrective action technologies, health risks, and chemical and physical properties of the stored substance, and the characteristics of the UST site; and

3. Obtain approval from the department to use the alternate release detection method before the installation and operation of the new UST system.

135.5(4) *Methods of release detection for tanks.* Each method of release detection for tanks used to meet the requirements of 135.5(2) must be conducted in accordance with the following:

a. Inventory control. Product inventory control (or another test of equivalent performance) must be conducted monthly to detect a release of at least 1.0 percent of flow-through plus 130 gallons on a monthly basis in the following manner:

(1) Inventory volume measurements for regulated substance inputs, withdrawals, and the amount still remaining in the tank are recorded each operating day;

(2) The equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest 1/8 of an inch;

(3) The regulated substance inputs are reconciled with delivery receipts by measurement of the tank inventory volume before and after delivery;

(4) Deliveries are made through a drop tube that extends to within 1 foot of the tank bottom;

(5) Product dispensing is metered and recorded within the local standards for meter calibration or an accuracy of 6 cubic inches for every 5 gallons of product withdrawn; and

(6) The measurement of any water level in the bottom of the tank is made to the nearest 1/8 of an inch at least once a month.

NOTE: Practices described in the American Petroleum Institute Publication 1621, "Recommended Practice for Bulk Liquid Stock Control at Retail Outlets," may be used, where applicable, as guidance in meeting the requirements of subrule 135.5(4), paragraph *"a,"* subparagraphs (1) to (6).

b. Manual tank gauging. Manual tank gauging must meet the following requirements:

(1) Tank liquid level measurements are taken at the beginning and ending of a period of at least 36 hours during which no liquid is added to or removed from the tank;

(2) Level measurements are based on an average of two consecutive stick readings at both the beginning and ending of the period;

(3) The equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest 1/8 of an inch;

(4) A leak is suspected and subject to the requirements of rule 567—135.6(455B) if the variation between beginning and ending measurements exceeds the weekly or monthly standards in the following table:

Nominal Tank Capacity	Weekly Standard (one test)	Monthly Standard (average of four tests)
550 gallons or less	10 gallons	5 gallons
551-1,000 gallons	13 gallons	7 gallons
1,001-2,000 gallons	26 gallons	13 gallons

(5) Only tanks of 550 gallons or less nominal capacity may use this as the sole method of release detection. Tanks of 551 to 2000 gallons may use the method in place of manual inventory control in 135.5(4)*"a."* Tanks of greater than 2000 gallons nominal capacity may not use this method to meet the requirements of this rule.

c. Tank tightness testing. Tank tightness testing (or another test of equivalent performance) must be capable of detecting a 0.1 gallon-per-hour leak rate from any portion of the tank that routinely contains product while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.

d. Automatic tank gauging. Equipment for automatic tank gauging that tests for the loss of product and conducts inventory control must meet the following requirements:

(1) The automatic product level monitor test can detect a 0.2 gallon-per-hour leak rate from any portion of the tank that routinely contains product; and

(2) Inventory control (or another test of equivalent performance) is conducted in accordance with the requirements of 135.5(4)*"a."*

e. Vapor monitoring. Testing or monitoring for vapors within the soil gas of the excavation zone must meet the following requirements:

(1) The materials used as backfill are sufficiently porous (e.g., gravel, sand, crushed rock) to readily allow diffusion of vapors from releases into the excavation area;

(2) The stored regulated substance, or a tracer compound placed in the tank system, is sufficiently volatile (e.g., gasoline) to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank;

(3) The measurement of vapors by the monitoring device is not rendered inoperative by the groundwater, rainfall, or soil moisture or other known interferences so that a release could go undetected for more than 30 days;

(4) The level of background contamination in the excavation zone will not interfere with the method used to detect releases from the tank;

(5) The vapor monitors are designed and operated to detect any significant increase in concentration above background of the regulated substance stored in the tank system, a component or components of that substance, or a tracer compound placed in the tank system;

(6) In the UST excavation zone, the site is assessed to ensure compliance with the requirements in 135.5(4)*"e"*(1) to (4) and to establish the number and positioning of monitoring wells that will detect releases within the excavation zone from any portion of the tank that routinely contains product; and

(7) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

f. Groundwater monitoring. Testing or monitoring for liquids on the groundwater must meet the following requirements:

(1) The regulated substance stored is immiscible in water and has a specific gravity of less than 1;

(2) Groundwater is never more than 20 feet from the ground surface and the hydraulic conductivity of the soil(s) between the UST system and the monitoring wells or devices is not less than 0.01 cm/sec (e.g., the soil should consist of gravels, coarse to medium sands, coarse silts or other permeable materials);

(3) The slotted portion of the monitoring well casing must be designed to prevent migration of natural soils or filter pack into the well and to allow entry of regulated substance on the water table into the well under both high and low groundwater conditions;

(4) Monitoring wells shall be sealed from the ground surface to the top of the filter pack;

(5) Monitoring wells or devices intercept the excavation zone or are as close to it as is technically feasible;

(6) The continuous monitoring devices or manual methods used can detect the presence of at least 1/8 of an inch of free product on top of the groundwater in the monitoring wells;

(7) Within and immediately below the UST system excavation zone, the site is assessed to ensure compliance with the requirements in 135.5(4)*"f"*(1) to (5) and to establish the number and positioning of monitoring wells or devices that will detect releases from any portion of the tank that routinely contains product; and

(8) Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

g. Interstitial monitoring. Interstitial monitoring between the UST system and a secondary barrier immediately around or beneath it may be used, but only if the system is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains product and also meets one of the following requirements:

(1) For secondary containment systems, the sampling or testing method must be able to detect a release through the inner wall in any portion of the tank that routinely contains product:

1. Continuously, by means of an automatic leak sensing device that signals to the operator the presence of any regulated substance in the interstitial space; or

2. Monthly, by means of a procedure capable of detecting the presence of any regulated substance in the interstitial space.

3. The interstitial space shall be maintained and kept free of liquid, debris or anything that could interfere with leak detection capabilities.

NOTE: The provisions outlined in the Steel Tank Institute's "Standard for Dual Wall Underground Storage Tanks" may be used as guidance for aspects of the design and construction of underground steel double-walled tanks.

(2) For UST systems with a secondary barrier within the excavation zone, the sampling or testing method used can detect a release between the UST system and the secondary barrier:

1. The secondary barrier around or beneath the UST system consists of artificially constructed material that is sufficiently thick and impermeable (at least 10^{-6} cm/sec for the regulated substance stored) to direct a release to the monitoring point and permit its detection;

2. The barrier is compatible with the regulated substance stored so that a release from the UST system will not cause a deterioration of the barrier allowing a release to pass through undetected;

3. For cathodically protected tanks, the secondary barrier must be installed so that it does not interfere with the proper operation of the cathodic protection system;

4. The groundwater, soil moisture, or rainfall will not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 days;

5. The site is assessed to ensure that the secondary barrier is always above the groundwater and not in a 25-year flood plain, unless the barrier and monitoring designs are for use under such conditions; and

6. Monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.

(3) For tanks with an internally fitted liner, an automated device can detect a release between the inner wall of the tank and the liner, and the liner is compatible with the substance stored.

h. Other methods. Any other type of release detection method, or combination of methods, can be used if:

(1) It can detect a 0.2 gallon-per-hour leak rate or a release of 150 gallons within a month with a probability of detection of 0.95 and a probability of false alarm of 0.05; or

(2) The department may approve another method if the owner and operator can demonstrate that the method can detect a release as effectively as any of the methods allowed in paragraphs *"c"* to *"h."* In comparing methods, the department shall consider the size of release that the method can detect and the frequency and reliability with which it can be detected. If the method is approved, the owner and operator must comply with any conditions imposed by the department on its use to ensure the protection of human health and the environment.

135.5(5) *Methods of release detection for piping.* Each method of release detection for piping used to meet the requirements of 135.5(2) must be conducted in accordance with the following:

a. Automatic line leak detectors. Methods which alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping or triggering an audible or visual alarm may be used only if they detect leaks of 3 gallons per hour at 10 pounds per square inch line pressure within one hour. An annual test of the operation of the leak detector must be conducted in accordance with the manufacturer's requirements.

b. Line tightness testing. A periodic test of piping may be conducted only if it can detect a 0.1 gallon-per-hour leak rate at one and one-half times the operating pressure.

c. Applicable tank methods. Any of the methods in 135.5(4)*"e"* through *"h"* may be used if they are designed to detect a release from any portion of the underground piping that routinely contains regulated substances.

d. Interstitial monitoring of secondary containment. Interstitial monitoring may be used for any piping with secondary containment designed for and capable of interstitial monitoring.

(1) Leak detection shall be conducted:

1. Continously, by means of an automatic leak sensing device that signals to the operator the presence of any regulated substance in the interstitial space or containment sump; or

2. Monthly, by means of a procedure capable of detecting the presence of any regulated substance in the interstitial space or containment sump, such as visual inspection.

(2) The interstitial space or sump shall be maintained and kept free of water, debris or anything that could interfere with leak detection capabilities.

(3) At least every two years, any sump shall be visually inspected for integrity of sides and floor and tightness of piping penetration seals. Any automatic sensing device shall be tested for proper function.

135.5(6) *Release detection record keeping.* All UST system owners and operators must maintain records in accordance with 135.4(5) demonstrating compliance with all applicable requirements of this rule. These records must include the following:

a. All written performance claims pertaining to any release detection system used, and the manner in which these claims have been justified or tested by the equipment manufacturer or installer, must be maintained for five years, or for another reasonable period of time determined by the department, from the date of installation;

b. The results of any sampling, testing, or monitoring must be maintained for at least one year, or for another reasonable period of time determined by the department, except that the results of tank tightness testing conducted in accordance with 135.5(4)*"c"* must be retained until the next test is conducted; and

c. Written documentation of all calibration, maintenance, and repair of release detection equipment permanently located on-site must be maintained for at least one year after the servicing work is completed, or for another reasonable time period determined by the department. Any schedules of required calibration and maintenance provided by the release detection equipment manufacturer must be retained for five years from the date of installation.

[**ARC 8469B**, IAB 1/13/10, effective 2/17/10 (See Delay note at end of chapter); **ARC 0559C**, IAB 1/9/13, effective 12/19/12; **ARC 1100C**, IAB 10/16/13, effective 11/20/13]

567—135.6(455B) Release reporting, investigation, and confirmation.

135.6(1) *Reporting of suspected releases.* Owners and operators of UST systems must report to the department within 24 hours, or within 6 hours in accordance with 567—Chapter 131 if a hazardous condition exists as defined in 567—131.1(455B), or another reasonable time period specified by the department, and follow the procedures in 135.8(1) for any of the following conditions:

a. The discovery by owners and operators or others of released regulated substances at the UST site or in the surrounding area (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface water);

b. Unusual operating conditions observed by owners and operators (such as the erratic behavior of product dispensing equipment, the sudden loss of product from the UST system, or an unexplained presence of water in the tank), unless system equipment is found to be defective but not leaking, and is immediately repaired or replaced; and

c. Monitoring results from a release detection method required under 135.5(2) and 135.5(3) that indicate a release may have occurred unless:

(1) The monitoring device is found to be defective, and is immediately repaired, recalibrated or replaced, and additional monitoring does not confirm the initial result; or

(2) In the case of inventory control, a second month of data does not confirm the initial result.

135.6(2) *Investigation due to off-site impacts.* When required by the department, owners and operators of UST systems must follow the procedures in 135.6(3) to determine if the UST system is the source of off-site impacts. These impacts include the discovery of regulated substances (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface and drinking waters) that has been observed by the department or brought to its attention by another party.

135.6(3) *Release investigation and confirmation steps.* Owners and operators must immediately investigate and confirm all suspected releases of regulated substances requiring reporting under 135.6(1) within seven days, or another reasonable time period specified by the department, using either the following steps or another procedure approved by the department:

a. System test. Owners and operators must conduct tests (according to the requirements for tightness testing in 135.5(4)*"c"* and 135.5(5)*"b"*) that determine whether a leak exists in that portion of the tank that routinely contains product, or the attached delivery piping or both.

(1) Owners and operators must repair, replace or upgrade the UST system and begin corrective action in accordance with rule 567—135.9(455B) if the test results for the system, tank, or delivery piping indicate a leak exists.

(2) Further investigation is not required if the test results for the system, tank, and delivery piping do not indicate a leak exists and if environmental contamination is not the basis for suspecting a release.

(3) Owners and operators must conduct a site check as described in paragraph *"b"* of this subrule if the test results for the system, tank, and delivery piping do not indicate a leak exists but environmental contamination is the basis for suspecting a release.

b. Site check. A certified groundwater professional must conduct a site check in accordance with the tank closure in place procedures as provided in 135.15(3) or they may conduct a Tier 1 assessment in accordance with subrule 135.9(3). Under either procedure, the certified groundwater professional must follow the policies and procedures applicable to sites where bedrock is encountered before groundwater as provided in 135.8(5) to avoid creating a preferential pathway for soil or groundwater contamination to reach a bedrock aquifer. The certified groundwater professional must measure for the presence of a release where contamination is most likely to be present at the UST site. In selecting sample types, sample locations, and measurement methods, the certified groundwater professional must consider the nature of the stored substance, the type of initial alarm or cause for suspicion, the type of backfill, the depth of groundwater, and other factors appropriate for identifying the presence and source of the release.

(1) If the test results of the site check indicate action levels in 567—135.14(455B) have been exceeded, owners and operators must begin corrective action in accordance with rules 567—135.7(455B) to 567—135.12(455B).

(2) If the test results for the excavation zone or the UST site do not indicate a release has occurred, further investigation is not required.

135.6(4) *Reporting and cleanup of spills and overfills.*

a. Reportable releases. Owners and operators of UST systems must contain and immediately clean up a spill, overfill or any aboveground release, and report to the department within 24 hours, or within 6 hours in accordance with 567—Chapter 131 if a hazardous condition exists as defined in rule 567—131.1(455B) and begin corrective action in accordance with rules 567—135.7(455B) to 567—135.12(455B) in the following cases:

(1) Spill, overfill or any aboveground release of petroleum that results in a release to the environment that exceeds 25 gallons, causes a sheen on nearby surface water, impacts adjacent property, or contaminates groundwater; and

(2) Spill, overfill or any aboveground release of a hazardous substance that results in a release to the environment that equals or exceeds its reportable quantity under CERCLA (40 CFR 302) as of September 13, 1988.

b. Nonreportable releases. Owners and operators of UST systems must contain and immediately clean up a spill, overfill or any aboveground release of petroleum that is less than 25 gallons and a spill, overfill or any aboveground release of a hazardous substance that is less than the reportable quantity. If cleanup cannot be accomplished within 24 hours, owners and operators must immediately notify the department.

NOTE: Any spill or overfill that results in a hazardous condition as defined in rule 567—131.1(455B) must be reported within 6 hours. This includes the transporter of the product. A release of a hazardous substance equal to or in excess of its reportable quantity must also be reported immediately (rather than within 24 hours) to the National Response Center under Sections 102 and 103 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 and to appropriate state and local authorities under Title III of the Superfund Amendments and Reauthorization Act of 1986.

567—135.7(455B) Release response and corrective action for UST systems containing petroleum or hazardous substances.

135.7(1) *General.* Owners and operators of petroleum or hazardous substance UST systems must, in response to a confirmed release from the UST system, comply with the requirements of this rule except

for USTs excluded under 135.1(3)*"b"* and UST systems subject to RCRA Subtitle C corrective action requirements under Section 3004(u) of the Resource Conservation and Recovery Act, as amended.

135.7(2) *Initial response.* Upon confirmation of a release in accordance with 135.6(3) or after a release from the UST system is identified in any other manner, owners and operators must perform the following initial response actions within 24 hours of a release or within another reasonable period of time specified by the department:

a. Report the release to the department (e.g., by telephone or electronic mail);

b. Take immediate action to prevent any further release of the regulated substance into the environment; and

c. Identify and mitigate fire, explosion, and vapor hazards.

135.7(3) *Initial abatement measures and site check.*

a. Unless directed to do otherwise by the department, owners and operators must perform the following abatement measures:

(1) Remove as much of the regulated substance from the UST system as is necessary to prevent further release to the environment;

(2) Visually inspect any aboveground releases or exposed below-ground releases and prevent further migration of the released substance into surrounding soils and groundwater;

(3) Continue to monitor and mitigate any additional fire and safety hazards posed by vapors or free product that have migrated from the UST excavation zone and entered into subsurface structures (such as sewers or basements);

(4) Remedy hazards posed by contaminated soils that are excavated or exposed as a result of release confirmation, site investigation, abatement, or corrective action activities. If these remedies include treatment or disposal of soils, the owner and operator must comply with applicable state and local requirements;

(5) Rescinded IAB 7/17/96, effective 8/15/96.

(6) Investigate to determine the possible presence of free product, and begin free product removal as soon as practicable and in accordance with 135.7(5).

b. Within 20 days after release confirmation, or within another reasonable period of time determined by the department, owners and operators must submit a report to the department summarizing the initial abatement steps taken under paragraph *"a"* and any resulting information or data.

135.7(4) *Initial site characterization.* Rescinded IAB 7/17/96, effective 8/15/96.

135.7(5) *Free product assessment and removal.* At sites where investigations under 135.7(3)*"a"*(6) indicate 0.01 ft. or more of free product, owners and operators must immediately initiate a free product recovery assessment and submit a report in accordance with paragraph *"d"* and initiate interim free product removal while continuing, as necessary, any actions initiated under 135.7(2) to 135.7(4), or preparing for actions required under 567—135.8(455B) to 567—135.12(455B). Owners and operators must immediately begin interim free product removal by bailing or by installation and maintenance of passive skimming equipment until an alternative removal method is required by or approved by the department. A certified groundwater professional must initially determine the frequency of bailing and proper installation and maintenance of the skimming equipment based on a determination of the recharge rate of the free product. The department may approve implementation of this interim removal process by persons not certified as groundwater professionals. For approval a certified groundwater professional must submit (1) sufficient documentation establishing that the bailing or skimming system has been adequately designed and tested, and (2) a written plan for regular maintenance, reporting and supervision by a certified groundwater professional. Interim free product recovery reports must be submitted to the department on a monthly basis and on forms provided by the department. In meeting the requirements of this subrule, owners and operators must:

a. Conduct free product removal at a frequency determined by the recharge rate of the product and in a manner that minimizes the spread of contamination into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery by-products in compliance with applicable local,

state and federal regulations. Unless approved by the department, free product assessment and recovery activities must be conducted by a certified groundwater professional. Owners and operators must report the results of free product removal activities on forms designated by the department;

b. Use abatement of free product migration as a minimum objective for the design of the free product removal system. Free product recovery systems must be designed to remove free product to the maximum extent practicable;

c. Handle any flammable products in a safe and competent manner to prevent fires or explosions; and

d. Free product recovery assessment and report. Unless directed to do otherwise by the department, prepare and submit to the department, within 45 days after confirming a release, a free product recovery assessment report and a proposal for subsequent free product removal activities. The free product recovery assessment report and removal proposal must contain at least the following information:

(1) The name of the person(s) responsible for implementing the free product removal measures;

(2) The estimated quantity, type and thickness of free product observed or measured in monitoring wells, boreholes, and excavations, the recharge rate in all affected monitoring wells and a detailed description of the procedures used to determine the recharge rate;

(3) A detailed justification for the free product removal technology proposed for the site. Base the justification narrative on professional judgment considering the characteristics of the free product plume (i.e., estimated volume, type of product, thickness, extent), an assessment of cost effectiveness based on recovery costs compared to alternative methods, site hydrology and geology, when the release event occurred, testing conducted to verify design assumptions and the potential for petroleum vapors or explosive conditions to occur in enclosed spaces. Proposals for removal systems other than hand bailing or passive skimming systems must be completed and submitted on a format consistent with the department's corrective action design report.

(4) A schematic and narrative description of the free product recovery system used;

(5) Whether any discharge will take place on site or off site during the recovery operation and where this discharge will be located;

(6) A schematic and narrative description of the treatment system, and the effluent quality expected from any discharge;

(7) The steps that have been or are being taken to obtain necessary permits for any discharge;

(8) The disposition of the recovered free product;

(9) Free product plume definition and map. The extent of free product in groundwater must be assessed. The number and location of wells and separation distance between the wells used to define the free product plume must be based on the receptors present and the site hydrology and geology. A minimum of five monitoring wells are required to construct the plume map. If the groundwater professional can adequately define the plume using other technology as specified in department guidance, fewer than five wells may be used. The boundary of the plume may be determined by linear interpolation consistent with the methods described in 135.10(2)*"f"*(3); and

(10) The estimated volume of free product present, how the volume was calculated, recoverable volume and estimated recovery time.

e. The department will review the free product assessment report; and, if approved, the owner or operator must implement the installation of the approved recovery system within 60 days or other time period approved by the department.

f. Termination of free product recovery activities. Owners and operators may propose to the department to terminate free product recovery activities when significant amounts of hydrocarbons are not being recovered. The department will consider proposals to terminate free product recovery when the amount of product collected from a monitoring well is equal to or less than 0.1 gallon each month for a year unless another plan is approved by the department. When free product activities have been terminated, owners and operators must inspect the monitoring wells monthly for at least a year. The department must be notified and free product recovery activities reinitiated if during the monthly well

inspections it is determined the product thickness in a monitoring well exceeds 0.02 foot. The monthly well inspection records must be kept available for review by the department.

g. Unless directed to do otherwise by the department, prepare and submit to the department within 180 days after confirming a release, a Tier 2 site cleanup report.

567—135.8(455B) Risk-based corrective action.

135.8(1) *General.* The objective of risk-based corrective action is to effectively evaluate the risks posed by contamination to human health, safety and the environment using a progressively more site-specific, three-tiered approach to site assessment and data analysis. Based on the tiered assessment, a corrective action response is determined sufficient to remove or minimize risks to acceptable levels. Corrective action response includes a broad range of options including reduction of contaminant concentrations through active or passive methods, monitoring of contamination, use of technological controls or institutional controls.

a. *Tier 1.* The purpose of a Tier 1 assessment is to identify sites which do not pose an unreasonable risk to public health and safety or the environment based on limited site data. The objective is to determine maximum concentrations of chemicals of concern at the source of a release(s) in soil and groundwater. The Tier 1 assessment assumes worst-case scenarios in which actual or potential receptors could be exposed to these chemicals at maximum concentrations through certain soil and groundwater pathways. The point of exposure is assumed to be the source showing maximum concentrations. Risk-based screening levels (Tier 1 levels) contained in the Tier 1 Look-Up Table have been derived from models which use conservative assumptions to predict exposure to actual and potential receptors. (These models and default assumptions are contained in Appendix A.) If Tier 1 levels are not exceeded for a pathway, that pathway may not require further assessment. If the maximum concentrations exceed a Tier 1 level, the options are to conduct a more extensive Tier 2 assessment, apply an institutional control, or in limited circumstances excavate contaminated soil to below Tier 1 levels. If all pathways clear the Tier 1 levels, it is possible for the site to obtain a no action required classification.

b. *Tier 2.* The purpose of a Tier 2 assessment is to use site-specific data to assess the risk from chemicals of concern to existing receptors and potential receptors using fate and transport models in accordance with 567—135.10(455B). See 135.10(2)*"a."*

c. *Tier 3.* Where site conditions may not be adequately addressed by Tier 2 procedures, a Tier 3 assessment may provide more accurate risk assessment. The purpose of Tier 3 is to identify reasonable exposure levels of chemicals of concern and to assess the risk of exposure to existing and potential receptors based on additional site assessment information, probabilistic evaluations, or sophisticated chemical fate and transport models in accordance with 567—135.11(455B).

d. *Notification.* Whenever the department requires a tiered site assessment and a public water supply well is within 2,500 feet of a leaking underground storage tank site, the department will notify the public water supply operator.

e. *Pathway reevaluation.* Prior to issuance of a no further action certificate in accordance with 135.12(10) and Iowa Code section 455B.474(1)*"h"*(3), if it is determined that the conditions for an individual pathway that has been classified as "no action required" no longer exist, or the site presents an unreasonable risk to a public water supply well and the model used to obtain the pathway clearance underpredicts the actual contaminant plume, the individual pathway shall be further assessed consistent with the risk-based corrective action provisions in rules 567—135.8(455B) through 567—135.12(455B).

135.8(2) *Certified groundwater professional.* All assessment, corrective action, data analysis and report development required under rules 567—135.6(455B) to 567—135.12(455B) must be conducted by or under the supervision of a certified groundwater professional in accordance with these rules and department guidance as specified.

135.8(3) *Chemicals of concern.* Soil and groundwater samples from releases of petroleum regulated substances must always be analyzed for the presence of benzene, ethylbenzene, toluene, and xylenes. In addition, if the release is suspected to include any petroleum regulated substance other than gasoline or gasoline blends, or if the source of the release is unknown, the samples must be tested for the presence of Total Extractable Hydrocarbons (TEH). Appendices A and B and department Tier 2 guidance define

a method for converting TEH values to a default concentration for naphthalene, benzo(a)pyrene, benz(a)anthracene and chrysene and conversion back to a representative TEH value. These default values must be used in order to apply Tier 2 modeling to these constituents in the absence of accurate laboratory analysis. At Tier 2 and Tier 3, owners and operators have the option of analyzing for these specific constituents and applying them to the specific target levels in Appendices A and B instead of using the TEH conversion method if an approved laboratory and laboratory technique are used.

135.8(4) *Boring depth for sampling.* When drilling for the placement of groundwater monitoring wells, if groundwater is encountered, drilling must continue to the maximum of 10 feet below the first encountered groundwater or to the bottom of soil contamination as estimated by field screening. If groundwater is not encountered, drilling must continue to the deeper of 10 feet below the soil contamination as estimated by field screening or 75 feet from the ground surface.

135.8(5) *Bedrock aquifer assessment.* Prior to conducting any groundwater drilling, a groundwater professional must determine if there is a potential to encounter bedrock before groundwater. These potential areas include (1) areas where karst features or outcrops exist in the vicinity and (2) areas with bedrock less than 50 feet from the surface as illustrated in Tier 1 and Tier 2 guidance. The purpose of this determination is to prevent drilling through contaminated subsurface areas thereby creating a preferential pathway to a bedrock aquifer. If the first encountered groundwater is above bedrock but near the bedrock surface or fluctuates above and below bedrock, the groundwater professional should evaluate the subsurface geology and aquifer characteristics to determine the potential for creating a preferential pathway. If it is determined that the aquifer acts like a nongranular aquifer as provided in 135.10(3)*"a"* or bedrock is encountered before groundwater, the groundwater professional must conduct a Tier 2 assessment for all pathways under 567—135.10(455B), including the specified bedrock procedures under 135.10(3).

If the first encountered groundwater is above bedrock with sufficient separation and aquifer characteristics to establish that it acts as a granular aquifer, site assessment may proceed under the site check procedure in 567—135.6(455B), the Tier 1 procedure in 567—135.9(455B) or the Tier 2 procedure in 567—135.10(455B) as would be customary regardless of the bedrock designation. However, even under this condition, drilling through bedrock should be avoided in contaminated areas.
[**ARC 7621B**, IAB 3/11/09, effective 4/15/09]

567—135.9(455B) Tier 1 site assessment policy and procedure.

135.9(1) *General.* The main objective of a Tier 1 site assessment is to reasonably determine the highest concentrations of chemicals of concern which would be associated with any suspected or confirmed release and an accurate identification of applicable receptors. In addition, the placement and depth of borings and the construction of monitoring wells must be sufficient to determine the sources of all releases, the vertical extent of contamination, an accurate description of site stratigraphy, and a reliable determination of groundwater flow direction.

a. *Pathway assessment.* The pathways to be evaluated at Tier 1 are the groundwater ingestion pathway, soil leaching to groundwater pathway, groundwater vapor to enclosed space pathway, soil vapor to enclosed space pathway, soil to water line pathway, groundwater to water line pathway and the surface water pathway. Assessment requires a determination of whether a pathway is complete, an evaluation of actual and potential receptors, and a determination of whether conditions are satisfied for obtaining no further action clearance for individual pathways or for obtaining a complete site classification of "no action required." A pathway is considered complete if a chemical of concern has a route which could be followed to reach an actual or potential receptor.

b. *Pathway clearance.* If field data for an individual pathway does not exceed the applicable Tier 1 levels or if a pathway is incomplete, no further action is required to evaluate the pathway unless otherwise specified in these rules. If the field data for a pathway exceeds the applicable Tier 1 level(s) in the "Iowa Tier 1 Look-up Table," the response is to conduct further assessment under Tier 2 or Tier 3 unless an effective institutional control is approved. In limited circumstances excavation of contaminated soils may be used as an option to obtain pathway clearance. If further site assessment indicates site data exceeds an applicable Tier 1 level(s) for a previously cleared pathway or the conditions justifying a

determination of pathway incompleteness change, that pathway must be reevaluated as part of a Tier 2 or Tier 3 assessment.

c. Chemical group clearance. If field data for all chemicals of concern within a designated group of chemicals is below the Tier 1 levels, no further action is required as to the group of chemicals unless otherwise specified in these rules. Group one consists of benzene, ethylbenzene, toluene, and xylenes (BTEX). Group two consists of naphthalene, benzo(a)pyrene, benz(a)anthracene and chrysene; TEH default values are incorporated into the Iowa Tier 1 Look-Up Table and Appendix A for group two chemicals.

d. Site classification. A site can be classified as no action required only after all pathways have met the conditions for pathway clearance as provided in this rule.

e. Groundwater sampling procedure. Groundwater sampling and field screening must be conducted in accordance with department Tier 1 guidance. A minimum of three properly constructed groundwater monitoring wells must be installed, subject to the limitations on maximum drilling depths, for the purpose of identifying maximum concentrations of groundwater contamination, suspected sources of releases, and groundwater flow direction.

(1) Field screening must be used to locate suspected releases and to determine locations with the greatest concentrations of contamination. Field screening is required as per department guidance at each former and current tank basin, each former and current pump island, along the piping, and at any other areas of actual or suspected releases. In placing monitoring wells, the following must be considered: field screening data, available current and historical information regarding the releases, tank and piping layout, site conditions, and drilling data available from sites in the vicinity. At least one well must be placed at each suspected source of release which shall include at a minimum: the pump island with the greatest field screening level, each current and former underground storage tank basin, and if field screening shows greater levels than at the pump islands or tank basins, at other suspected sources of releases. As a general rule, wells should be installed outside of the tank basin through native soils but as close to the tank basin as feasible. A well must be installed in a presumed downgradient direction and within 30 feet of the sample with the greatest field screening level. Three of the wells must be placed in a triangular arrangement to determine groundwater flow direction.

(2) Where the circumstances which prompt a Tier 1 assessment identify a discrete source and cause of a release, and the groundwater professional is able to rule out other suspected sources or contributing sources such as pump islands, piping runs and tank basins, the application of field screening and groundwater well placement may be limited to the known source.

f. Soil sampling procedure. The objective of soil sampling is to identify the maximum concentrations of soil contamination in the vadose and saturated zones and to identify sources of releases. The same principles stated above apply to soil sampling. Soil samples must be taken from borings with the greatest field screening levels even if the boring will not be converted to a monitoring well. At a minimum, soil and groundwater samples must be collected for analysis from all borings which are converted to monitoring wells.

Iowa Tier 1 Look-Up Table

Media	Exposure Pathway	Receptor	Group 1				Group 2: TEH	
			Benzene	Toluene	Ethylbenzene	Xylenes	Diesel*	Waste Oil
Groundwater (µg/L)	Groundwater Ingestion	Actual	5	1,000	700	10,000	1,200	400
		Potential	290	7,300	3,700	73,000	75,000	40,000
	Groundwater Vapor to Enclosed Space	All	1,540	20,190	46,000	NA	2,200,000	NA
	Groundwater to Water Line	PVC or Gasketed Mains	7,500	6,250	40,000	48,000	75,000	40,000
		PVC or Gasketed Service Lines	3,750	3,120	20,000	24,000	75,000	40,000
		PE/PB/AC Mains or Service Lines	200	3,120	3,400	19,000	75,000	40,000
	Surface Water	All	290	1,000	3,700	73,000	75,000	40,000
Soil (mg/kg)	Soil Leaching to Groundwater	All	0.54	42	15	NA	3,800	NA
	Soil Vapor to Enclosed Space	All	1.16	48	79	NA	47,500	NA
	Soil to Water Line	All	2.0	3.2	45	52	10,500	NA

NA: Not applicable. There are no limits for the chemical for the pathway, because for groundwater pathways the concentration for the designated risk would be greater than the solubility of the pure chemical in water, and for soil pathways the concentration for the designated risk would be greater than the soil concentration if pure chemical were present in the soil.

TEH: Total Extractable Hydrocarbons. The TEH value is based on risks from naphthalene, benzo(a)pyrene, benz(a)anthracene, and chrysene. Refer to Appendix B for further details.

Diesel*: Standards in the Diesel column apply to all low volatile petroleum hydrocarbons except waste oil.

135.9(2) *Conditions requiring Tier 1 site assessment.* Unless owners and operators choose to conduct a Tier 2 assessment, the presence of bedrock requires a Tier 2 assessment as provided in 135.8(5), or these rules otherwise require preparation of a Tier 2 site assessment, a Tier 1 site assessment must be completed in response to release confirmation as provided in rule 567—135.6(455B), or tank closure investigation under 567—135.15(455B), or other reliable laboratory analysis which confirms the presence of contamination above the action levels in 567—135.14(455B).

135.9(3) *Tier 1 assessment report.* Unless directed to do otherwise by the department or the owners or operators choose to prepare a Tier 2 site cleanup report, owners and operators must assemble information about the site and the nature of the release in accordance with the department Tier 1 guidance, including information gained while confirming the release under 567—135.6(455B), tank closure under 567—135.15(455B) or completing the initial abatement measures in 135.7(1) and 135.7(2). This information must include, but is not necessarily limited to, the following:

a. Data on the nature and estimated quantity of release.

b. Results of any release investigation and confirmation actions required by subrule 135.6(3).

c. Results of the free product investigations required under 135.7(3)*"a"*(6), to be used by owners and operators to determine whether free product must be recovered under 135.7(5).

d. Chronology of property ownership and underground storage tank ownership, identification of the person(s) having control of, or having responsibility for the daily operation of the underground storage tanks and the operational history of the underground storage tank system. The operational history shall include, but is not limited to, a description of or suspected known subsurface or aboveground releases, past remediation or other corrective action, type of petroleum product stored, recent tank and

piping tightness test results, any underground storage tank system repairs, upgrades or replacements and the underground storage tank and piping leak detection method being utilized. The operational history shall confirm that current release detection methods and record keeping comply with the requirements of 567—135.5(455B), that all release detection records have been reviewed and report any evidence that a release detection standard has been exceeded as provided in 135.5(4) and 135.5(5).

e. Appropriate diagrams of the site and the underground storage tank system and surrounding land use, identifying site boundaries and existing structures and uses such as residential properties, schools, hospitals, child care facilities and a general description of relevant land use restrictions and known future land use.

f. Current proof of financial responsibility as required by 567—136.19(455B) and 567—136.20(455B) and the status of coverage for corrective action under any applicable financial assurance mechanism or other financial assistance program.

g. A receptor survey including but not limited to the following: existing buildings, enclosed spaces (basements, crawl spaces, utility vaults, etc.), conduits (gravity drain lines, sanitary and storm sewer mains and service lines), water lines and other utilities within 500 feet of the source. For conduits and enclosed spaces, there must be a description of construction material, conduit backfill material, slope of conduit and trenches (include flow direction of sewers), burial depth of utilities or subsurface enclosed spaces, and the relationship to groundwater elevations.

h. An explosive vapor survey of enclosed spaces where there may be the potential for buildup of explosive vapors. The groundwater professional must provide a specific justification for not conducting an explosive vapor survey.

i. A survey of all surface water bodies within 200 feet of the source.

j. A survey of all active, abandoned and plugged groundwater wells within 1,000 feet of the source with a description of construction and present or future use.

k. Accurate and legible site maps showing the location of all groundwater monitoring wells, soil borings, field screening locations and screening values, and monitoring well and soil boring construction logs.

l. A tabulation of all laboratory analytical results for chemicals of concern and copies of the laboratory analytical reports.

m. Results of hydraulic conductivity testing and description of the procedures utilized.

n. A Tier 1 site assessment in accordance with the department's Tier 1 guidance. The Tier 1 report shall be submitted on forms and in a format prescribed by this guidance. The Tier 1 data analysis shall be performed by using computer software developed by the department or by using the computer software's hard-copy version.

135.9(4) *Groundwater ingestion pathway assessment.* The groundwater ingestion pathway addresses the potential for human ingestion of petroleum-regulated substances from existing groundwater wells or potential drinking water wells.

a. *Pathway completeness.* This pathway is considered complete if: (1) there is a drinking or non-drinking water well within 1,000 feet of the source(s) exhibiting the maximum concentrations of the chemicals of concern; or (2) the first encountered groundwater is a protected groundwater source.

b. *Receptor evaluation.* A drinking or non-drinking water well within 1,000 feet of the source(s) is an actual receptor. The Tier 1 levels for actual receptors apply to drinking water wells and the Tier 1 levels for potential receptors apply to non-drinking water wells. Potential receptor points of exposure exist if the first encountered groundwater is a protected groundwater source but no actual receptors presently exist within 1,000 feet of the source.

c. *Pathway clearance.* If the pathway is incomplete, no further action is required for this pathway. If the Tier 1 level for actual or potential receptors is not exceeded, no further action is required for this pathway. Groundwater wells that are actual or potential receptors may be plugged in accordance with 567—Chapter 39 and 567—Chapter 49 and may result in no further action clearance if the groundwater is not a protected groundwater source and the pathway is thereby incomplete.

d. *Corrective action response.* If maximum concentrations exceed the applicable Tier 1 levels for either actual or potential receptors, a Tier 2 assessment must be conducted unless effective institutional

controls are implemented as provided below. Technological controls are not acceptable at Tier 1 for this pathway. Abandonment and plugging of drinking and non-drinking water wells in accordance with 567—Chapters 39 and 49 is an acceptable corrective action response.

e. Use of institutional controls. To apply an effective institutional control, if drinking or non-drinking water wells are present within 1,000 feet of the source, and the applicable Tier 1 level is exceeded, the well(s) for which there is an exceedence must be properly plugged. If the groundwater is a protected groundwater source and the maximum concentrations do not exceed the Tier 1 level for potential receptors but do exceed the Tier 1 level for actual receptors, the owner or operator must provide notification of site conditions on a department form to the department water supply section, or if a county has delegated authority, then the designated county authority responsible for issuing private water supply construction permits or regulating non-public water well construction as provided in 567—Chapters 38 and 49.

If the groundwater is a protected source and the maximum concentrations exceed the Tier 1 level for potential receptors, the owner or operator must (1) implement an institutional control prohibiting the use of the groundwater for installation of drinking and non-drinking water wells within 1,000 feet of the source; and (2) provide notification as provided above. If an effective institutional control is not feasible, a Tier 2 assessment must be performed for this pathway in accordance with rule 567—135.10(455B).

f. Receptor evaluation for public water supply wells. Rescinded IAB 3/11/09, effective 4/15/09.

135.9(5) *Soil leaching to groundwater pathway assessment.* This pathway addresses the potential for soil contamination to leach to groundwater creating a risk of human exposure through the groundwater ingestion pathway.

a. Pathway completeness. If the groundwater ingestion pathway is complete, the soil leaching to groundwater pathway is considered complete.

b. Receptor evaluation. There is a single receptor type for this pathway and one applicable Tier 1 level.

c. Pathway clearance. If the pathway is incomplete or the pathway is complete and the maximum concentrations of chemicals of concern do not exceed the Tier 1 levels, no further action is required for assessment of this pathway.

d. Corrective action response. If the Tier 1 levels are exceeded for this pathway, a Tier 2 assessment must be conducted or alternatively, institutional controls or soil excavation may be undertaken in accordance with 135.9(7)*"h."*

e. Use of institutional controls. Institutional controls must satisfy the conditions applicable to the groundwater ingestion pathway as provided in 135.9(4)*"e."*

135.9(6) *Groundwater vapor to enclosed space pathway assessment.* This pathway addresses the potential for vapors from contaminated groundwater to migrate to enclosed spaces where humans could inhale chemicals of concern at unacceptable levels. This pathway assessment assumes the health-based Tier 1 levels will adequately protect against any associated short- and long-term explosive risks.

a. Pathway completeness. This pathway is always considered complete for purposes of Tier 1 and must be evaluated.

b. Explosive vapor survey. An explosive vapor survey must be conducted in accordance with procedures outlined in the department Tier 1 guidance. If potentially explosive levels are detected, the groundwater professional must notify the owner or operator with instructions to report the condition in accordance with 567—Chapter 131. The owner or operator must begin immediate response and abatement procedures in accordance with 567—135.7(455B) and 567—Chapter 133.

c. Receptor evaluation. For purposes of Tier 1, there is one receptor type for this pathway and the Tier 1 level applies regardless of the existence of actual or potential receptors.

d. Pathway clearance. No further action is required for this pathway, if the maximum groundwater concentrations do not exceed the Tier 1 levels for this pathway.

e. Corrective action response. If the maximum concentrations exceed the Tier 1 levels for this pathway, a Tier 2 assessment of this pathway must be conducted unless institutional controls are implemented. Technological controls are not acceptable at Tier 1 for this pathway.

f. *Use of institutional controls.* An institutional control must be effective to prohibit the placement of enclosed space receptors within 500 feet of the source.

135.9(7) *Soil vapor to enclosed space pathway assessment.* This pathway addresses the potential for vapors from contaminated soils to migrate to enclosed spaces where humans could inhale chemicals of concern at unacceptable levels. This pathway assessment assumes health-based screening levels at Tier 1 will adequately protect against short- and long-term explosive risks.

a. *Pathway completeness.* This pathway is always considered complete for purposes of Tier 1 and must be evaluated.

b. *Explosive vapor survey.* An explosive vapor survey must be conducted in accordance with procedures outlined in the department Tier 1 guidance. If potentially explosive levels are detected, the groundwater professional must notify the owner or operator with instructions to report the condition in accordance with 567—Chapter 131. The owner or operator must begin immediate response and abatement procedures in accordance with 567—135.7(455B) and 567—Chapter 133.

c. *Receptor evaluation.* For purposes of Tier 1, there is one receptor type for this pathway, and the Tier 1 level applies regardless of existing or potential receptors.

d. *Pathway clearance.* No further action is required for this pathway, if the maximum soil concentrations do not exceed the Tier 1 levels for this pathway. If the Tier 1 levels are exceeded, soil gas measurements may be taken in accordance with the Tier 2 guidance at the area(s) of maximum concentration. Subject to confirmation sampling, if the soil gas measurements do not exceed the target levels in 135.10(7)*"f,"* no further action is required for this pathway. If the Tier 1 level is not exceeded but the soil gas measurement exceeds the target level, further action is required for the pathway.

e. *Soil gas samples.* To establish that the soil gas measurement is representative of the highest expected levels, a groundwater professional must obtain two soil gas samples taken at least two weeks apart. One of the samples must be taken below the typical frostline depth during a seasonal period of lowest groundwater elevation.

f. *Corrective action response.* If the maximum concentrations exceed the Tier 1 levels and the soil gas measurements exceed target levels for this pathway, or if no soil gas measurement was taken, a Tier 2 assessment of this pathway must be conducted unless institutional controls are implemented or soil excavation is conducted as provided below. Technological controls are not acceptable at Tier 1 for this pathway.

g. *Use of institutional controls.* An institutional control must be effective to eliminate the placement of enclosed space receptors within 500 feet of the source.

h. *Soil excavation.* Excavation of contaminated soils for the purpose of removing soils contaminated above the Tier 1 levels is permissible as an alternative to conducting a Tier 2 assessment. Adequate field screening methods must be used to identify maximum concentrations during excavation. At a minimum, one soil sample must be taken for field screening every 100 square feet of the base and each sidewall. Soil samples must be taken for laboratory analysis at least every 400 square feet of the base and each sidewall of the excavated area to confirm that remaining concentrations are below Tier 1 levels. If the excavation is less than 400 square feet, a minimum of one sample must be analyzed for each sidewall and the base.

135.9(8) *Groundwater to water line pathway assessment.* This pathway addresses the potential for creating a drinking water ingestion risk due to contact with water lines and causing infusion to the drinking water.

a. *Pathway completeness and receptor evaluation.*

(1) Actual receptors. This pathway is considered complete for an actual receptor if there is an existing water line within 200 feet of the source and the first encountered groundwater is less than 20 feet below ground surface.

(2) Potential receptors. This pathway is considered complete for a potential receptor if the first encountered groundwater is less than 20 feet below ground surface.

b. *Pathway clearance.* If the pathway is not complete, no further action is required for this pathway. If the pathway is complete and the maximum concentrations of all chemicals of concern do not exceed the Tier 1 levels for this pathway, no further action is required for this pathway.

c. Utility company notification. The utility company which supplies water service to the area must be notified of all actual and potential water line impacts as soon as knowledge of a potential risk is determined.

d. Corrective action response.

(1) For actual receptors, if the Tier 1 levels are exceeded for this pathway, all water lines within 200 feet must be replaced with water line materials and gasket materials of appropriate construction in accordance with current department standards set forth in 567—Chapter 43 and with no less than nitrile or FKM gaskets or as otherwise approved by the department, or the water lines must be relocated beyond the 200-foot distance from the source. A Tier 2 assessment must be conducted for this pathway if lines are not replaced or relocated.

(2) For potential receptors, upon utility company notification, no further action will be required for this pathway.

135.9(9) *Soil to water line pathway assessment.* This pathway addresses the potential for creating a drinking water ingestion risk due to contact with water lines and infusion into the drinking water.

a. Pathway completeness and receptor evaluation.

(1) Actual receptors. This pathway is considered complete for an actual receptor if a water line exists within 200 feet of the source.

(2) Potential receptors. This pathway is always considered complete for potential receptors.

b. Pathway clearance. If the pathway is not complete for actual receptors, no further action is required for this pathway. If the pathway is complete for actual receptors and the maximum concentrations of all chemicals of concern do not exceed Tier 1 levels for this pathway, no further action is required. For potential receptors, upon utility company notification, no further action will be required for this pathway for potential receptors.

c. Utility company notification. The utility company which supplies water service to the area must be notified of all actual and potential water line impacts as soon as knowledge of a potential risk is determined.

d. Corrective action response. For actual receptors, if the Tier 1 levels are exceeded for this pathway, all water lines within 200 feet must be replaced with water line materials and gasket materials of appropriate construction in accordance with current department standards set forth in 567—Chapter 43 and with no less than nitrile or FKM gaskets or as otherwise approved by the department, or the water lines must be relocated beyond the 200-foot distance from the source. Excavation of soils to below Tier 1 levels may be undertaken in accordance with 135.9(7)*"h."* If none of these options is implemented, a Tier 2 assessment must be conducted for this pathway.

135.9(10) *Surface water pathway assessment.* This pathway addresses the potential for contaminated groundwater to impact surface water bodies creating risks to human health and aquatic life.

a. Pathway completeness. This pathway is considered complete if a surface water body is present within 200 feet of the source. For purposes of Tier 1, surface water bodies include both general use segments and designated use segments as provided in 567—subrule 61.3(1).

b. Receptor evaluation. The Tier 1 levels for this pathway only apply to designated use segments of surface water bodies as provided in 567—subrules 61.3(1) and 61.3(5). The point of compliance is the source with the highest concentrations of chemicals of concern. General use segments of surface water bodies as provided in 567—paragraph 61.3(1)*"a"* are only subject to the visual inspection criteria.

c. Visual inspection requirements. A visual inspection of all surface water bodies within 200 feet of the source must be conducted to determine if there is evidence of a sheen on the water or there is evidence of petroleum residue along the bank. If a sheen or residue is evident or has been reported to be present, the groundwater professional must make a sufficient investigation to reasonably determine its source. If in the opinion of the groundwater professional, the sheen is not associated with the underground storage tank site, the professional must report and reasonably justify this opinion. If in the opinion of the groundwater professional the sheen is not a petroleum-regulated substance, a sample must be laboratory tested in accordance with 567—135.16(455B) to confirm it is not a petroleum-regulated substance.

d. *Pathway clearance.* If the pathway is not complete or it is complete and the maximum concentrations of all chemicals of concern at the point of compliance do not exceed the Tier 1 levels and there is no petroleum sheen or residue attributable to the site, no further action is required for assessment of this pathway.

e. *Corrective action response.* If a Tier 1 level is exceeded for any chemical of concern for a designated use segment within 200 feet of the source, or the groundwater professional determines the presence of a petroleum-regulated substance sheen or residue, a Tier 2 assessment of this pathway must be conducted.

135.9(11) *Tier 1 submission and review procedures.*

a. Within 90 calendar days of release confirmation or another reasonable period of time determined by the department, owners and operators must submit to the department a Tier 1 report in a format prescribed by the department and in accordance with these rules and the department Tier 1 guidance.

b. If the owner or operator elects to prepare a Tier 2 site cleanup report instead of a Tier 1 assessment, the department must be notified in writing prior to the expiration of the Tier 1 submission deadline. The Tier 2 site cleanup report must be submitted to the department in accordance with rule 567—135.10(455B) within 180 calendar days of release confirmation or another reasonable period of time determined by the department.

c. Tier 1 report completeness and accuracy. A Tier 1 report is considered to be complete if it contains all the information and data required by this rule and the department Tier 1 guidance. The report is accurate if the information and data is reasonably reliable based first on application of the standards in these rules and department guidance and second, generally accepted industry standards.

d. The certified groundwater professional shall include the following certification with the Tier 1 site assessment report:

I, _____, Groundwater Professional Certification No. _____, am familiar with all applicable requirements of Iowa Code section 455B.474 and all rules and procedures adopted thereunder including, but not limited to, 567—Chapter 135 and the Department of Natural Resources Tier 1 guidance. Based on my knowledge of those documents and information I have prepared and reviewed regarding this site, UST Registration No. _____, LUST No._____ I certify that this document is complete and accurate as provided in 567 IAC 135.9(11)*"c"* and meets the applicable requirements of the Tier 1 site assessment.

Signature:

Date:

e. Upon receipt of the groundwater professional's certified Tier 1 report, the groundwater professional's proposed site classification for the site shall be determinative unless, within 90 days of receipt, the department identifies material information in the report that is inaccurate or incomplete. Material information may be data found to be inaccurate or incomplete or a report that lacks information which, if correct and complete, would result in a different site classification than proposed by the certified groundwater professional. If the department determines that the site cleanup report is inaccurate or incomplete, the department shall notify the groundwater professional of the inaccurate or incomplete information within 90 days of receipt of the report and shall work with the groundwater professional and the party responsible for cleanup to obtain correct information or additional information necessary to appropriately classify the site. If the groundwater professional recommends proceeding to Tier 2, or a Tier 2 site cleanup report is required pursuant to 135.7(5)*"g,"* 135.8(5), or 567—135.9(455B), the groundwater professional's site classification and pathway classification recommendations shall not be considered determinative until the Tier 2 report is submitted for review as provided in 135.10(11).

f. If a "no action required" site classification is proposed, the department shall review the report in accordance with 135.12(6) and the review standards in paragraph 135.9(11)*"e."*

g. From July 1, 2010, through June 30, 2011, the department shall have 120 days rather than 90 days as provided in paragraphs 135.9(11)*"e"* and *"f"* to review and respond to the report.

135.9(12) *Tier 1 site classification and corrective action response.*

a. No action required site classification. At Tier 1, a site is only eligible for a "no action required" classification. To be classified as no action required, each pathway must meet the requirements for

pathway clearance as specified in this rule. If the department determines a no action required site classification is appropriate, a no further action certificate will be issued as provided in 135.12(10).

b. Where an individual pathway or a chemical group meets the requirements for clearance but the site is not entitled to a no action required classification, only those pathways and chemical groups which do not meet the no further action requirements must be evaluated as part of a Tier 2 assessment as provided in rule 567—135.10(455B).

c. Compliance monitoring and confirmation sampling. Compliance monitoring is not an acceptable corrective action at Tier 1. Except for soil gas sampling under 135.9(7), confirmation sampling to verify a sample does not exceed a Tier 1 level is not required. However, the department retains the authority to require confirmation sampling from existing groundwater monitoring wells if a no action required classification is being proposed at Tier 1 and the department has a reasonable basis to question the representative validity of the samples based on, for example, the seasonal bias of the sampling, evidence of multiple sources of releases, marginal groundwater monitoring well locations and analytical variability.

d. *Expedited corrective action.* Expedited corrective action is permissible in accordance with 135.12(11).

[**ARC 7621B**, IAB 3/11/09, effective 4/15/09; **ARC 9011B**, IAB 8/25/10, effective 9/29/10; **ARC 9331B**, IAB 1/12/11, effective 2/16/11]

567—135.10(455B) Tier 2 site assessment policy and procedure.

135.10(1) *General conditions.* A Tier 2 site assessment must be conducted and a site cleanup report submitted for all sites which have not obtained a no action required site classification and for all pathways and chemicals of concern groups that have not obtained no further action clearance as provided in 567—135.9(455B). If in the course of conducting a Tier 2 assessment, data indicates the conditions for pathway clearance under Tier 1 no longer exist, the pathway shall be further assessed under this rule. The Tier 2 assessment and report must be completed whenever free product is discovered as provided in 567—135.7(455B). If the owner or operator elects to complete the Tier 2 site assessment without doing a Tier 1 assessment, all the Tier 1 requirements as provided in 135.9(455B) must be met in addition to requirements under this rule.

a. *Guidance.* The Tier 2 site assessment shall be conducted in accordance with the department's "Tier 2 Site Assessment Guidance" and these rules. The site cleanup report shall be submitted on forms and in a format prescribed by this guidance. The Tier 2 data analysis shall be performed by using computer software developed by the department or by using the computer software's hard-copy version.

b. *Classification.* At Tier 2, individual pathways may be classified as high risk or low risk or no action required and separate classification criteria may apply to actual and potential receptors for any pathway. A single pathway may have multiple classifications based on actual or potential receptor evaluations. A pathway must meet both the criteria for actual and potential receptors for the pathway to obtain a classification of no action required. Sites may have multiple pathway classifications. For a site to obtain a no action required classification, all pathways must meet the individual pathway criteria for no action required classification.

c. *Public right-of-way.* As a general rule, public right-of-way will not be considered an area of potential receptor exposure except for potential sanitary sewer evaluation under the soil and groundwater vapor pathways, subrules 135.10(6) and 135.10(7).

135.10(2) *General Tier 2 assessment procedures.*

a. *Objectives.* The objective of a Tier 2 assessment is to collect site-specific data and with the use of Tier 2 modeling determine what actual or potential receptors could be impacted by chemicals of concern and what concentrations at the source are predicted to achieve protection of these receptors. Both Tier 1 and Tier 2 are based on achieving similar levels of protection of human health, safety and the environment.

b. *Groundwater modeling.* Tier 2 uses fate and transport models to predict the maximum distance groundwater contamination is expected to move and the distribution of concentrations of chemicals of concern within this area. The model is used for two basic purposes. One, it is used to predict at what

levels of concentration contamination would be expected to impact actual and potential receptors. Two, it is used to determine a concentration at the source which if achieved, and after dispersion and degradation, would protect actual and potential receptors at the point of exposure. In predicting the transport of contaminants, the models assume the contaminant plume is at "steady state" such that concentrations throughout the plume have reached a maximum level and are steady or decreasing. The Tier 2 models are only designed to predict transport in a direct line between the source and downgradient to a receptor. In order to more reasonably define a modeled plume in all directions, paragraph *"i"* defines a method of decreasing modeled concentrations as a percentage of their distance in degrees from the downgradient direction.

c. Soil vapor models. The soil vapor models are vertical transport models and do not use modeling to predict soil contaminant transport horizontally to receptors.

d. Soil leaching to groundwater modeling. The soil leaching to groundwater model is a model that predicts the maximum concentrations of chemicals of concern that would be expected in groundwater due to vertical leaching from the area of maximum soil concentrations and then incorporates the groundwater transport models to predict contaminant transport through groundwater pathways.

e. Modeling default parameters. The Tier 2 model formulas and applicable parameters are designated in Appendix B and must be followed unless otherwise specified in these rules. Unless otherwise specified, target levels at a point of exposure may be the Tier 1 level(s) or may be determined using site-specific parameters. The target level at a point of exposure is calculated using the Tier 1 formulas in Appendix A and either site-specific measurements or the default values for those parameters identified as "optional" and "site-specific" in Appendix B.

f. Source width. The source width and source length are variables used in modeling and must be determined by the following criteria and as specified in the department's Tier 2 guidance. The following are not to be used as criteria for defining the extent of the contaminant plumes.

(1) Source width (equals S_w in models) for groundwater transport modeling. The sum of group one chemical (benzene, toluene, ethylbenzene, xylenes or "BTEX") concentrations for each groundwater sample is determined and the location of the sample with the maximum total BTEX is identified. Linear interpolation is used to estimate the area where groundwater concentrations would be expected to exceed 50 percent of the maximum BTEX value, and this area is considered for the source width measurement. The same procedure is used to determine source width for group two chemicals, using TEH in groundwater. The width of the groundwater contamination perpendicular to estimated groundwater flow direction (S_w) is determined, and the larger of either group one or group two chemicals is used in the groundwater transport model.

(2) Source width (S_w) and source length (equals W in models) for soil leaching to groundwater transport modeling. Both the source width perpendicular to the estimated groundwater flow direction (S_w) and the source length parallel to the estimated groundwater flow direction (W) are used in the soil leaching to groundwater model. The sum of BTEX concentrations for each soil sample is determined and the location of the sample with the maximum total BTEX is identified. Concentrations from both the vadose zone and the saturated zone must be considered when determining the maximum. Linear interpolation is used to estimate the area where soil concentrations would be expected to exceed 50 percent of the maximum BTEX value, and this area is considered for the source width and source length measurements. The same procedure is used to determine source width for group 2 chemicals, using TEH in soil. Source width and source length measurements for BTEX in groundwater are also taken following the same linear interpolation criteria in *"f"*(1) above. The source width value used in the model is the greatest of either the soil source width measurements or the groundwater source width measurement. The source length value used in the model is the greatest of either of the soil source length measurements or the groundwater length measurement.

(3) Estimating source width when free product is present. Groundwater from wells with free product must be analyzed for BTEX and the source width and source length are estimated using the criteria in 135.10(2)*"f"*(1) and 135.10(2)*"f"*(2) above. For those sites with approved site cleanup reports and free product present in wells but actual BTEX values are not available, source width and source length may be estimated in accordance with 135.10(2)*"f"*(1) and 135.10(2)*"f"*(2) using the

default BTEX values for groundwater in 135.18(4) or estimated by using the area representing half the distance between wells with free product and wells without free product, whichever method is greater.

g. Modeled simulation line. The simulation line represents the predicted maximum extent of groundwater contamination and distribution of contaminant concentrations between the source(s) and actual or potential receptor locations. The model calculates the simulation line using maximum concentrations at the source(s) and predicting the amount of dispersion and degradation. Modeled data in the simulation line are compared with actual field data to verify the predictive validity of the model and to make risk classification decisions.

h. Modeled site-specific target level (SSTL) line. The modeled SSTL line represents acceptable levels of contaminant concentrations at points between and including the source(s) and an applicable point(s) of exposure or other point(s) of compliance (ex. a potential receptor point of exposure). The SSTL line is calculated by assuming an applicable target level concentration at the point(s) of exposure or point(s) of compliance and modeling back to the source to determine the maximum concentrations at the source (SSTL) that must be achieved to meet the target level at the point of exposure or compliance. Comparison of field data to this SSTL line is used to determine a risk classification and determine appropriate corrective action response.

i. Crossgradient and upgradient modeling. In determining the SSTL line and the simulation line in directions other than downgradient, the modeled contaminant concentrations are applied to reduced distances, as specified in the "Tier 2 Guidance." The modeled results are applied to 100 percent of the distance within an angle of 30 degrees on either side of the range of downgradient directions, as specified in Tier 2 guidance. The modeled results are applied to 20 percent of the distance in the upgradient direction and directly proportional distances between these two outer limits. If the groundwater gradient is less than 0.005 or the groundwater contaminant plume shows no definitive direction or shows directional reversals, the modeled concentrations are applied to 100 percent of the distance in all directions from the source. As the downgradient velocity increases, the upgradient modeled distance is reduced to less than 20 percent of the downgradient modeled distance.

j. Plume definition. The purpose of plume definition at Tier 2 is to obtain sufficient data to determine the impact on actual and potential receptors, to determine and confirm the highest levels of contamination, to verify the validity of the models, and to determine groundwater flow direction. The number and location of borings and monitoring wells and the specificity of plume definition will depend on the pathway or pathways being assessed and the actual or potential receptors of concern. Unless otherwise specified, groundwater and soil contamination shall be defined to Tier 1 levels for the applicable pathways. Linear interpolation between two known concentrations must be used to delineate plume extent. Samples with no concentrations detected shall be considered one-half the detection limit for interpolation purposes.

k. Pathway completeness. Unless a pathway has obtained clearance under Tier 1, each pathway must be evaluated at Tier 2. Pathways are generally considered complete (unless otherwise specified) and receptors affected if actual receptors or potential receptor points of exposure exist within the modeled contaminant plume using the modeled simulation line calculated to the applicable target level at a point of exposure. If the actual contaminant plume exceeds the modeled plume, the pathway is complete and must be evaluated if actual or potential points of exposure exist within a distance extending 10 percent beyond the edge of the defined plume.

l. Points of exposure and compliance. For actual receptors, the point(s) of exposure is the receptor. For potential receptors, the potential receptor point(s) of exposure is determined by using actual plume definition or the modeled simulation line to determine all points which exceed the target level(s) for potential receptors. The potential receptor point(s) of exposure is the location(s) closest to the source where a receptor could reasonably exist and which is not subject to an institutional control; for example, the source is the potential receptor point of exposure if not subject to an institutional control or an adjoining property boundary line if that property is not subject to an institutional control. At Tier 2, the point(s) of exposure or potential receptor point(s) of exposure is a point of compliance unless otherwise specified. Other points of compliance are specified by rules and will generally include all points along the SSTL line for purposes of pathway and site classification and corrective action response.

m. *Group two chemicals.* At Tier 2, chemical-specific values for the four chemicals may be used or the largest of the four TEH default values. (Refer to Appendix B and department Tier 2 guidance for using the TEH conversion method for modeling.) If chemical-specific values are used, the analytical method must be approved by the department prior to its use.

135.10(3) *Bedrock assessment.*

a. *General.* As provided in 135.8(5), if bedrock is encountered before groundwater, special assessment procedures under this subrule apply. The Tier 2 assessment procedures apply to the extent they are not inconsistent with this subrule. The objectives of these special procedures are to avoid creating a preferential pathway for contamination through a confining layer to a bedrock aquifer; to avoid creating a preferential pathway to a fractured system, and to determine whether groundwater transport modeling can be used and, if not, what alternative procedures are required. The owner or operator may choose to conduct a Tier 3 assessment under 567—135.11(455B) as an alternative to proceeding under this subrule. For sites where bedrock is encountered before groundwater, there are three general categories of site conditions which determine the assessment procedures that apply:

(1) Nongranular bedrock. Nongranular bedrock is bedrock which is determined to not act as a granular aquifer as provided in subparagraph (2). Nongranular bedrock generally has some type of fractured system where groundwater transport modeling cannot be applied and which makes it difficult to define the extent of contamination.

(2) Granular bedrock. Granular bedrock is bedrock which is determined to act as a granular aquifer and for which monitoring wells do not exist at the source as of August 15, 1996. For purposes of this rule, a granular aquifer is one that shows no extraordinary variations or inconsistencies in groundwater elevations across the site, groundwater flow, hydraulic conductivities, or total dissolved solid concentrations among monitoring wells. Although the extent of contamination can be defined in granular bedrock, groundwater transport modeling cannot be used because there are no monitoring wells at the source.

(3) Exempt granular bedrock. Exempt granular bedrock is bedrock which is determined to act as a granular aquifer as provided in subparagraph (2) and for which monitoring wells exist at the source as of August 15, 1996. Sites in exempt granular bedrock shall be evaluated using the normal Tier 1 or Tier 2 procedures in this rule. Nongranular bedrock is not exempt from this subrule even if groundwater monitoring wells exist at the source.

b. *Exempt soil pathways.* The soil vapor to enclosed space pathway and the soil to plastic water lines pathway shall be assessed under the normal Tier 2 procedures in subrules 135.10(7) and 135.10(9) respectively. In all cases, the normal assessment must comply with the policy of avoiding a preferential pathway to groundwater consistent with 135.8(5) and this subrule.

c. *Soil and groundwater assessment.* The vertical and horizontal extent of soil contamination shall first be defined to Tier 1 levels for the soil leaching to groundwater pathway without drilling into bedrock. A minimum of three groundwater monitoring wells shall be located and installed between 50 to 100 feet beyond the soil contamination Tier 1 levels to avoid creating a preferential pathway. Analytical data as normally required by these rules and guidance must be obtained.

d. *Soil contamination remediation.* For all sites where soil contamination exceeds the soil leaching to groundwater Tier 1 levels, soil excavation or other active soil remediation technology must be conducted in accordance with department guidance to reduce concentrations to below this Tier 1 level. Soil remediation monitoring must be conducted in accordance with 567—135.12(455B).

e. *Groundwater plume definition.* If it is determined the groundwater acts in a manner consistent with a granular aquifer as provided in subparagraph *"a"*(2) and guidance but does not meet the criteria for exemption under subparagraph *"a"*(3), the plume must be defined. The policy of avoiding the creation of a preferential pathway to the bedrock aquifer in accordance with 135.8(5) must be followed.

f. *Soil leaching to groundwater ingestion pathway.* Under this subrule, the soil leaching to groundwater pathway only need be evaluated in combination with the groundwater ingestion pathway. Because of the policies requiring soil remediation to the soil leaching to groundwater Tier 1 levels under paragraphs *"d"* and *"k,"* the soil leaching pathway target levels applicable to other groundwater

transport pathways and other soil pathways would not be exceeded. If a soil leaching to groundwater Tier 1 level is exceeded, the pathway is high risk.

g. Special procedures for the groundwater ingestion pathway.

(1) A protected groundwater source is assumed without measurements of hydraulic conductivity for all sites designated as granular or nongranular bedrock.

(2) Groundwater well receptor evaluation for granular and nongranular bedrock designations. All drinking and non-drinking water wells within 1,000 feet of the source must be identified and tested for chemicals of concern. All public water supply systems within one mile of the source must be identified and raw water tested for chemicals of concern. If no drinking water wells are located within 1,000 feet of the source, all the area within 1,000 feet is considered a potential receptor point of exposure.

(3) Target levels. The following target levels apply regardless of granular aquifer designation. If drinking water wells are within 1,000 feet of the source, the applicable target level is the groundwater ingestion pathway Tier 1 level for actual receptors. If non-drinking water wells are within 1,000 feet of the source, the applicable target level is the groundwater ingestion pathway Tier 1 level for potential receptors. For potential wells, the applicable target level is the groundwater ingestion pathway Tier 1 level for potential receptors.

(4) Sentry well. If the Tier 1 level for actual receptors is exceeded at sites designated as granular bedrock and the receptor has not yet been impacted, a monitoring well shall be placed between the source and an actual receptor, outside the defined plume and approximately 200 feet from the actual receptor. For alternative well placement, the certified groundwater professional must provide justification and obtain department approval. This monitoring well is to be used for monitoring potential groundwater contamination of the receptor.

(5) High risk classification. A site where bedrock is encountered before groundwater shall be classified high risk for this pathway if any of the following conditions exist regardless of granular aquifer determination: The target level at any actual receptor is exceeded; drinking water well receptors are present within 1,000 feet and groundwater concentrations in any monitoring well exceed the groundwater ingestion Tier 1 level for actual receptors; non-drinking water wells are within 1,000 feet and groundwater concentrations in any monitoring well exceed the groundwater ingestion pathway Tier 1 level for potential receptors; or for sites designated nongranular bedrock, if groundwater concentrations for chemicals of concern from any public water system well within one mile of the source exceed 40 percent of the Tier 1 level for actual receptors, and groundwater concentrations in any monitoring well exceed the groundwater ingestion Tier 1 level for actual receptors. Corrective action shall be undertaken as provided in paragraph *"k."*

(6) Low risk classification. Sites without an actual receptor within 1,000 feet shall be classified as low risk for this pathway if no high risk conditions exist, and the Tier 1 level for potential receptors is exceeded. The site is subject to monitoring as provided in paragraph *"l."* If an actual receptor exists within 1,000 feet, a site designated as granular or nongranular bedrock shall be classified low risk for this pathway when soil contamination has been removed or remediated to below the soil leaching to groundwater Tier 1 levels, and all groundwater monitoring wells are non-detect or below the applicable target level for actual and potential receptors. A site may be reclassified to no action required for this pathway after all monitoring wells meet the exit monitoring criteria as specified in paragraph *"l."* (NOTE: Exit monitoring is required because groundwater monitoring wells are not located at the source or if they are, the data is highly unreliable given the nature of bedrock.) If actual receptors do not exist or have been properly plugged and concentrations exceed the Tier 1 level for potential receptors, institutional controls and notification to permitting authorities may be employed in accordance with 135.10(4)*"i."* The institutional control must prohibit use of groundwater for 1,000 feet.

h. Special procedures for the groundwater vapor to enclosed space pathway.

(1) Soil gas plume. Soil gas measurements must be taken regardless of granular aquifer determination and in accordance with Tier 2 guidance to determine a soil gas plume. Soil gas where practical should be measured at the soil-bedrock interface. At a minimum, soil gas must be measured at the suspected area of maximum contamination and near the three monitoring wells with the highest concentrations that exceed the Tier 1 level for the groundwater to enclosed space pathway. Where the

plume has been defined, soil gas measurements should be taken near wells exceeding the Tier 1 level. Other soil gas measurements must be taken as needed to define the extent of contamination where soil gas measurements exceed the soil gas vapor target levels.

(2) The soil gas target levels are those defined in 135.10(7)*"f."*

(3) High risk classification. A site designated as granular or nongranular bedrock shall be classified high risk for this pathway if an actual confined space receptor exists within 50 feet of the soil gas plume based on the soil gas target level as defined in 135.10(6).

(4) Low risk classification. A site designated as granular or nongranular bedrock shall be classified as low risk for this pathway if the soil gas exceeds the vapor target level at any point and no actual confined space receptors exist within 50 feet of the soil gas contaminant plume.

i. Special procedure for the groundwater to water line pathway.

(1) Target level. The applicable target level is the Tier 1 level for the specific type of water line.

(2) High risk classification. A site designated as granular or nongranular bedrock shall be classified high risk for this pathway if the highest groundwater elevation is higher than three feet below the bottom of a water line as provided in 135.10(8)*"a"*(1), risk classification cannot be determined as provided in 567—135.12(455B) due to limitations on placement of monitoring wells, and water lines exist within 200 feet of a monitoring well which exceeds the Tier 1 level.

j. Special procedures for the surface water pathway. Any surface water body within 200 feet of the source must be evaluated under the following for sites designated as granular or nongranular bedrock. The provisions of 135.10(10) apply to the extent they are not inconsistent with the following, including the visual inspection requirements.

(1) Point of compliance. The monitoring well closest to the surface water body must be used as the point of compliance to evaluate impacts to designated use segments as described in 135.10(10) and for general use segments that fail the visual inspection criteria of 135.10(10)*"b."* If the surface water criteria is exceeded for a designated use segment, an allowable discharge concentration must be calculated and met at the point of compliance. For general use segments failing the visual inspection criteria, the acutely toxic target level must be met at the point of compliance.

(2) High risk classification. A site designated as granular or nongranular bedrock shall be classified high risk for this pathway if the surface water body is within 200 feet of the source, risk classification cannot be determined as per 567—135.12(455B) due to limitations on placement of monitoring wells, and the monitoring well closest to the designated use segment exceeds the allowable discharge concentration. A general use segment failing the visual inspection criteria is high risk if, after the sheen is removed, the monitoring well closest to the general use segment exceeds the acutely toxic target level.

(3) Low risk classification. If the allowable discharge concentration is not exceeded at the point of compliance, the site shall be classified as low risk for this pathway and subject to monitoring under paragraph *"l."* The monitoring well closest to the receptor shall serve as the sentry well for monitoring purposes.

k. High risk corrective action response. Owners and operators have the option to conduct a Tier 3 assessment in accordance with 567—135.11(455B).

(1) Groundwater ingestion pathway. For high risk sites, where soil exceeds the soil leaching to groundwater Tier 1 level for actual receptors, soil excavation or other active remediation of soils must be conducted in accordance with department guidance to reduce soil concentrations below the soil leaching Tier 1 level. Corrective action other than monitoring of groundwater is required at sites designated as nongranular bedrock if the actual receptor has been or is likely to be impacted. Corrective action other than monitoring of groundwater is required at sites designated as granular bedrock if the actual receptor has been impacted or the sentry well required by 135.10(3)*"g"*(4) has been impacted above Tier 1 levels. Acceptable corrective action for impacted or vulnerable groundwater wells may include active remediation, technological controls, institutional controls, well plugging, relocation, and well reinstallation with construction measures sufficient to prevent contaminant infiltration to the well and to prevent formation of a preferential pathway.

(2) Groundwater ingestion pathway high risk monitoring. For high risk sites designated as nongranular or granular bedrock, if the soil concentrations do not exceed the soil leaching to groundwater Tier 1 levels or have been reduced to this level by corrective action, and corrective action of groundwater is not required as in subparagraph (1), these sites shall be subject to groundwater monitoring as provided in paragraph *"l."* Corrective action other than monitoring of groundwater is required at sites designated as granular bedrock if groundwater concentrations exceed the applicable target level less than 200 feet from an actual receptor. Reevaluation of the potential for impact to actual receptors is required at sites designated as nongranular bedrock if concentrations from monitoring wells increases more than 20 percent of the previous samples.

(3) For water line pathways. For high risk sites, active remediation must be conducted to reduce concentrations below the applicable target levels, or water lines and gaskets must be replaced or relocated, including the use of institutional and technological controls. If lines are polybutylene, polyethylene, or asbestos-cement, the lines must be removed or relocated. All water lines that are replaced must be replaced with water line materials and gasket materials of appropriate construction in accordance with current department standards set forth in 567—Chapter 43 and with no less than nitrile or FKM gaskets or as otherwise approved by the department.

(4) Other pathways. For high risk sites other than groundwater ingestion and water lines, active remediation must be conducted to reduce concentrations below the applicable target levels including the use of institutional and technological controls.

l. *Monitoring.* For high and low risk sites, annual monitoring at a minimum is required as specified below, and potential receptor status for low risk sites must be confirmed. Annual monitoring may be used to meet the exit requirements for no action required classification in accordance with paragraph *"m."*

(1) Groundwater in nongranular bedrock designations. All groundwater monitoring wells must be monitored at least annually.

(2) Groundwater in granular bedrock designations. The following monitoring wells must be monitored at least annually: a well with detected levels of contamination closest to the leading edge of the groundwater plume between the source and the receptor, and a sentry well with concentrations below the applicable target level consistent with subparagraph *"g"*(4) and paragraph *"j."*

(3) Soil gas. For sites where the soil gas target level is exceeded, annual monitoring of soil gas is required at the suspected area of maximum contamination and between the soil gas plume and any actual receptors within 100 feet of the soil gas plume.

m. *No action required classification.* A site may be given a no action required classification after conducting a Tier 2 assessment as provided in this subrule if maximum soil concentrations do not exceed the Tier 1 levels for the soil leaching pathway, and if groundwater exit monitoring criteria and soil gas confirmation sampling are met as specified below.

(1) Groundwater in nongranular bedrock designations. Exit monitoring requires that samples from all groundwater monitoring wells must not exceed the applicable target levels for annual sampling for three consecutive years.

(2) Groundwater in granular bedrock designations. Exit monitoring must be met in two ways: A monitoring well between the source and the receptor must not exceed applicable target levels for three sampling events, and samples must be separated by at least six months; and the three most recent consecutive groundwater samples from a monitoring well between the source and the receptor with detected levels of contamination must show a steady or declining trend and meet the following criteria: The first of the three samples must be more than detection limits, concentrations cannot increase more than 20 percent from the first of the three samples to the third sample; concentrations cannot increase more than 20 percent of the previous sample; and samples must be separated by at least six months.

(3) Soil gas. Confirmation sampling for soil gas must be conducted as specified in 135.12(6)*"c."*

n. After receiving a no action required classification, all monitoring wells must be properly plugged in accordance with 567—Chapters 39 and 49.

135.10(4) *Groundwater ingestion pathway assessment.*

a. Pathway completeness. Unless cleared at Tier 1, this pathway is complete and must be evaluated under any of the following conditions: (1) the first encountered groundwater is a protected groundwater source; or (2) there is a drinking water well or a non-drinking water well within the modeled groundwater plume or the actual plume as provided in 135.10(2)*"j"* and 135.10(2)*"k."*

b. Receptor evaluation. All drinking and non-drinking water wells located within 100 feet of the largest actual plume (defined to the appropriate target level for the receptor type) must be tested, at a minimum, for chemicals of concern as part of the receptor evaluation. Actual plumes refer to groundwater plumes for all chemicals of concern. Untreated or raw water must be collected for analysis unless it is determined to be infeasible or impracticable.

All existing drinking water wells and non-drinking water wells within the modeled plume or the actual plume as provided in paragraph *"a"* must be evaluated as actual receptors. Potential receptors only exist if the groundwater is a protected groundwater source. Potential receptor points of exposure are those points within the modeled plume or actual plume that exceed the potential point of exposure target level. The point(s) of compliance for actual receptor(s) is the receptor. The point(s) of compliance for potential receptor(s) is the potential receptor point of exposure as provided in 135.10(2)*"j"* and 135.10(2)*"k."*

c. Target levels. For drinking water wells, the target level at the point(s) of exposure is the Tier 1 level for actual receptors. For non-drinking water wells, the target level at the point(s) of exposure is the Tier 1levels for potential receptors. For potential receptors, the target level at the potential receptor point(s) of exposure is the Tier 1 level for potential receptors.

d. The soil leaching to groundwater pathway must be evaluated in accordance with 135.9(5) if this pathway is complete.

e. Modeling. At Tier 2, the groundwater well located within the modeled plume is assumed to be drawing from the contaminated aquifer, and the groundwater transport model is designed to predict horizontal movement to the well. If the groundwater professional determines that assessment of the vertical movement of contamination is advisable to determine the potential or actual impact to the well source, a Tier 3 assessment of this vertical pathway may be conducted. The groundwater professional shall submit a work plan to the department specifying the assessment methods and objectives for approval in accordance with 135.11(455B). Factors which should be addressed include, but are not limited to, well depth and construction, radius of influence, hydrogeologic separation of aquifer, preferential pathways, and differing water quality characteristics.

f. Public water supply well assessment. Rescinded IAB 3/11/09, effective 4/15/09.

g. Plume definition. The groundwater plume shall be defined to the applicable Tier 1 level for actual receptors except, where there are no actual receptors and the groundwater is a protected groundwater source, the plume shall be defined to the Tier 1 level for potential receptors.

h. Pathway classification. This pathway shall be classified as high risk, low risk or no action required in accordance with 567—135.12(455B).

i. Corrective action response. Corrective action must be conducted in accordance with 567—135.12(455B). Abandonment and plugging of wells in accordance with 567—Chapters 39 and 49 is an acceptable corrective action response.

j. Use of institutional controls. The use of institutional controls may be used to obtain no action required pathway classification. If the pathway is complete and the concentrations exceed the applicable Tier 1 level(s) for actual receptors, the drinking or non-drinking water well must be properly plugged in accordance with 567—Chapters 39 and 49 and the institutional control must prohibit the use of a protected groundwater source (if one exists) within the actual or modeled plume as provided in 135.10(2)*"j"* and 135.10(2)*"k."* If the Tier 1 level is exceeded for potential receptors, the institutional control must prohibit the use of a protected groundwater source within the actual or modeled plume, whichever is greater. If concentrations exceed the Tier 1 level for drinking water wells and the groundwater is a protected groundwater source, the owner or operator must provide notification of the site conditions on a department form to the department water supply section, or if a county has delegated authority, then the designated county authority responsible for issuing private water supply construction permits or regulating non-public water well construction as provided in 567—Chapters 38 and 49.

k. Notification of well owners. Upon receipt of a Tier 2 site cleanup report and as soon as practicable, the department shall notify the owner of any public water supply well identified within the Tier 2 site cleanup report that a leaking underground storage tank site is within 2,500 feet and an assessment has been performed.

135.10(5) *Soil leaching to groundwater pathway assessment.*

a. General. The soil leaching to groundwater pathway is evaluated using a one-dimensional model which predicts vertical movement of contamination through soil to groundwater and transported by the groundwater to a receptor. The model is used to predict the maximum concentrations of chemicals of concern that would be present in groundwater beneath a source which is representative of residual soil contamination and maximum soil concentrations. The predicted groundwater concentrations then must be used as a groundwater source concentration to evaluate its impact on other groundwater transport pathways, including the groundwater ingestion pathway, the groundwater vapor pathway, the groundwater water line pathway and the surface water pathway.

b. Pathway completeness. This pathway is complete whenever a groundwater transport pathway is complete as provided in this rule.

c. Plume definition. The soil plume shall be defined to the Tier 1 levels for the soil leaching to groundwater pathway.

d. Receptor evaluation. Receptors for this pathway are the same as the receptors for each complete groundwater transport pathway.

e. Modeling and target levels. The soil and groundwater parameters shall be measured as provided in 135.10(2).

The soil leaching to groundwater model shall be used to calculate the predicted groundwater source concentration. Each applicable groundwater transport pathway model shall then be used in accordance with the rules for that pathway to predict potential impact to actual receptors, the location of potential receptor points of exposure and the site-specific target level (SSTL) in groundwater at the source. This SSTL then is used to calculate a SSTL for soil at the source. If the soil concentrations exceed the SSTL for soil, corrective action response shall be evaluated.

f. Corrective action response. If the maximum soil concentration at the source exceeds the SSTL for soil for actual or potential receptors, corrective action must be taken in accordance with 567—135.12(455B).

135.10(6) *Groundwater vapor to enclosed space pathway assessment.*

a. Pathway completeness. Unless cleared at Tier 1, this pathway is always considered complete for purposes of Tier 2.

b. Explosive vapor survey. If an explosive vapor survey has not been conducted as part of a Tier 1 assessment, an explosive vapor survey of enclosed spaces must be conducted during the Tier 2 assessment in accordance with 135.9(6)*"b"* and procedures outlined in the department's Tier 1 guidance.

c. Confined space receptor evaluation. Actual and potential receptors are evaluated at Tier 2 for this pathway.

(1) Actual receptors. An existing confined space within the modeled groundwater plume or the actual groundwater plume as provided in 135.10(2)*"j"* and 135.10(2)*"k"* is an actual receptor. For the purpose of Tier 2, a confined space is a basement in a building occupied by humans. Buildings constructed with a concrete slab on grade or buildings constructed without a concrete slab, but with a crawl space are not considered confined spaces. Sanitary sewers are considered confined space receptors and preferential pathways if an occupied building exists within 200 feet of where the sewer line crosses over or through actual or modeled groundwater contamination which exceeds the target levels calculated for sewers. The sanitary sewer includes its utility envelope. The point of exposure is the receptor and points of compliance include the locations where target level measurements may be taken as provided in paragraphs *"f"* and *"g."*

(2) Potential receptors. Potential receptors are confined spaces that do not presently exist but could exist in the future. Areas within the actual groundwater plume perimeter or modeled groundwater plume perimeter are considered potential receptor points of exposure. Potential receptors are evaluated and

target levels established based on the current zoning as provided in paragraph *"f."* The potential receptor point of exposure is a point of compliance.

d. Owners and operators may be required to address vapor inhalation hazards in occupied spaces other than confined spaces as defined in these rules when evidence arises which would give the department a reasonable basis to believe vapor hazards are present or may occur.

e. Plume definition.

(1) The soil plume must be defined in accordance with 135.10(2)*"f"* for the purposes of estimating source width and source length used in soil leaching to groundwater and groundwater transport models.

(2) The groundwater plume must be defined to the target levels derived from site-specific data as provided in paragraph *"f."*

f. Target levels. Target levels can be based on groundwater concentrations, soil gas measurements, and indoor vapor measurements as provided below.

(1) For actual receptors and potential receptors, groundwater modeling as provided in 135.10(2) is used to calculate the groundwater concentration target level at the point of exposure. Default residential exposure factors, default residential building parameters, and a target risk of 10^{-4} are used to determine target levels for actual receptors and potential receptor points of exposure in residential areas and areas with no zoning. Default nonresidential exposure factors, default nonresidential building parameters, and a target risk of 10^{-4} are used to determine target levels for actual receptors and potential receptor points of exposure in nonresidential areas. Default values are provided in Appendices A and B.

(2) For actual receptors, the indoor vapor target levels are designated in 135.10(7)*"f."* For actual and potential receptors, the soil gas target levels are designated in 135.10(7)*"f."*

(3) Sanitary sewers are treated as human health receptors, and groundwater concentration target levels at the point of exposure are based on the application of a target risk of 2×10^{-4} for carcinogens and a hazard quotient of 2 for noncarcinogens.

g. Pathway evaluation and classification. Upon completion of analysis of field data and modeled data, the pathway must be classified high risk, low risk or no further action as provided in 567—135.12(455B).

(1) Actual receptors. If it can be demonstrated that the groundwater plume has reached steady state concentrations under a confined space, indoor vapor measurements at the point(s) of exposure and soil gas measurements at an alternative point(s) of compliance may be used for the pathway evaluation. When assessing sanitary sewers for pathway clearance, soil gas measurements may be evaluated against the soil gas target levels; however, indoor vapor cannot be used as criteria for pathway clearance. Soil gas measurements shall be taken and analyzed in accordance with 135.16(5) and the department's Tier 2 guidance, and at locations in the plume where measured groundwater concentrations exceed the levels which are projected by modeling to exist beneath the actual receptor. If measured groundwater concentrations beneath the actual receptor exceed the levels projected from modeling, then the soil gas measurements may be taken either adjacent to the actual receptor in areas expected to exhibit the greatest soil gas measurements or at an alternative point of compliance between the source and receptor where the actual groundwater concentrations exceed the groundwater concentrations which exist beneath the confined space. If the soil gas measurements and confirmation samples taken in accordance with 135.12(6)*"c"* do not exceed the soil gas target levels, the pathway as to actual receptors shall be classified no action required. If the soil gas target levels are exceeded, either the pathway shall be classified high risk, or indoor vapor measurements may be taken in accordance with the department's Tier 2 guidance. If indoor vapor measurements and confirmation samples do not exceed the indoor vapor target levels, the pathway as to actual confined space receptors shall be classified no action required. If the Tier 1 indoor vapor target levels are exceeded, the pathway shall be classified high risk.

(2) Potential receptors. If the potential receptor groundwater concentration target level(s) is exceeded at any potential receptor point of exposure based on actual data or modeling, the pathway shall be classified low risk. However, if soil gas measurements taken at the potential receptor point(s) of exposure and alternate point(s) of compliance and confirmation samples do not exceed the target levels in 135.10(7)*"f,"* the pathway, as to potential receptors, shall be classified no action required. If the target level(s) for potential sanitary sewer receptors is exceeded, the pathway shall be classified

as low risk. Where the area of potential receptor exposure includes public right-of-way, the pathway may be classified as no action required if the owner or operator provides sufficient documentation to establish that there are no foreseeable plans for construction of sanitary sewers through the area of potential receptor exposure. The municipal authority must acknowledge consent to the no action required classification whenever target levels are exceeded. If the municipal authority reports that it has confirmed plans for construction of sanitary sewers through the area of potential receptor exposure, the pathway shall be reevaluated as an actual receptor.

h. Corrective action response. Unless the pathway is classified as no action required, corrective action for this pathway must be conducted as provided in 567—135.12(455B). Actual receptors are subject to corrective actions which: (1) reduce groundwater concentrations beneath the enclosed space to below the target level; (2) reduce the measured soil gas levels to below the soil gas target levels; (3) reduce the indoor vapor concentrations to below the indoor vapor target level; or (4) reduce the vapor level to below 10 percent of the lower explosive limit (LEL), if applicable. Potential receptors are subject to the monitoring requirements in 135.12(5). Soil vapor monitoring may be conducted in lieu of groundwater monitoring for this pathway. Institutional or technological controls as provided in 567—135.12(455B) may be used.

i. Municipal authority notification for potential sewer receptors. The municipal authority responsible for sewer construction must be notified of the environmental conditions whenever target level(s) is exceeded for potential sanitary sewers. The notification must show the area where groundwater concentrations and soil gas samples exceed target levels. The owner or operator must acknowledge what plans, if any, exist for construction of sanitary sewers through the area of potential receptor exposure.

135.10(7) *Soil vapor to enclosed space pathway assessment.*

a. Pathway completeness. Unless cleared at Tier 1, this pathway is always considered complete for purposes of Tier 2.

b. Explosive vapor survey. If an explosive vapor survey has not been conducted as part of a Tier 1 assessment, an explosive vapor survey of enclosed spaces must be conducted during the Tier 2 assessment in accordance with 135.9(6)*"b"* and procedures outlined in the department's Tier 1 guidance.

c. Confined space receptor evaluation. Actual and potential receptors are evaluated at Tier 2 for this pathway.

(1) Actual receptors. An existing confined space within 50 feet of the edge of the plume is an actual receptor. For the purpose of Tier 2, a confined space is a basement in a building occupied by humans. Buildings constructed with a concrete slab on grade or buildings constructed without a concrete slab, but with a crawl space are not considered receptors. Sanitary sewers are considered confined space receptors and preferential pathways if an occupied building exists within 200 feet of where the sewer line crosses over or through soil contamination which exceeds the target levels calculated for sewers. The sanitary sewer includes its utility envelope. The point of exposure is the receptor and points of compliance include the locations where target level measurements may be taken as provided in paragraphs *"f"* and *"g."*

(2) Potential receptors. Potential receptors are confined spaces that do not presently exist but could exist in the future. Areas where soil concentrations are greater than the Tier 1 level applicable to residential areas or alternative target levels for nonresidential areas as specified in paragraph *"f"* are considered potential receptor points of exposure. Potential receptors are evaluated and target levels established based on the current zoning. An area with no zoning is considered residential. The potential receptor point of exposure is a point of compliance.

d. Owners and operators may be required to address vapor inhalation hazards in occupied spaces other than confined spaces as defined in these rules when evidence arises which would give the department a reasonable basis to believe vapor hazards are present or may occur.

e. Plume definition. The soil plume must be defined to the Tier 1 level for this pathway unless vapor measurements taken at the area(s) with the maximum levels of soil contamination do not exceed the soil gas target level in 135.10(7)*"f."* If soil gas measurements taken from the area(s) of maximum soil concentration do not exceed target levels, confirmation sampling must be conducted in accordance with 135.12(6)*"c"* prior to proposing a no action pathway classification.

f. Target levels. Target levels can be based on soil concentrations, soil gas measurements, and indoor vapor measurements as provided below:

(1) For actual receptors, the soil concentration target level is the Tier 1 level. For potential receptors, the soil concentration target level for residential areas and areas with no zoning is the Tier 1 level. For areas zoned nonresidential, the target level is calculated using the default nonresidential exposure factors and building parameters from Appendix A and a target risk of 10^{-4}.

(2) The following indoor vapor target levels apply to actual receptors other than sanitary sewers and the soil gas target levels apply to all actual and potential receptors. These levels were derived from the ASTM indoor air inhalation and the soil vapor to enclosed space models designated in Appendix A.

	Indoor Vapor ($\mu g/m^3_{air}$)	**Soil Gas ($\mu g/m^3$)**
Benzene	39.2	600,000
Toluene	555	9,250,000

(3) Sanitary sewers are treated as human health receptors, and soil concentration target levels at the point of exposure are based on application of a target risk of 2×10^{-4} for carcinogens and hazard quotient of 2 for noncarcinogens.

g. Pathway evaluation and classification.

(1) Actual receptors. Confined space receptors may be evaluated using soil gas measurements and indoor vapor measurements. When assessing sanitary sewers for pathway clearance, soil gas measurements may be evaluated against the soil gas target levels, however, indoor vapor cannot be used as criteria for pathway clearance. Soil gas measurements shall be taken adjacent to the actual receptor or at an alternative point of compliance between the source and receptor such as the property boundary, and in accordance with 135.16(5) and the department's Tier 2 guidance. If the soil gas measurements and confirmation samples taken in accordance with 135.12(6)*"c"* do not exceed the soil gas target levels, the pathway as to actual receptors shall be classified no action required. If the soil gas target levels are exceeded, either the pathway shall be classified high risk, or indoor vapor measurements may be taken in accordance with the department's Tier 2 guidance. If indoor vapor measurements and confirmation samples do not exceed the indoor vapor target levels, the pathway as to actual receptors shall be classified no action required. If the indoor vapor target levels are exceeded, the pathway shall be classified high risk.

(2) Potential receptors. If the potential receptor target level(s) based on soil concentrations is exceeded at any potential receptor point of exposure, the pathway shall be classified low risk. However, if soil gas measurements taken at the potential receptor point(s) of exposure and alternate point(s) of compliance and confirmation samples do not exceed the target levels in paragraph *"f,"* the pathway shall be classified no action required as to potential receptors. If the target level(s) for potential sanitary sewer receptors is exceeded, the pathway shall be classified as low risk. Where the area of potential receptor exposure includes public right-of-way, the pathway may be classified as no action required if the owner or operator provides sufficient documentation to establish that there are no foreseeable plans for construction of sanitary sewers through the area of potential receptor exposure. The municipal authority must acknowledge consent to the no action required classification whenever target levels are exceeded. If the municipal authority reports that it has confirmed plans for construction of sanitary sewers through the area of potential receptor exposure, the pathway shall be reevaluated as an actual receptor.

h. Corrective action response. Unless the pathway is classified as no action required, corrective action for this pathway must be conducted as provided in 567—135.12(455B) and in accordance with department Tier 2 guidance. Actual receptors are subject to corrective actions which: (1) reduce the indoor vapor concentrations to below the target level; (2) reduce measured soil gas levels to below the soil gas target levels; and (3) if applicable, reduce the vapor level to below 10 percent of the lower explosive limit (LEL). Potential receptors are subject to monitoring requirements as provided

in 135.12(5). Soil vapor monitoring may be conducted in lieu of soil monitoring for this pathway. Institutional or technological controls as provided in 567—135.12(455B) may be used.

i. Municipal authority notification for potential sewer receptors. The municipal authority responsible for sewer construction must be notified of the environmental conditions whenever target level(s) is exceeded for potential sanitary sewers. The notification must show the area where soil concentrations and soil gas samples exceed target levels. The owner or operator must acknowledge what plans, if any, exist for construction of sanitary sewers through the area of potential receptor exposure.

135.10(8) *Groundwater to water line pathway assessment.*

a. Pathway completeness and receptor evaluation.

(1) Actual receptors include all water lines where the highest groundwater elevation is higher than three feet below the bottom of the water line at the measured or predicted points of exposure. The highest groundwater elevation is the estimated average of the highest measured groundwater elevations for each year. All water lines must be evaluated for this pathway regardless of distance from the source and regardless of the Tier 1 evaluation, if the lines are in areas with actual data above the applicable Tier 1 level and modeled data above the SSTL line. If actual data exceeds modeled data, then all water lines are considered actual receptors if they are within a distance extending 10 percent beyond the edge of the contaminant plume defined by the actual data.

(2) Potential receptors include all areas where the first encountered groundwater is less than 20 feet deep and where actual data or modeled data are above Tier 1 levels.

(3) The point(s) of exposure is the water line, and the points of compliance are monitoring wells between the source and the water line which would be effective in monitoring whether the line has been or may be impacted by chemicals of concern.

b. Plume definition. If this pathway is complete for an actual receptor, the groundwater plume must be defined to the Tier 1 levels, with an emphasis between the source and any actual water lines. The water inside the water lines shall be analyzed for all chemicals of concern.

c. Target levels. Groundwater modeling as provided in 135.10(2) must be used to calculate the projected concentrations of chemicals of concern and site-specific target levels. The soil leaching to groundwater pathway must be evaluated to ensure contaminated soil will not cause future groundwater concentrations to exceed site-specific target levels. The target level at the point(s) of exposure is the Tier 1 level.

d. Pathway classification. Upon completion of analysis of field data and modeled data, the pathway must be classified high risk, low risk or no further action as provided in 567—135.12(455B). The water quality inside the water lines is not a criterion for clearance of this pathway.

e. Utility company notification. The utility company which supplies water service to the area must be notified of all actual and potential water line impacts as soon as knowledge of a potential risk is determined. If the extent of contamination has been defined, this information must be included in utility company notification, and any previous notification made at Tier 1 must be amended to include this information.

f. Corrective action response.

(1) For actual receptors, unless the pathway is classified as no further action, corrective action for this pathway must be conducted as provided in 567—135.12(455B). If the concentrations of chemicals of concern in a water line exceed the Tier 1 levels for actual receptors for the groundwater ingestion pathway, immediate corrective action must be conducted to eliminate exposure to the water, including but not limited to replacement of the line with an approved material.

(2) For potential receptors, upon utility company notification, no further action will be required for this pathway for potential receptors.

135.10(9) *Soil to water line pathway assessment.*

a. Pathway completeness and receptor evaluation.

(1) Actual receptors include all water lines within ten feet of the soil plume defined to the Tier 1 level. All water lines must be evaluated for this pathway regardless of distance from the source if the lines are in areas where Tier 1 levels are exceeded.

(2) Potential receptors include all areas where Tier 1 levels are exceeded.

b. Plume definition. The extent of soil contamination must be defined to Tier 1 levels for the chemicals of concern.

c. Target level. The point(s) of exposure includes all areas within ten feet of the water line. The target level at the point(s) of exposure is the Tier 1 level.

d. Pathway classification. Upon completion of analysis of field data, the pathway must be classified high risk, low risk or no further action as provided in 567—135.12(455B). Measurements of water quality inside the water lines may be required, but are not allowed as criteria to clear this pathway.

e. Utility company notification. The utility company which supplies water service to the area must be notified of all actual and potential water line impacts as soon as knowledge of the potential risk is determined. If the extent of contamination has been defined, this information must be included in utility company notification, and any previous notification made at Tier 1 must be amended to include this information.

f. Corrective action response.

(1) For actual receptors, unless the pathway is classified as no further action, corrective action for this pathway must be conducted as provided in 567—135.12(455B).

(2) For potential receptors, upon utility company notification, no further action will be required for this pathway for potential receptors.

135.10(10) *Surface water pathway assessment.*

a. Pathway completeness. Unless maximum concentrations are less than the applicable Tier 1 levels, this pathway is complete and must be evaluated under any of the following conditions: (1) there is a designated use surface water within the modeled groundwater plume or the actual plume as provided in 135.10(2)*"f"* and 135.10(2)*"g"*; or (2) any surface water body which failed the Tier 1 visual inspection as provided in 135.9(10).

b. Visual inspection. A visual inspection must be conducted according to 135.9(10)*"c."* If a sheen or residue from a petroleum-regulated substance is present, soil and groundwater sampling must be conducted to identify the source of the release and to define the extent of the contaminant plume to the levels acutely toxic to aquatic life as provided in 567—subrule 61.3(2).

c. Receptor evaluation.

(1) Surface water criteria apply only to designated use segments of surface water bodies as provided in 567—subrules 61.3(1) and 61.3(5). If the surface water body is a designated use segment and if maximum groundwater concentrations exceed applicable surface water criteria, the extent of contamination must be defined as provided in paragraph *"d."* The point of compliance for measuring chemicals of concern at the point of exposure is the groundwater adjacent to the surface water body because surface water must be protected for low flow conditions. In-stream measurements of concentrations are not allowed as a basis for no further action.

(2) If the visual inspection indicates the presence of a petroleum sheen in a general use segment within 200 feet of the source, as defined in 567—paragraph 61.3(1)*"a,"* the segment must be evaluated as an actual receptor. The point of compliance for measuring chemicals of concern at the point of exposure is the groundwater adjacent to the general use segment.

d. Plume definition. The groundwater plume must be defined to the surface water criteria levels for designated use segment receptors and to the acutely toxic levels for general use segment receptors, with an emphasis between the source and the surface water body.

e. Target levels. Determining target levels for this pathway involves a two-step process.

(1) Groundwater modeling as provided in 135.10(2) must be used to calculate the projected concentrations of chemicals of concern at the point of compliance. If the modeled concentrations or field data at the point of compliance exceed surface water criteria for designated use segments, an allowable discharge concentration must be calculated. If the projected concentrations and field data at the point of compliance do not exceed surface water criteria, no further action is required to assess this pathway.

(2) The department water quality section will calculate the allowable discharge concentration using information provided by the certified groundwater professional on a department form. Required information includes, at a minimum, the site location and a discharge flow rate calculated according to

the department's Tier 2 guidance. The allowable discharge concentration is the target level which must be met adjacent to the surface water body which is the point of compliance.

(3) The target level at the point of exposure/compliance for general use segments subject to evaluation is the acutely toxic levels established by the department under 567—Chapter 61 and subrule 567—62.8(2). If the modeled concentrations of field data at the point of exposure/compliance exceed the acutely toxic levels, modeling must be used to determine site classifications and corrective action in accordance with 567—135.12(455B).

f. *Pathway classification.* Upon completion of analysis of field data and modeled data, the pathway must be classified high risk, low risk or no further action as provided in 567—135.12(455B).

(1) For general use segments, as defined in 567—subrule 61.3(1), if the groundwater professional determines there is no sheen or residue present or if the site is not the source of the sheen or residue or if the sheen does not consist of petroleum-regulated substances, no further action is required for assessment of this pathway. If a petroleum-regulated substance sheen is present, the pathway is high risk and subject to classification in accordance with 567—135.12(455B).

(2) For designated use segments, as provided in 567—subrules 61.3(1) and 61.3(5), if projected concentrations of chemicals of concern and field data at the point of compliance do not exceed the target level adjacent to the surface water, and the groundwater professional determines there is no sheen or residue present, no further action is required for assessment of this pathway.

g. *Corrective action response.* Unless the pathway is classified as no further action, corrective action for this pathway must be conducted as provided in 567—135.12(455B). For surface water bodies failing the visual inspection criteria, corrective action must eliminate the sheen and reduce concentrations to below the site specific target level in accordance with 567—135.12(455B).

135.10(11) *Tier 2 submission and review procedures.*

a. Owners and operators must submit a Tier 2 site cleanup report within 180 days of the date the department approves or is deemed to approve a Tier 1 assessment report under 135.9(12). If the owner or operator has elected to conduct a Tier 2 assessment instead of a Tier 1, or a Tier 2 assessment is required due to the presence of free product under 135.7(5), the Tier 2 site cleanup report must be submitted within 180 days of the date the release was confirmed. The department may establish an alternative schedule for submittal.

b. Site cleanup report completeness and accuracy. A Tier 2 site cleanup report is considered to be complete if it contains all the information and data required by this rule and the department's Tier 2 guidance. The report is considered accurate if the information and data are reasonably reliable based first on the standards in these rules and department guidance, and second, on generally accepted industry standards.

c. The certified groundwater professional responsible for completion of the Tier 2 site assessment and preparation of the report must accompany each Tier 2 site cleanup report with a certification as set out below:

I, _____, groundwater professional certification number _____, am familiar with all applicable requirements of Iowa Code section 455B.474 and all rules and procedures adopted thereunder including, but not limited to, the Department of Natural Resources' Tier 2 guidance. Based on my knowledge of those documents and the information I have prepared and reviewed regarding this site, UST registration number _____, LUST No._____, I certify that this document is complete and accurate as provided in 135.10(11) and meets the applicable requirements of the Tier 2 site cleanup report.

Signature

Date

d. Upon receipt of the groundwater professional's certified Tier 2 report, the groundwater professional's proposed site classification for the site shall be determinative unless, within 90 days of receipt, the department identifies material information in the report that is inaccurate or incomplete. Material information may be data found to be inaccurate or incomplete or a report that lacks information which, if accurate and complete, would result in a different site or pathway classification than proposed by the certified groundwater professional. If the department determines that the site cleanup

report is inaccurate or incomplete, the department shall notify the groundwater professional of the inaccurate or incomplete information within 90 days of receipt of the report and shall work with the groundwater professional and the party responsible for cleanup to obtain correct information or additional information necessary to appropriately classify the site. If the groundwater professional recommends proceeding to Tier 3, the groundwater professional's site classification and any pathway classification recommendations subject to or influenced by a Tier 3 assessment shall not be considered determinative until the Tier 3 report is submitted for review as provided in 567—135.11(455B).

e. If a "no action required" site classification is proposed, the department shall review the report in accordance with 135.12(6) and the review standards in paragraph 135.10(11)*"d."*

f. From July 1, 2010, through June 30, 2011, the department shall have 120 days rather than 90 days as provided in paragraph 135.10(11)*"d"* to review and respond to the report.

g. The department may, in the interest of minimizing environmental or public health risks and promoting a more effective cleanup, require owners and operators to begin cleanup of soil and groundwater before the Tier 2 site cleanup report is approved.

h. Review of the public water supply receptor risk assessment. Rescinded IAB 3/11/09, effective 4/15/09.

[**ARC 7621B**, IAB 3/11/09, effective 4/15/09; **ARC 9011B**, IAB 8/25/10, effective 9/29/10; **ARC 9331B**, IAB 1/12/11, effective 2/16/11]

567—135.11(455B) Tier 3 site assessment policy and procedure.

135.11(1) *General.* Tier 3 site assessment. Unless specifically limited by rule or an imminent hazard exists, an owner or operator may choose to prepare a Tier 3 site assessment as an alternative to completion of a Tier 2 assessment under 567—135.10(455B) or as an alternative to completion of a corrective action design report under 567—135.12(455B). Prior to conducting a Tier 3 site assessment, a groundwater professional must submit a work plan to the department for approval. The work plan must contain an evaluation of the specific site conditions which justify the use of a Tier 3 assessment, an outline of the proposed Tier 3 assessment procedures and reporting format and a method for determining a risk classification consistent with the policies underlying the risk classification system in 567—135.12(455B). Upon approval, the groundwater professional may implement the assessment plan and submit a report within a reasonable time designated by the department.

135.11(2) *Tier 3 site assessment.* A Tier 3 assessment may include but is not limited to the use of more site-specific or multidimensional models and assessment data, methods for calibrating Tier 2 models to make them more predictive of actual site conditions, and more extensive assessment of receptor construction and vulnerability to contaminant impacts. If use of Tier 2 models is proposed with substitution of other site-specific data (as opposed to the Tier 2 default parameters), the groundwater professional must adequately justify how site-specific data is to be measured and why it is necessary. The groundwater professional must demonstrate that the proposal has a proven applicability to underground storage tank sites or similar conditions or has a strong theoretical basis for applicability and is not biased toward underestimating assessment results. The Tier 3 assessment report shall make a recommendation for site classification as high risk, low risk or no action required, at least two corrective action response technologies and provide justification consistent with the standards and policies underlying risk classification and corrective action response under 567—135.12(455B) and Iowa Code chapter 455B, Division 4, Part 8.

135.11(3) *Review and submittal.* The department will review the Tier 3 assessment for compliance with the terms of the approved work plan and based on principles consistent with these rules and Iowa Code chapter 455B, Division IV, Part 8. Upon approval of the Tier 3 assessment, the department may require corrective action in accordance with 567—135.12(455B).

567—135.12(455B) Tier 2 and 3 site classification and corrective action response.

135.12(1) *General.* 1995 Iowa Code section 455B.474(1)*"d"*(2) provides that sites shall be classified as high risk, low risk and no action required. Risk classification is accomplished by comparing actual field data to the concentrations that are predicted by the use of models. Field data must be compared to the simulation model which uses the maximum concentrations at a source and predicts

at what levels actual or potential receptors could be impacted in the future. Field data must also be compared to the site-specific target level line which assumes a target level concentration at the point of exposure and is used to predict the reduction in concentration that must be achieved at the source in order to meet the applicable target level at the point of exposure. These models not only predict concentrations at points of exposure or a point of compliance at a source but also predict a distribution of concentrations between the source and the point of exposure which may also be points of compliance. The comparison of field data with these distribution curves primarily is considered for purposes of judging whether the modeled data is reasonably predictive and what measures such as monitoring are prudent to determine the reliability of modeled data and actual field data.

For the soil vapor to enclosed space and soil to water line pathways, there are no horizontal transport models to use for predicting future impacts. Therefore, for these pathways, sites are classified as high risk, low risk or no action required based on specified criteria below and in 567—135.10(455B).

135.12(2) *High risk classification.* Except as provided below, sites shall be classified as high risk if, for any pathway, any actual field data exceeds the site-specific target level line at any point for an actual receptor.

a. For the soil vapor to enclosed space and soil to water line pathways, sites shall be classified as high risk if the target levels for actual receptors are exceeded as provided in 135.10(7) and 135.10(9).

b. For the soil vapor or groundwater vapor to enclosed space pathways, sites shall be classified as high risk if the explosivity levels at applicable points of compliance are exceeded as provided in 135.10(6) and 135.10(7).

c. Generally, sites are classified as low risk if only potential receptor points of compliance are exceeded. The following is an exception. For the soil leaching to groundwater ingestion pathway for potential receptor conditions, the site shall be classified as high risk if the groundwater concentration(s) exceeds the groundwater Tier 1 level for potential receptor and the soil concentration exceeds the soil leaching site-specific target level at the source.

135.12(3) *High risk corrective action response.*

a. Objectives. The primary objectives of corrective action in response to a high risk classification are both short- term and long-term. The short-term goal is to eliminate or reduce the risk of exposure at actual receptors which have been or are imminently threatened with exposure above target levels. The longer term goal is to prevent exposure to actual receptors which are not currently impacted or are not imminently threatened with exposure. To achieve these objectives, it is the intent of these rules that concentrations of applicable chemicals of concern be reduced by active remediation to levels below the site-specific target level line at all points between the source(s) and the point(s) of exposure as well as to undertake such interim corrective action as necessary to eliminate or prevent exposure until concentrations below the SSTL line are achieved. If it is shown that concentrations at all applicable points have been reduced to below the SSTL line, the secondary objective is to establish that the field data can be reasonably relied upon to predict future conditions at points of exposure rather than reliance on the modeled data. Reliance on field data is achieved by establishing through monitoring that concentrations within the contaminant plume are steady or declining. Use of institutional control and technological controls may be used to sever pathways or control the risk of receptor impacts.

b. For the groundwater to water line and soil to water line receptors, these objectives are achieved by active remediation, replacement or relocation of water line receptors from areas within the actual plume plus some added site-specific distance to provide a safety factor to areas outside the site-specific target level line. In areas of free product, all water lines regardless of construction material must be relocated unless there is no other option and the department has approved an alternate plan of construction. If water lines and gaskets are replaced in an area of contamination, they must be replaced with water line materials and gasket materials of appropriate construction in accordance with current department standards set forth in 567—Chapter 43 and with no less than nitrile or FKM gaskets or as otherwise approved by the department. If a service line is replaced and remains in a contaminated area, a backflow preventer shall be installed to prevent impacts to the larger water distribution system.

c. For the soil vapor pathway, these objectives are achieved by active remediation of soil contamination below the target level at the point(s) of exposure or other designated point(s) of

compliance using the same measurement methods for receptor evaluation under 135.10(7) and 135.10(9).

d. For a site classified as high risk or reclassified as high risk for the soil leaching to groundwater ingestion pathway, these objectives are achieved by active remediation of soil contamination to reduce the soil concentration to below the site-specific target level at the source.

e. A corrective action design report (CADR) must be submitted by a certified groundwater professional for all high risk sites unless the terms of a corrective action plan are formalized in a memorandum of agreement within a reasonable time frame specified by the department. The CADR must be submitted on a form provided by the department and in accordance with department CADR guidance within 60 days of site classification approval as provided in 135.10(11). The CADR must identify at least two principally applicable corrective action options designed to meet the objectives in 135.12(3), an outline of the projected timetable and critical performance benchmarks, and a specific monitoring proposal designed to verify its effectiveness and must provide sufficient supporting documentation consistent with industry standards that the technology is effective to accomplish site-specific objectives. The CADR must contain an analysis of its cost-effectiveness in relation to other options. The department will review the CADR in accordance with 135.12(9).

f. *Interim monitoring.* From the time a Tier 2 site cleanup report is submitted and until the department determines a site is classified as no action required, interim monitoring is required at least annually for all sites classified as high risk. Groundwater samples must be taken: (1) from a monitoring well at the maximum source concentration; (2) from a transition well, meaning a monitoring well with detected levels of contamination closest to the leading edge of the groundwater plume as defined to the pathway-specific target level, and between the source(s) and the point(s) of exposure; and (3) from a guard well, meaning a monitoring well between the source(s) and the point(s) of exposure with concentrations below the SSTL line. If a receptor is located within an actual plume contoured to the applicable target level for that receptor, the point of exposure must be monitored. If concentrations at the receptor already exceed the applicable target level for that receptor, corrective actions must be implemented as soon as practicable. Monitoring conducted as part of remediation or as a condition of establishing a no action required classification may be used to the extent it meets these criteria. Soil monitoring is required at least annually for all applicable pathways in accordance with 135.12(5)*"d."* All drinking water wells and non-drinking water wells within 100 feet of the largest actual plume (defined to the appropriate target level for the receptor type) must be tested annually for chemicals of concern. Actual plumes refer to groundwater plumes for all chemicals of concern.

g. Remediation monitoring. Remediation monitoring during operation of a remediation system is required at least four times each year to evaluate effectiveness of the system. A remediation monitoring schedule and plan must be specified in the corrective action design report and approved by the department.

h. Technological controls. The purpose of a technological control is to effectively sever a pathway by use of technologies such that an applicable receptor could not be exposed to chemicals of concern above an applicable target risk level. Technological controls are an acceptable corrective action response either alone or in combination with other remediation systems. The purpose of technological controls may be to control plume migration through use of containment technologies, barriers, etc., both as an interim or permanent corrective action response or to permanently sever a pathway to a receptor. Controls may also be appropriate to treat or control contamination at the point of exposure. Any technological control proposed as a permanent corrective action option without meeting the reduction in contaminant concentrations objectives must establish that the pathway to a receptor will be permanently severed or controlled. The effectiveness of a technological control must be monitored under a department approved plan until concentrations fall below the site-specific target level line or its effectiveness as a permanent response is established, and no adverse effects are created.

i. Following completion of corrective action, the site must meet exit monitoring criteria to be reclassified as no action required as specified in 135.12(6)*"c."* At any point where an institutional or

technological control is implemented and approved by the department, the site may be reclassified as no action required consistent with 135.12(6).

135.12(4) *Low risk classification.* A site shall be classified as low risk if none of the pathways are high risk and if any of the pathways are low risk. A pathway shall be classified low risk if it meets one of the following conditions:

a. For actual and potential receptors, if the modeled data and the actual field data are less than the site-specific target level line, and any of the field data is greater than the simulation line.

b. For potential receptors, if any actual field data exceeds the site-specific target level line at any point.

c. For the soil leaching to groundwater ingestion pathway where modeling predicts that the Tier 1 levels for potential receptors would be exceeded in groundwater at applicable potential receptor points of compliance and the soil concentration exceeds the soil leaching to groundwater site-specific target level but groundwater concentrations are currently below the Tier 1 level for potential receptors, the site shall be initially classified as low risk and subject to monitoring under 135.12(5)*"d"*(2). If at any time during the three-year monitoring period, groundwater concentrations exceed the Tier 1 level for potential receptors, the site shall be classified as high risk requiring soil remediation in accordance with 135.12(3)*"c."*

135.12(5) *Low risk corrective action response.*

a. Purpose. For sites or pathways classified as low risk, the purpose of monitoring is to determine if concentrations are decreasing such that reclassification to no action required may be appropriate or if the contaminant plume is stable such that reclassification to no action required can be achieved with implementation of an institutional control in accordance with 135.12(8), or if concentrations are increasing above the site-specific target level line such that reclassification to high risk is appropriate. Monitoring is necessary to evaluate impacts to actual receptors and assess the continued status of potential receptor conditions. Low risk monitoring shall be conducted and reported by a certified groundwater professional.

b. For sites or pathways classified as low risk, provide a best management practices plan. The plan must include maintenance procedures, schedule of activities, prohibition of practices, and other management practices, or a combination thereof, which, after problem assessment, are determined to be the most effective means of monitoring and preventing additional contamination of the groundwater and soil. The plan will also contain a contamination monitoring proposal containing sufficient sampling points to ensure the detection of any significant movement of or increase in contaminant concentration.

c. Groundwater monitoring. For groundwater pathways, samples must be taken at a minimum of once per year: (1) from a monitoring well at the maximum source concentration; (2) a transitional well meaning a well with detected levels of contamination closest to the leading edge of the groundwater plume as defined to the pathway-specific target level and between the source and the receptor; and (3) a guard well meaning a monitoring well between the source and the point of exposure with concentrations below the SSTL line. (NOTE: Monitoring under this provision may be used to satisfy exit monitoring if it otherwise meets the criteria in 135.12(6).)

d. Soil monitoring.

(1) For the soil vapor to enclosed space pathway potential receptors, soil gas samples must be taken at a minimum of once per year in the area(s) of expected maximum vapor concentrations where an institutional control is not in place.

(2) For the soil leaching to groundwater pathway potential receptors, annual groundwater monitoring is required for a minimum of three years as provided in *"c"* above. If groundwater concentrations are below the applicable SSTL line for all three years, no further action is required. If groundwater concentrations exceed the applicable SSTL line in any of the three years, corrective action is required to reduce soil concentrations to below the Tier 1 levels for soil leaching to groundwater. Therefore, annual monitoring of soil is not applicable.

(3) For the soil to water line pathway potential receptors, notification of the utility company is required. Notification will result in reclassification to no action required. Therefore, annual monitoring of soil is not applicable.

e. Receptors must be evaluated at least annually to ensure no actual or modeled data are above the site-specific target level line for any actual receptors. Potential receptor areas of concern must be evaluated at least annually and the presence of no actual receptors confirmed. If actual receptors are present or reasonably expected to be brought into existence, the owner or operator must report this fact to the department as soon as practicable. Annual monitoring which also meets the exit criteria under 135.12(6) may be used for that purpose.

f. The site or pathway must meet exit monitoring criteria to be reclassified as no action required as specified in 135.12(6)*"b."* If concentrations for actual receptors increase above the site-specific target level line or potential receptor status changes to actual receptor status, the site must be reclassified as high risk and further corrective action required in accordance with 135.12(3).

135.12(6) *No action required classification.* A site shall be classified as no action required if all of the pathways are classified as no action required as provided below:

a. Soil pathways shall be classified as no action required if samples are less than the applicable target levels as defined for each pathway and confirmational sampling requirements have been met.

b. For initial classification, groundwater pathways shall be classified as no action required if the field data is below the site-specific target level line and all field data is at or less than the simulation line, and confirmation monitoring has been completed successfully. Confirmation sampling for groundwater is a second sample which confirms the no action required criteria.

c. A groundwater pathway shall be reclassified from high risk to no action required if all field data is below the site-specific target level and if exit monitoring criteria have been met. Exit monitoring criteria means that the three most recent consecutive groundwater samples from all monitoring wells must show a steady or declining trend and the most recent samples are below the site-specific target level. Other criteria include the following: The first of the three samples for the source well and transition well must be more than detection limits; concentrations cannot increase more than 20 percent from the first of the three samples to the third sample; concentrations cannot increase more than 20 percent of the previous sample; and samples must be separated by at least six months.

d. A low risk site shall be reclassified as "no action required" if field data is below the site-specific target level and if exit monitoring criteria have been met pursuant to 135.12(6)*"c"* or if the site has maintained less than the applicable target level for four consecutive sampling events separated by at least six months as defined in the monitoring plan regardless of exit monitoring criteria and guidance.

e. Confirmation sampling for soil gas and indoor vapor. For the enclosed space pathways, confirmation sampling is required to reasonably establish that the soil gas and indoor vapor samples represent the highest expected levels. A groundwater professional must obtain two samples taken at least two weeks apart. One of the samples must be taken during a seasonal period of lowest groundwater elevation and soil gas samples must be taken below the frost line.

f. As a condition of obtaining site classification as no action required, all groundwater monitoring wells must be properly plugged in accordance with 567—Chapters 39 and 49 unless the department requires selected wells to be maintained or a written request with justification and a plan for properly maintaining the wells are submitted to the department for approval. Approval to maintain wells shall be deemed granted if not disapproved with reason within 30 days of request.

g. Prior to acceptance of a request to classify the site as no action required, and in the event there is a question of validity of the data or sampling methods, laboratory analysis procedures, indication of plume movement, or the department obtains information about new conditions at the site, the department may conduct or require the owner to conduct confirmation sampling of the soil, groundwater, soil gas, or indoor vapor to confirm that the no action required criteria have been met.

h. The department may waive, at its discretion, the exit monitoring criteria based on a certified groundwater professional's written justification to support a no action required classification for the site based on a reasoned assessment of data, trends, receptor status, and corrective actions performed. One example is when steady and declining criteria have not been met due solely to variations among a laboratory's lowest achievable detection limits.

135.12(7) *Reclassification.* Any site or pathway which is classified as high risk may be reclassified to low risk if in the course of corrective action the criteria for low risk classification are established. Any site

or pathway which is classified as low risk may be reclassified to high risk if in the course of monitoring the conditions for high risk classification are established. Sites subject to department-approved institutional or technological controls are classified as no action required if all other criteria for no action required classification are satisfied.

135.12(8) *Use of institutional and technological controls.*

a. Purpose. The purpose of an institutional control is to restrict access to or use of property such that an applicable receptor could not be exposed to chemicals of concern for as long as the target level is exceeded at applicable points of exposure and compliance. Institutional controls include:

1. A law of the United States or the state;
2. A regulation issued pursuant to federal or state laws;
3. An ordinance or regulation of a political subdivision in which real estate subject to the institutional control is located;
4. An environmental covenant as provided in 2005 Iowa Code Supplement section 455B.474(1)*"f"*(4)(f) and in accordance with the provisions of 2005 Iowa Code Supplement chapter 455I and 567—Chapter 14;
5. Any other institutional control the owner or operator can reasonably demonstrate to the department will reduce the risk from a release throughout the period necessary to ensure that no applicable target level is likely to be exceeded.

b. Modification or termination of institutional and technological controls. At a point when the department determines that an institutional or technological control has been removed or is no longer effective for the purpose intended, regardless of the issuance of a no further action certification or previous site classification, it may require owners and operators to undertake such reevaluation of the site conditions as necessary to determine an appropriate site classification and corrective action response. If the owner or operator is in control of the affected property, the department may require reimplementation of the institutional or technological control or may require a Tier 2 assessment of the affected pathway(s) be conducted to reevaluate the site conditions and determine alternative corrective action response. An owner or operator subject to an institutional or technological control may request modification or termination of the control by conducting a Tier 2 assessment of the affected pathway or conduct such other assessment as required by the department to establish that the control is no longer required given current site conditions.

c. If the owner or operator is not in control of the affected property or cannot obtain control and the party in control refuses to continue implementation of an institutional control, the department may require the owner or operator to take such legal action as available to enforce institution of the control or may require the owner or operator to undertake a Tier 2 assessment to determine site classification and an alternative corrective action response. If a person in control of the affected property appears to be contractually obligated to maintain an institutional or technological control, the department may, but is not required to, attempt enforcement of the contractual obligation as an alternative to requiring corrective action by the owner or operator.

d. If a site is classified no action required, subject to the existence of an institutional control or technological control, the holder of the fee interest in the real estate subject to the institutional control or technological control may request, at any time, that the department terminate the institutional control or technological control requirement. The department shall terminate the requirement for an institutional control if the holder demonstrates by completion of a Tier 2 assessment of the applicable pathway or other assessment as required by the department that the site conditions warranting the control no longer exist and that the site or pathway has met exit criteria for no action required classification under 135.12(6).

135.12(9) *Corrective action design report submission and review procedures.*

a. Owners and operators must submit a corrective action design report (CADR) within 60 days of the date the department approves or is deemed to approve a Tier 2 assessment report under 135.10(11) or a Tier 3 assessment is to be conducted. The department may establish an alternative schedule for submittal. As an alternative to submitting a CADR, owners or operators may participate in a corrective action meeting process to develop a corrective action plan which would be incorporated into a memorandum of

agreement or other written agreement approved by the department. Owners or operators shall implement the terms of an approved CADR, memorandum of agreement or other corrective action plan agreement.

b. Corrective action design report completeness and accuracy. A CADR is considered to be complete if it contains all the information and data required by this rule and the department's guidance. The report is considered accurate if the information and data are reasonably reliable based first on the standards in these rules and department guidance, and second, on generally accepted industry standards.

c. The certified groundwater professional responsible for completion of the CADR must provide the following certification with the CADR:

I, _____, groundwater professional certification number _____, am familiar with all applicable requirements of Iowa Code section 455B.474 and all rules and procedures adopted thereunder including, but not limited to, the Department of Natural Resources' guidance and specifications for corrective action design reports. Based on my knowledge of those documents and the information I have prepared and reviewed regarding this site, UST registration number _____, LUST No._____, I certify that this document is complete and accurate as provided in 135.12(9) and meets the applicable requirements of the corrective action design report, and that the recommended corrective action can reasonably be expected to meet its stated objectives.

Signature

Date

d. Review. A CADR submitted by a groundwater professional shall be accepted by the department and shall be primarily relied upon by the department to determine the corrective action response requirements of the site. However, if within 90 days of receipt of a CADR, the department identifies material information in the CADR that is inaccurate or incomplete, and if based upon information in the report the appropriate corrective action response cannot be reasonably determined by the department based on industry standards, the department may reject the report and require modifications. If the department does not reject the report within 90 days of receipt, the report shall be deemed approved as submitted unless changes to the report are requested by the groundwater professional. The department shall work with the groundwater professional and the owner or operator to correct any materially inaccurate information or to obtain the additional information necessary to determine the appropriate corrective action response as soon as practicable. However, from July 1, 2010, through June 30, 2011, the department shall have 120 days to notify the certified groundwater professional when a report is not accepted based on material information that is found to be inaccurate or incomplete.

e. Memorandums of agreement. Owners or operators that fail to implement the actions or meet the activity schedule in a memorandum of agreement resulting from a corrective action meeting or other written corrective action plan agreement or that fail to implement the actions or meet the schedule outlined in an approved CADR are subject to legal action.

135.12(10) *Monitoring certificates and no further action certificates.*

a. Monitoring certificate. The department of natural resources will issue a monitoring certificate to the owner or operator of an underground storage tank from which a release has occurred, the current property owner, or other responsible party who has undertaken the corrective action warranting issuance of the certificate. Sites classified as low risk or sites classified as high risk/monitoring shall be eligible for a monitoring certificate. The monitoring certificate will be valid until the site is reclassified to a high risk requiring active remediation or no action required site. A site which has been issued a monitoring certificate shall not be eligible to receive a certificate evidencing completion of remediation until the site is reclassified as no action required. The monitoring certificate will be invalidated and the site reclassified to high risk if it is determined by the department that the owner of the site is not in compliance with the requirements specified in the monitoring certificate.

b. No further action certificate. When the no action required site classification has been determined based on a recommendation of the certified groundwater professional as provided in 135.9(11), 135.10(11) and 135.12(12) (see also 2009 Iowa Code Supplement section 455B.474(1)*"h"*(1)

and (3) as amended by 2010 Iowa Acts, House File 2531, section 174), the department shall issue a no further action certificate.

The department will issue a no further action certificate to an owner or operator of an underground storage tank from which a release has occurred, the current property owner, or other responsible party who has undertaken the corrective action warranting classification of the site as no action required. Prior to the issuance of a no further action certificate, an accurate legal description of the property on which the underground storage tanks are or were formerly located shall be submitted to the department. The following conditions apply:

(1) If free product is present, the department shall not issue a no further action certificate until the department has approved termination of all free product assessment and recovery in accordance with 135.7(5).

(2) The site has been determined by a certified groundwater professional not to present an unreasonable risk to the public health and safety or the environment.

(3) A person issued the certificate or a subsequent purchaser of the site cannot be required to perform further corrective action because action standards are changed at a later date. Action standards refer to applicable standards under this rule.

(4) The certified groundwater professional has certified that all groundwater monitoring wells have been permanently closed in accordance with 135.12(6)*"f"* with the exception of wells that are allowed to be maintained pursuant to 135.12(6)*"f."* Wells not properly maintained shall be referred to the water supply section of the department that enforces 567—Chapter 39 and 567—Chapter 49.

(5) The certificate shall not prevent the department from ordering remediation of a release identified subsequent to the release for which the no further action certificate was issued. The certificate shall not prevent the department from requiring corrective action of a release of a regulated substance from an unregulated tank.

(6) The certificate will not constitute a warranty of any kind to any person as to the condition, marketability or value of the described property.

(7) The certificate shall reflect any institutional control utilized to ensure compliance with any applicable Tier 2 level; and may include a notation that the classification is based on the fact that designated potential receptors are not in existence.

(8) The certificate shall be in a form which is recordable in accordance with Iowa Code section 558.1 et seq., and substantially in the form as provided in Appendix C.

(9) The owner or operator or other persons conducting corrective action shall be responsible for recording the no further action certificate with the county recorder and return a file-stamped copy to the department within 30 days of the issue date. At its discretion, the department may record the no further action certificate with the appropriate county recorder as authorized in 2009 Iowa Code Supplement section 455B.474(1)*"h"*(3) as amended by 2010 Iowa Acts, House File 2531, section 174.

c. The department shall modify any issued no further action certificates containing institutional controls once the owner, operator or their successor or assign has demonstrated that the institutional control is no longer necessary to meet the applicable Tier 2 level as provided in 135.12(10).

135.12(11) *Expedited corrective action.* An owner, operator or responsible party of a site at which a release of regulated substance is suspected to have occurred may carry out corrective actions at the site so long as the department receives notice of the expedited cleanup activities within 30 calendar days of their commencement; the owner, operator, or responsible party complies with the provisions of these rules; and the corrective action does not include active treatment of groundwater other than:

a. As previously approved by the department; or

b. Free product recovery pursuant to subrule 135.7(5).

c. Soil excavation. When undertaking excavation of contaminated soils, adequate field screening methods must be used to identify maximum concentrations during excavation. At a minimum one soil sample must be taken for field screening every 100 square feet of the base and each sidewall. Soil samples must be taken for laboratory analysis at least every 400 square feet of the base and each sidewall of the excavated area to confirm remaining concentrations are below Tier 1 levels. If the excavation is less than 400 square feet, a minimum of one sample must be analyzed for each sidewall and the base. The

owner or operator must maintain adequate records of the excavation area to document compliance with this procedure unless submitted to the department and must provide it to the department upon request.
[**ARC 9011B**, IAB 8/25/10, effective 9/29/10; **ARC 9331B**, IAB 1/12/11, effective 2/16/11]

567—135.13(455B) Public participation.

135.13(1) For each confirmed release that is classified as high or low risk, the department must provide notice to the public by means designated to reach those members of the public directly affected by the release and the recommended corrective action response. This notice may include, but is not limited to, public notice in local newspapers, block advertisements, public service announcements, publication in a state register, letters to individual households, or personal contacts by the staff.

135.13(2) The department must ensure site release information and decisions concerning the Tier 1 assessment report, Tier 2 and Tier 3 site cleanup reports are made available to the public for inspection upon request.

135.13(3) Before approving the Tier 2 or Tier 3 site cleanup report, the department may hold a public meeting to consider comments on the proposed corrective action response if there is sufficient public interest, or for any other reason.

135.13(4) The department must give a public notice that complies with subrule 135.13(1) above if the implementation of the approved Tier 2 or Tier 3 site cleanup report does not achieve the established cleanup levels in the report and the termination of that report is under consideration by the department.

567—135.14(455B) Action levels. The following corrective action levels apply to petroleum-regulated substances as regulated by this chapter. These action levels shall be used to determine if further corrective action under 567—135.6(455B) through 567—135.12(455B) or 567—135.15(455B) is required as the result of tank closure sampling under 135.15(3) or other analytical results submitted to the department. The contaminant concentrations must be determined by laboratory analysis as stated in 567—135.16(455B). Final cleanup determination is not limited to these contaminants. The contamination corrective action levels are:

	Soil (mg/kg)	**Groundwater (ug/L)**
Benzene	0.54	5
Toluene	3.2	1,000
Ethylbenzene	15	700
Xylenes	52	10,000
Total Extractable Hydrocarbons	3,800	1,200

[**ARC 9011B**, IAB 8/25/10, effective 9/29/10]

567—135.15(455B) Out-of-service UST systems and closure.

135.15(1) *Temporary closure.*

a. When a UST system is temporarily closed, owners and operators must continue operation and maintenance of corrosion protection in accordance with 135.4(2), any release detection in accordance with rule 567—135.5(455B), and financial responsibility in accordance with 567—Chapter 136. Rules 567—135.6(455B) to 567—135.12(455B) must be complied with if a release is suspected or confirmed. However, release detection is not required as long as the UST system is empty. The UST system is empty when all materials have been removed using commonly employed practices so that no more than 2.5 centimeters (1 inch) of residue, or 0.3 percent by weight of the total capacity of the UST system, remain in the system.

b. When a UST system is temporarily closed for three months or more, owners and operators must notify the department in writing of the temporary closure and comply with the following requirements:

(1) Leave vent lines open and functioning; and

(2) Cap and secure all other lines, pumps, accesses, and ancillary equipment.

c. When a UST system is temporarily closed for more than 12 months, owners and operators must return the tank tags and permanently close the UST system if it does not meet either the performance standards in 135.3(1) for new UST systems or the upgrading requirements in 135.3(2), except that the spill and overfill equipment requirements do not have to be met. Owners and operators must permanently close the substandard UST systems at the end of this 12-month period in accordance with 135.15(2) to 135.15(5), unless the department provides an extension of the 12-month temporary closure period. Owners and operators must complete a site assessment in accordance with 135.15(3) before such an extension can be applied for.

135.15(2) *Permanent closure and changes-in-service.*

a. At least 30 days before beginning either permanent closure or a change-in-service under paragraphs *"b"* and *"c"* below, owners and operators must notify the department of their intent to permanently close or make the change-in-service. An owner or operator must seek prior approval to permanently close a tank in a time frame shorter than the 30-day notice. The required assessment of the excavation zone under 135.15(3) must be performed after notifying the department but before completion of the permanent closure or a change-in-service.

b. To permanently close a tank or piping, owners and operators must empty and clean them by removing all liquids and accumulated sludge. All tanks taken out of service permanently must also be either removed from the ground or filled with an inert solid material. Piping must either be removed from the ground or have the ends plugged with an inert solid material.

When permanently closing a tank by filling with inert solid material, the tank may not be filled until a closure report is approved by the department. The tank must be filled within 30 days after department approval. The owner and operator must notify the department within 15 days after filling the tank with inert solid material.

c. Continued use of a UST system to store a nonregulated substance is considered a change-in-service. Before a change-in-service, owners and operators must empty and clean the tank by removing all liquid and accumulated sludge and conduct a site assessment in accordance with 135.15(3).

d. Permanent closure procedures must be followed in the replacement of tanks or piping. Notification must be made using DNR Form 542-1308, "Notification of Tank Closure or Change-in-Service." The form must include the date scheduled for the closure. Oral confirmation of the closure date must be given to the DNR field office 24 hours prior to the actual closure. The required assessment of the excavation zone under 139.15(3) must be performed after notifying the department but before completion of the permanent closure or change-in-service.

NOTE: The following cleaning and closure procedures may be used to comply with subrule 135.15(2): American Petroleum Institute Recommended Practice 1604, "Removal and Disposal of Used Underground Petroleum Storage Tanks"; American Petroleum Institute Publication 2015, "Cleaning Petroleum Storage Tanks"; American Petroleum Institute Recommended Practice 1631, "Interior Lining of Underground Storage Tanks," may be used as guidance for compliance with this subrule; and the National Institute for Occupational Safety and Health "Criteria for a Recommended Standard . . . Working in Confined Space" may be used as guidance for conducting safe closure procedures at some hazardous substance tanks.

135.15(3) *Assessing the site at closure or change-in-service.*

a. Before permanent closure or a change-in-service is completed, owners or operators must measure for the presence of a release where contamination is most likely to be present at the UST site. This soil and groundwater closure investigation must be conducted or supervised by a groundwater professional certified under 567—Chapter 134, Part A, unless the department in its discretion grants an exemption and provides direct supervision of the closure investigation. In selecting the sample types, sample locations, and measurement methods, owners and operators must consider the method of closure, the nature of the stored substance, the type of backfill, the depth to groundwater, and other factors appropriate for identifying the presence of a release.

At UST sites with a history of petroleum storage, soil and groundwater samples shall in every case be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) with each compound reported separately in accordance with 567—135.16(455B). If there has been a history or suspected history of

petroleum storage other than gasoline or gasoline blends (i.e., all grades of diesel fuels, fuel oil, kerosene, oil and mineral spirits), or such storage history is unknown or uncertain, soil and groundwater samples shall also be analyzed for total extractable hydrocarbons in accordance with 567—135.16(455B).

All such samples shall be collected separately and shipped to a laboratory certified under 567—Chapter 42, Part C, within 72 hours of collection. Samples shall be refrigerated and protected from freezing during shipment to the laboratory.

When a UST is removed from an area of confirmed contamination, the department may waive closure sampling if written documentation is submitted with the closure notification. Documentation should include laboratory analytical reports and a site map showing tank and piping locations along with contamination plume and sampling locations.

b. For all permanent tank and piping closures or changes-in-service, at least one water sample must be taken from the first saturated groundwater zone via a monitoring well or borehole except as provided in paragraph *"g."* The well or borehole must be located downgradient from and as close as possible to the excavation but no farther away than 20 feet.

If, however, the first saturated groundwater zone is not encountered within 10 feet below the lowest elevation of the tank excavation, the requirement for groundwater sampling shall not apply unless:

(1) Sands or highly permeable soils are encountered within 10 feet below the lowest level of the tank excavation which together with the underlying geology would, in the judgment of the department, pose the reasonable possibility that contamination may have reached groundwaters deeper than 10 feet below the lowest level of the tank excavation. The method of determining highly permeable soil is found in the departmental guidance documents entitled "Underground Storage Tank Closure Procedures for Tank and Piping Removal" and "Underground Storage Tank Closure for Filling in Place."

(2) Indications of potential groundwater contamination, including petroleum products in utility lines, petroleum products in private wells, petroleum product vapors in basements or other structures, occur in the area of the tank installation undergoing closure or change-in-service.

c. For permanent closure by tank removal, the departmental guidance document entitled "Underground Storage Tank Closure Procedures for Tank and Piping Removal" must be followed. The minimum number of soil samples that must be taken depends on the tank size and length of product piping. Samples must be taken at a depth of 1 to 2 feet beneath the tank fill area below the base of the tank along the tank's centerline. Soil samples must also be taken at least every 10 feet along the product piping at a depth of 1 to 2 feet beneath the piping fill area below the piping.

If sands or other highly permeable soils are encountered, alternative sampling methods may be required.

If contamination is suspected or found in any area within the excavation (i.e., sidewall or bottom), a soil sample must be taken at that location.

The numbers of samples required for tanks are as follows:

Nominal Tank Capacity (gallons)	Number of Samples	Location on Centerline
1,000 or less	1	center of tank
1,001 - 8,000	2	1/3 from ends
8,001 - 30,000	3	5 feet from ends and at center of tank
30,001 - 40,000	4	5 and 15 feet from ends
40,001 and more	5	5 and 15 feet from ends and at center of tank

d. For closing a tank in place by filling with an inert solid material or for a change-in-service, the departmental guidance document entitled "Underground Storage Tank Closure for Filling in Place" must be followed. The minimum number of soil borings required for sampling depends on the size of the tank and the length of the product piping. Soil samples must be taken within 5 feet of the sides and ends of the tank at a depth of 2 to 4 feet below the base of the tank, but outside the backfill material, at equal intervals around the tank. Soil samples must also be taken at least every 10 feet along the product piping

at a depth of 1 to 2 feet beneath the piping fill area below the piping. If sands or other highly permeable soils are encountered, alternative sampling methods may be required.

The minimum numbers of soil borings and samples required are as follows:

Nominal Tank Capacity (gallons)	Number of Samples	Location of Samples
6,000 or less	4	1 each end and each side
6,001 - 12,000	6	1 each end and 2 each side
12,001 or more	8	1 each end and 3 each side

e. A closure report must be submitted to the department within 45 days of the tank removal or sampling for a closure in place. The report must include all laboratory analytical reports, soil boring and well or borehole construction details and stratigraphic logs, and a dimensional drawing showing location and depth of all tanks, piping, sampling, and wells or boreholes, and contaminated soil encountered. The tank tags must be returned with the closure report.

f. The requirements of this subrule are satisfied if one of the external release detection methods allowed in 135.5(4)*"e"* and *"f"* is operating in accordance with the requirements in 135.5(4) at the time of closure and indicates no release has occurred.

g. If contaminated soils, contaminated groundwater, or free product as a liquid or vapor is discovered during the site assessment or by any other manner, contact the department in accordance with 135.6(1). Normal closure procedures no longer apply. Owners and operators must begin corrective action in accordance with rules 567—135.7(455B) to 567—135.12(455B).

Identification of free product requires immediate response in accordance with 135.7(5). If contamination appears extensive or the groundwater is known to be contaminated, a full assessment of the contamination will be required. When a full assessment is required or anticipated, collection of the required closure samples is not required. If contamination appears limited to soils, overexcavation of the contaminated soils in accordance with 135.15(4) may be allowed at the time of closure.

135.15(4) *Overexcavation of contaminated soils at closure.*

a. If contaminated soils are discovered while assessing a site at closure in accordance with 135.15(3), owners and operators may overexcavate up to one foot of the contaminated soils surrounding the tank pit. The contamination and overexcavation must be reported to the department in accordance with the requirements of 135.6(4)*"a"* prior to backfilling the excavation. If excavation is limited to one foot of contaminated soils, a soil sample shall be taken and laboratory analyzed in accordance with 567—135.16(455B) from the area showing the greatest contamination. Any overexcavation of contaminated soils beyond one foot of contaminated soils is considered expedited corrective action and must be conducted by a certified groundwater professional in accordance with the procedures in 135.12(11).

b. Excavated contaminated soils must be properly disposed in accordance with 567—Chapters 100, 101, 102, 120, and 121, Iowa Administrative Code.

c. A report must be submitted to the department within 30 days of completion of the laboratory analysis. The report must include the requirements of 135.15(3)*"e"* and a dimensional drawing showing the depth and area of the excavation prior to and after overexcavation. The area of contamination must be shown.

135.15(5) *Applicability to previously closed UST systems.* When directed by the department, the owner and operator of a UST system permanently closed before October 24, 1988, must assess the excavation zone and close the UST system in accordance with this rule if releases from the UST may, in the judgment of the department, pose a current or potential threat to human health and the environment.

135.15(6) *Closure records.* Owners and operators must maintain records in accordance with 135.4(5) that are capable of demonstrating compliance with closure requirements under this rule. The results of the excavation zone assessment required in 135.15(3) must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

a. By the owners and operators who took the UST system out of service;

b. By the current owners and operators of the UST system site; or

c. By mailing these records to the department if they cannot be maintained at the closed facility.

135.15(7) *Applicability to pre-1974 USTs.* The closure provisions of rule 567—135.15(455B) are not applicable to USTs which have been out of operation as of January 1, 1974. For purposes of this subrule, out of operation means that no regulated substance has been deposited into or dispensed from the tanks and that the tanks do not currently contain an accumulation of regulated substances other than a de minimus amount as provided in 135.15(1)*"a."*

Owners and operators or other interested parties are not required to submit documentation that USTs meet the exemption conditions and may rely on this subrule as guidance. However, should a question arise as to whether USTs meet the exemption, or owners and operators or other interested parties request acknowledgment by the department that USTs are exempt, they must submit an affidavit on a form provided by the department. The affiant must certify that based on a reasonable investigation and to the best of the affiant's knowledge, the USTs were taken out of operation prior to January 1, 1974, the USTs have not contained a regulated substance since January 1, 1974, and the USTs do not currently contain an accumulation of regulated substances.

If the department has a reasonable basis to suspect a release has occurred, the release investigation and confirmation steps of subrule 135.8(1) and the corrective action requirements as provided in 567—135.7(455B) to 567—135.8(455B) shall apply.

[**ARC 8124B**, IAB 9/9/09, effective 10/14/09]

567—135.16(455B) Laboratory analytical methods for petroleum contamination of soil and water.

135.16(1) *General.* When having soil or water analyzed for petroleum or hazardous substances, owners and operators of UST systems must use a laboratory certified under 567—Chapter 83. In addition they must ensure that all soil and groundwater samples are properly preserved and shipped within 72 hours of collection to a laboratory certified under 567—Chapter 83, for UST petroleum analyses. This rule provides acceptable analytical procedures for petroleum substances and required information that must be provided in all laboratory reports.

135.16(2) *Laboratory report.* All laboratory reports must contain the following information:

a. Laboratory name, address, telephone number and Iowa laboratory certification number. If analytical work is subcontracted to another laboratory, the analytical report from the certified lab which analyzed the sample must be submitted and include the information required in this subrule.

b. Medium sampled (soil, water).

c. Client submitting sample (name, address, telephone number).

d. Sample collector (name, telephone number).

e. UST site address.

f. Clients sample location identifier.

g. Date sample was collected.

h. Date sample was received at laboratory.

i. Date sample was analyzed.

j. Results of analyses and units of measure.

k. Detection limits.

l. Methods used in sample analyses (preparation method, sample detection method, and quantitative method).

m. Laboratory sample number.

n. Analyst name.

o. Signature of analyst's supervisor.

p. Condition in which the sample was received at the laboratory and whether it was properly sealed and preserved.

q. Note that analytical results are questionable if a sample exceeded an established holding time or was improperly preserved. (The recommended holding time for properly cooled and sealed petroleum contaminated samples is 14 days, except for water samples containing volatile organic compounds which have a 7-day holding time unless acid-preserved.)

r. Laboratory reports required by this chapter for tank closure investigations under 567—135.15(455B) and site checks under 135.6(3) or Tier 1 or Tier 2 assessments under 567—135.9(455B) to 567—135.11(455B) must include a copy of the chromatograms and associated quantitation reports for the waste oil, diesel and gasoline standard used by the laboratory in analyzing submitted samples. The laboratory analytical report for each sample must state whether the sample tested matches the laboratory standard for waste oil, diesel or gasoline or that the sample cannot be reliably matched with any of these standards. A copy of the chromatograms and associated quantitation reports for only the soil and groundwater samples with the maximum concentrations of BTEX and TEH must be included.

135.16(3) *Analysis of soil and water for high volatile petroleum compounds (i.e., gasoline, benzene, ethylbenzene, toluene, xylene).* Sample preparation and analysis shall be by Method OA-1, "Method for Determination of Volatile Petroleum Hydrocarbons (gasoline)," revision 7/27/93, University Hygienic Laboratory, Iowa City, Iowa. This method is based on U.S. EPA methods 5030, 8000, and 8015, SW-846, "Test Methods for Evaluating Solid Waste," 3rd Edition. Copies of Method OA-1 are available from the department.

135.16(4) *Analysis of soil and water for low volatile petroleum hydrocarbon contamination (i.e., all grades of diesel fuel, fuel oil, kerosene, oil, and mineral spirits).* Sample preparation and analysis shall be by Method OA-2, "Determination of Extractable Petroleum Products (and Related Low Volatility Organic Compounds)," revision 7/27/93, University Hygienic Laboratory, Iowa City, Iowa. This method is based on U.S. EPA methods 3500, 3510, 3520, 3540, 3550, 8000, and 8100, SW-846, "Test Methods for Evaluating Solid Waste," 3rd Edition. Copies of Method OA-2 are available from the department.

135.16(5) *Analysis of soil gas for volatile petroleum hydrocarbons.* Analysis of soil gas for volatile petroleum hydrocarbons shall be conducted in accordance with the National Institute for Occupational Safety and Health (NIOSH) Method 1501, or a department-approved equivalent method.

567—135.17(455B) Evaluation of ability to pay.

135.17(1) General. The ability to pay guidance procedures referenced in this rule will be used by the department when an owner or operator of an underground storage tank (UST) claims to be financially unable to comply with corrective action requirements under 567—135.7(455B) to 567—135.12(455B) or closure investigation requirements under 567—135.15(455B). If an owner or operator of a regulated UST claims to be financially unable to meet these departmental requirements, that responsible party must provide documentation of the party's finances on forms provided by the department in order for the department to act on the claim of financial inability. The department may request additional financial documentation to verify or supplement reported information.

135.17(2) Individual claims. The financial ability of individual owners and operators of USTs, with or without an active business (including but not limited to sole proprietorships and general partnerships), shall be evaluated using the "Individual Ability to Pay Guidance" document dated June 19, 1992, and generally accepted principles of financial analysis. This guidance is only one tool the department may use in evaluating claims of financial inability.

135.17(3) Corporate claims. The financial ability of corporate owners and operators of USTs shall be evaluated using the June 1992 version of "ABEL" developed by the U.S. Environmental Protection Agency and generally accepted principles of financial analysis. This guidance is only one tool the department may use in evaluating claims of financial inability.

135.17(4) Federal LUST Trust Fund. The financial ability of owners and operators of USTs shall be evaluated for the purpose of determining if the department is authorized to use Federal LUST Trust Fund moneys as provided in the current cooperative agreement with the U.S. Environmental Protection Agency, Region VII. A determination of financial inability does not create an entitlement or any expectation interest on behalf of an owner or operator that Federal LUST Trust Fund moneys will be used for corrective action at any individual site.

135.17(5) The evaluation of financial ability will also be used by the department in making other administrative planning decisions including but not limited to decisions as to whether to pursue and when to pursue administrative or judicial enforcement of regulatory and statutory duties and

the assessment of penalties. A determination of financial inability does not create an entitlement or expectation interest that enforcement actions will be deferred or suspended. The evaluation of this factor is only one of many affecting the department's fully discretionary decisions regarding enforcement options and program planning.

135.17(6) An evaluation of financial inability as provided in this rule does not relieve any owner or operator of legal liability to comply with department rules or Iowa Code chapter 455B or provide a defense to any legal actions to establish liability or enforce compliance.

567—135.18(455B) Transitional rules.

135.18(1) *Transitional rules.* Guidance for implementing these transitional rules is contained in the department's guidance entitled "Transition Policy Statement" dated June 6, 1996.

135.18(2) *Site cleanup reports and corrective action design reports accepted before August 15, 1996.* Any owner or operator who had a site cleanup report or corrective action design report approved by the department before August 15, 1996, may elect to submit a Tier 1 Site Assessment or Tier 2 Site Cleanup Report to the department. If the owner, operator, or responsible party so elects, the site shall be assessed, classified, and, if necessary, remediated, in accordance with the rules of the department as of August 15, 1996. To the extent that data collected for the site cleanup report does not include all information necessary for the Tier 1 Site Assessment or Tier 2 Site Cleanup Report, the owner or operator shall utilize the default parameters set out in subrule 135.18(4) or provide site-specific parameters.

135.18(3) *Site cleanup reports in the process of preparation or review prior to August 15, 1996.* The department will complete a Tier 1 or a Tier 2 risk analysis for any site cleanup report received but not approved by the department by November 15, 1996. To the extent that data collected for the site cleanup report does not include all information necessary for the Tier 2 site cleanup report and the owner or operator elects to not complete a Tier 2 site cleanup report the department shall utilize the default parameters set out in subrule 135.18(4). If the owner or operator wishes that site-specific data, rather than any default parameter, be used, the owner or operator shall notify the department by October 15, 1996, or in accordance with a schedule specified by the department. Following notification, the owner or operator shall be responsible for preparation of the Tier 1 site assessment or Tier 2 site cleanup report.

135.18(4) *Default parameters for use in converting a site cleanup report to a Tier 2 site cleanup report.*

a. As to sites for which the owner or operator has collected and submitted only TPH ("total petroleum hydrocarbons") data regarding soil contamination, TPH levels shall be converted to a risk associated factor by using: (1) previously acquired data regarding benzene, toluene, ethyl benzene, and xylenes data for the samples; (2) newly collected benzene, toluene, ethylbenzene, and xylenes data for the site; or (3) the assumptions that 1 percent of the total petroleum hydrocarbon (TPH) is benzene, 7 percent of the TPH is toluene, 2 percent of the TPH is ethylbenzene, and 8 percent of the TPH is xylenes.

b. As to sites for which the owner or operator has, to date, submitted only TEH ("total extractable hydrocarbons") data regarding soil contamination, TEH levels should be converted to a risk-associated factor by using: (1) previously acquired benzene, toluene, ethylbenzene and xylenes data for the samples; (2) newly collected benzene, toluene, ethylbenzene and xylenes data for the site; or (3) the assumption that 0.004 percent of the TEH is benzene, 0.05 percent of the TEH is toluene, 0.03 percent of the TEH is ethylbenzene and 0.3 percent of the TEH is xylenes. In addition, TEH levels should be compared to the TEH default levels in the Tier 1 Table. If, as of August 15, 1996, only TEH data for soil is available, and it does not exceed Tier 1 levels, additional sampling for TEH in groundwater is not required. Otherwise, groundwater samples must be collected and analyzed for TEH in accordance with 135.8(3).

c. Data required for preparing a Tier 2 site cleanup report shall be taken from the site cleanup report. If the site cleanup report lacks any of the data, site-specific data subsequently obtained may be used. The following assumptions shall be used if no site cleanup report or site-specific data is provided:

(1) If the site cleanup report is unclear as to neighboring land use, assume the land residential land use;

(2) Use the larger resulting default if both TPH and TEH data are available.

(3) For sites with free product gasoline range constituents, the default values in groundwater are 17,500 ug/l for benzene, 3,040 ug/l for ethylbenzene, 37,450 ug/l for toluene and 15,840 ug/l for xylenes. For sites with free product consisting of diesel range constituents, the default values are 370 ug/l benzene, 640 ug/l toluene, 140 ug/l ethylbenzene, 580 ug/l xylenes, and 260 ug/l naphthalene or 130,000 ug/l TEH.

135.18(5) *Risk-based corrective action assessment reports, corrective action plans, and corrective action design reports accepted before August 6, 2008.* Any owner or operator who had a Tier 2 site cleanup report, Tier 3 report, or corrective action design report approved by the department before August 6, 2008, may elect to submit a Tier 2 site cleanup report using the Appendix B revised model, department-developed software and rules in effect as of August 6, 2008. The owner or operator shall notify the department that the owner or operator wishes to evaluate the leaking underground storage tank site with the Appendix B revised model, software and rules. If the owner or operator so elects, the site shall be assessed, classified, and, if necessary, remediated, in accordance with the rules of the department as of August 6, 2008. If the leaking underground storage tank site is undergoing active remediation, the remediation system shall remain operating until the reevaluation is completed and accepted or as otherwise approved by the department. Once a site has been evaluated using the Appendix B revised model, software and rules in effect as of August 6, 2008, it can no longer be evaluated with the Appendix B-1 old model and software and rules in effect prior to August 6, 2008.

135.18(6) *Risk-based corrective action assessment reports, corrective action plans, and corrective action design reports in the process of preparation with a submittal schedule established prior to August 6, 2008.* The owner or operator shall notify the department that the owner or operator wishes to use the Appendix B revised model and department software and rules in effect as of August 6, 2008, to evaluate the leaking underground storage tank site before submitting the next report, and prior to expiration of the previously established submittal schedule. Once a site has been evaluated using the Appendix B revised model, software and rules in effect as of August 6, 2008, it can no longer be evaluated with the Appendix B-1 old model, software and rules existing just prior to August 6, 2008.

135.18(7) *Risk-based corrective action assessment reports, corrective action plans, and corrective action design reports received by the department but not yet reviewed.* The owner or operator will notify the department within 60 days of August 6, 2008, whether the owner or operator is electing to complete a risk-based corrective action assessment using Appendix B revised model, department software and rules effective as of August 6, 2008, or proceeding with the risk-based corrective action assessment using Appendix B-1 old model and department software and rules existing prior to August 6, 2008. Once a site has been evaluated using the Appendix B revised model, software and rules it can no longer be evaluated with the previous Appendix B-1 old model, software and rules.

567—135.19(455B) Analyzing for methyl tertiary-butyl ether (MTBE) in soil and groundwater samples.

135.19(1) *General.* The objective of analyzing for MTBE is to determine its presence in soil and water samples collected as part of investigation and remediation of contamination at underground storage tank facilities.

135.19(2) *Required MTBE testing.* Soil and water samples must be analyzed for MTBE when collected for risk-based corrective action as required in rules 567—135.8(455B) through 567—135.12(455B). These sampling requirements include but are not limited to:

a. Risk-based corrective action (RBCA) evaluations required for Tier 1, Tier 2, and Tier 3 assessments and corrective action design reports.

b. Site monitoring.

c. Site remediation monitoring.

135.19(3) *MTBE testing not required.* Soil and water samples for the following actions are not required to be analyzed for MTBE:

a. Closure sampling under rule 567—135.15(455B) unless Tier 1 or Tier 2 sampling is being performed.

b. Site checks under subrule 135.7(3) unless Tier 1 or Tier 2 sampling is being performed.

c. If prior analysis at a site under 135.19(2) has not shown MTBE present in soil or groundwater.

d. If the department determines MTBE analysis is no longer needed at a site.

135.19(4) *Reporting.* The analytical data must be submitted in a format prescribed by the department.

135.19(5) *Analytical methods for methyl tertiary-butyl ether (MTBE).* When having soil or water analyzed for MTBE from contamination caused by petroleum or hazardous substances, owners and operators of UST systems must use a laboratory certified under 567—Chapter 83 for petroleum analyses. In addition, the owners and operators must ensure all soil and water samples are properly preserved and shipped within 72 hours of collection to a laboratory certified under 567—Chapter 83 for petroleum analyses.

a. Sample preparation and analysis shall be by:

(1) GC/MS version of OA-1, "Method for Determination of Volatile Petroleum Hydrocarbons (gasoline)," revision 7/27/93, University Hygienic Laboratory, Iowa City, Iowa; or

(2) U.S. Environmental Protection Agency Method 8260B, SW-846, "Test Methods for Evaluating Solid Waste," Third Edition.

b. Laboratories performing the analyses must run standards for MTBE on a routine basis, and standards for other possible compounds like ethyl tertiary-butyl ether (ETBE), tertiary-amyl methyl ether (TAME), diisopropyl ether (DIPE), and tertiary-butyl alcohol (TBA) to be certain of their identification should they be detected.

c. Laboratories must run a method detection limit study and an initial demonstration of capability for MTBE. These records must be kept on file.

d. The minimum detection level for MTBE in soil is 15 ug/kg. The minimum detection level for MTBE in water is 15 ug/l.

567—135.20(455B) Compliance inspection of UST system.

135.20(1) The owner or operator must have the UST system inspected and an inspection report submitted to the department by a UST compliance inspector certified by the department under 567—Chapter 134. An initial compliance site inspection shall be conducted no later than December 31, 2007. All subsequent compliance site inspections conducted after the compliance site inspection for the 2008-2009 biennial period shall be conducted within 24 months of the prior compliance site inspection. Compliance site inspections must be separated by at least six months.

135.20(2) Compliance inspection requirements. The owner or operator is responsible to ensure the department receives ten days' prior notice by the compliance inspector of the date of a site inspection and the name of the inspector as provided in 567—134.14(455B). The owner and operator must comply with the following as part of the inspection process.

a. Review and respond to the inspection report provided by the certified compliance inspector and complete the corrective actions specified in the compliance inspection report within the specified time frames.

b. Provide all records and documentation required by the certified compliance inspector and this chapter.

c. Upon notification of a suspected release by the certified compliance inspector pursuant to 567—subrule 134.14(1), report the condition to the department and undertake steps to investigate and confirm the suspected release as provided in 567—135.6(455B).

d. Ensure that the compliance inspector completes and submits an electronic inspection form in accordance with 567—134.14(455B).

135.20(3) The owner and operator shall do the following upon receipt of a compliance inspection report as provided in 567—subrule 134.14(1) which finds violations of the department's rules:

a. Take all actions necessary to correct any compliance violations or deficiencies in accordance with this chapter. Corrective action must be taken within the time frame established by rule or, if no time frames are established by rule, within 60 days of receipt of the inspector's report or another reasonable time period approved by the department. The granting of time to remedy a violation does not preclude the department from exercising its discretion to assess penalties for the violation.

b. Within 60 days of receipt of the inspector's report, provide documentation to the compliance inspector that the violation or deficiencies have been corrected.

c. Conduct a follow-up inspection in instances where there are serious problems or a history of repeated violations when required by the department.

135.20(4) Conflict of interest. A compliance site inspection must be conducted by a certified compliance inspector who is not the owner or operator of the UST system being inspected, an employee of the owner or operator of the UST system being inspected, or a person having daily on-site responsibility for the operation and maintenance of the UST system.

[**ARC 8124B**, IAB 9/9/09, effective 10/14/09]

Appendix A - Tier 1 Table, Assumptions, Equations and Parameter Values

Iowa Tier 1 Look-Up Table

Media	Exposure Pathway	Receptor	Group 1				Group 2: TEH	
			Benzene	Toluene	Ethylbenzene	Xylenes	Diesel*	Waste Oil
Groundwater (µg/L)	Groundwater Ingestion	Actual	5	1,000	700	10,000	1,200	400
		Potential	290	7,300	3,700	73,000	75,000	40,000
	Groundwater Vapor to Enclosed Space	All	1,540	20,190	46,000	NA	2,200,000	NA
	Groundwater to Water Line	PVC or Gasketed Mains	7,500	6,250	40,000	48,000	75,000	40,000
		PVC or Gasketed Service Lines	3,750	3,120	20,000	24,000	75,000	40,000
		PE/PB/AC Mains or Service Lines	200	3,120	3,400	19,000	75,000	40,000
	Surface Water	All	290	1,000	3,700	73,000	75,000	40,000
Soil (mg/kg)	Soil Leaching to Groundwater	All	0.54	42	15	NA	3,800	NA
	Soil Vapor to Enclosed Space	All	1.16	48	79	NA	47,500	NA
	Soil to Water Line	All	2.0	3.2	45	52	10,500	NA

NA: Not applicable. There are no limits for the chemical for the pathway, because for groundwater pathways the concentration for the designated risk would be greater than the solubility of the pure chemical in water, and for soil pathways the concentration for the designated risk would be greater than the soil concentration if pure chemical were present in the soil.

TEH: Total Extractable Hydrocarbons. The TEH value is based on risks from naphthalene, benzo(a)pyrene, benz(a)anthracene, and chrysene. Refer to Appendix B for further details.

Diesel*: Standards in the Diesel column apply to all low volatile petroleum hydorcarbons except waste oil.

Assumptions Used for Iowa Tier 1 Look-Up Table Generation

1. Groundwater ingestion pathway. The maximum contaminant levels (MCLs) were used for Group 1 chemicals. The target risk for carcinogens for actual receptors is 10^{-6} and for potential receptors is 10^{-4}. A hazard quotient of one, and residential exposure and building parameters are assumed.

2. Groundwater vapor to enclosed space pathway. Residential exposure and residential building parameters are assumed; no inhalation reference dose is used for benzene; the capillary fringe is assumed to be the source of groundwater vapor; and the hazard quotient is 1 and target risk for carcinogens is $1x10^{-4}$.

3. Groundwater to water line. This pathway uses the same assumptions as the groundwater ingestion pathway for potential receptors, including a target risk for carcinogens of 10^{-4}.

4. Surface water. This pathway uses the same assumptions as the groundwater ingestion pathway for potential receptors, including a target risk for carcinogens of 10^{-4}, except for toluene which has a chronic level for aquatic life of 1,000 as in the definition for surface water criteria in 567—135.2(455B).

5. Soil leaching to groundwater. This pathway assumes the groundwater will be protected to the same levels as the groundwater ingestion pathway for potential receptors, using residential exposure and a target risk for carcinogens of 10^{-4}.

6. Soil vapor to enclosed space pathway. The target risk for carcinogens is $1x10^{-4}$; the hazard quotient is 1; no inhalation reference dose is used for benzene; residential exposure factors are assumed; and the average of the residential and nonresidential building parameters is assumed.

7. Soil to water line pathway. This pathway uses the soil leaching to groundwater model with nonresidential exposure and a target risk for carcinogens of 10^{-4}.

In addition to these assumptions, the equations and parameter values used to generate the Iowa Tier 1 Look-Up Table are described below.

Groundwater Ingestion Equations

Carcinogens:

$$RBSL_w \left[\frac{mg}{L - H_2O}\right] = \frac{TR \times BW \times AT_c \times \frac{365\ days}{year}}{SF_o \times IR_w \times EF \times ED}$$

Noncarcinogens:

$$RBSL_w \left[\frac{mg}{L - H_2O}\right] = \frac{THQ \times RfD_o \times BW \times AT_n \times \frac{365\ days}{year}}{IR_w \times EF \times ED}$$

Soil Leaching to Groundwater Equations

$$RBSL_{sl} \left[\frac{mg}{kg - soil}\right] = \frac{RBSL_w \left[\frac{mg}{L - H_2O}\right]}{LF}$$

$$LF \left[\frac{mg/L - H_2O}{mg/kg - soil}\right] = \frac{\rho_s}{(\theta_{ws} + k_s\rho_s + H\theta_{as})\left(1 + \frac{U\delta}{IW}\right)}$$

Soil Vapor to Enclosed Space Equations

$$RBSL_{sv}\left[\frac{mg}{kg-soil}\right] = \frac{RBSL_{air}\left[\frac{\mu g}{m^3-air}\right]}{VF_{sv}}\left(\frac{mg}{1000\ \mu g}\right)$$

$$VF_{sv}\left[\frac{(mg/m^3-air)}{(mg/kg-soil)}\right] = \frac{\frac{H\rho_s}{(\theta_{ws}+k_s\rho_s+H\theta_{as})}\left[\frac{D_s^{eff}/L_s}{ER\ L_B}\right]}{1+\left[\frac{D_s^{eff}/L_s}{ER\ L_B}\right]+\left[\frac{D_s^{eff}/L_s}{\left(D_{crack}^{eff}/L_{crack}\right)\eta}\right]}\left(10^3\ \frac{cm^3-kg}{m^3-g}\right)$$

$$D_{crack}^{eff}\left[\frac{cm^2}{s}\right] = D^{air}\ \frac{\theta_{acrack}^{3.33}}{\theta_T^2} + D^{wat}\frac{1}{H}\frac{\theta_{wcrack}^{3.33}}{\theta_T^2}$$

$$D_s^{eff}\left[\frac{cm^2}{s}\right] = D^{air}\ \frac{\theta_{as}^{3.33}}{\theta_T^2} + D^{wat}\frac{1}{H}\frac{\theta_{ws}^{3.33}}{\theta_T^2}$$

Indoor Air Inhalation Equations

Carcinogens:

$$RBSL_{air}\left[\frac{\mu g}{m^3\text{ - air}}\right] = \frac{TR \times BW \times AT_c \times \frac{365\text{ days}}{year} \times \frac{1000\ \mu g}{mg}}{SF_i \times IR_{air} \times EF \times ED}$$

Noncarcinogens:

$$RBSL_{air}\left[\frac{\mu g}{m^3\text{ - air}}\right] = \frac{THQ \times RfD_i \times BW \times AT_n \times \frac{\frac{365}{kdays}}{year} \times \frac{1000\ \mu g}{mg}}{IR_{air} \times EF \times ED}$$

Groundwater Vapor to Enclosed Space Equations

$$RBSL_{gw}\left[\frac{mg}{L - H_2O}\right] = \frac{RBSL_{air}\left[\frac{\mu g}{m^3 - air}\right]}{VF_{gw}}\left(\frac{mg}{1000\ \mu g}\right)$$

$$VF_{gw}\left[\frac{(mg/m^3 - air)}{(mg/L - H_2O)}\right] = \frac{H\left[\frac{D_s^{eff}/L_{gw}}{ER\ L_B}\right]}{1 + \left[\frac{D_s^{eff}/L_{gw}}{ER\ L_B}\right] + \left[\frac{D_s^{eff}/L_{gw}}{\left(D_{crack}^{eff}/L_{crack}\right)\eta}\right]}\left(\frac{10^3 L}{m^3}\right)$$

Variable Definitions

δ	groundwater mixing zone thickness (cm)
η	areal fraction of cracks in foundation/wall (cm^2-cracks/cm^2-area)
ρ_s	soil bulk density (g/cm^3)
θ_{acrack}	volumetric air content in foundation/wall cracks (cm^3-air/cm^3-soil)
θ_{as}	volumetric air content in vadose zone (cm^3-air/cm^3-soil)
θ_T	total soil porosity (cm^3-voids/cm^3-soil)
θ_{wcrack}	volumetric water content in foundation/wall cracks (cm^3-H_2O/cm^3-soil)
θ_{ws}	volumetric water content in vadose zone (cm^3-H_2O/cm^3-soil)
AT_c	averaging time for carcinogens (years)
AT_n	averaging time for noncarcinogens (years)
BW	body weight (kg)
D^{air}	chemical diffusion coefficient in air (cm^2/s)
D^{wat}	chemical diffusion coefficient in water (cm^2/s)
D^{eff}_{crack}	effective diffusion coefficient through foundation cracks (cm^2/s)
D^{eff}_{s}	effective diffusion coefficient in soil based on vapor-phase concentration (cm^2/s)
ED	exposure duration (years)
EF	exposure frequency (days/year)
ER	enclosed space air exchange rate (s^{-1})
f_{oc}	fraction organic carbon in the soil (kg-C/kg-soil)
H	henry's law constant (L-H_2O)/(L-air)
i	groundwater head gradient (cm/cm)
I	infiltration rate of water through soil (cm/year)
IR_{air}	daily indoor inhalation rate (m^3/day)
IR_w	daily water ingestion rate (L/day)
K	hydraulic conductivity (cm/year)
K_{oc}	carbon-water sorption coefficient (L-H_2O/kg-C)
k_s	soil-water sorption coefficient (L-H_2O/kg-soil), f_{oc} x K_{oc}
L_B	enclosed space volume/infiltration area ratio (cm)
L_{crack}	enclosed space foundation or wall thickness (cm)
LF	leaching factor from soil to groundwater ((mg/L-H_2O)/(mg/kg-soil))
L_{gw}	depth to groundwater from the enclosed space foundation (cm)
L_s	depth to subsurface soil sources from the enclosed space foundation (cm)
$RBSL_{air}$	Risk-Based Screening Level for indoor air ($\mu g/m^3$-air)
$RBSL_{gw}$	Risk-Based Screening Level for vapor from groundwater to enclosed space air inhalation (mg/L-H_2O)
$RBSL_{sl}$	Risk-Based Screening Level for soil leaching to groundwater (mg/kg-soil)
$RBSLs_v$	Risk-Based Screening Level for vapors from soil to enclosed space air inhalation (mg/kg-soil)
$RBSL_w$	Risk-Based Screening Level for groundwater ingestion (mg/L-H_2O)
RfD_i	inhalation chronic reference dose ((mg/(kg-day))
RfD_o	oral chronic reference dose ((mg/(kg-day))
SF_i	inhalation cancer slope factor ((kg-day)/mg)
SF_o	oral cancer slope factor ((kg-day)/mg)
THQ	target hazard quotient for individual constituents (unitless)
TR	target excess individual lifetime cancer risk (unitless)
U	groundwater Darcy velocity (cm/year), U=Ki
VF_{gw}	volatilization factor for vapors from groundwater to enclosed space ((mg/m^3-air)/(mg/L-H_2O))
VF_{sv}	volatilization factor for vapors from soil to enclosed space ((mg/m^3-air)/(mg/kg-soil))
W	width of soil source area parallel to groundwater flow direction (cm)

Soil and Groundwater Parameter Values Used for Iowa Tier 1 Table Generation

Parameter		Iowa Tier 1 Table Value
K	hydraulic conductivity	16060 cm/year
i	groundwater head gradient	0.01 cm/cm
W	width of soil source area parallel to groundwater flow direction	1500 cm
I	infiltration rate of water through soil	7 cm/year
δ	groundwater mixing zone thickness	200 cm
ρ_s	soil bulk density	1.86 g/cm^3
θ_{as}	volumetric air content in vadose zone	0.2 cm^3-air/cm^3-soil
θ_{ws}	volumetric water content in vadose zone	0.1 cm^3-H_2O/cm^3-soil
θ_{acrack}	volumetric air content in foundation/wall cracks	0.2 cm^3-air/cm^3-soil
θ_{wcrack}	volumetric water content in foundation/wall cracks	0.1 cm^3-H_2O/cm^3-soil
θ_T	total soil porosity	0.3 cm^3-voids/cm^3-soil
f_{oc}	fraction organic carbon in the soil	0.01 kg-C/kg-soil
L_s	depth to subsurface soil sources from the enclosed space foundation	1 cm
L_{gw}	depth to groundwater from the enclosed space foundation	1 cm

Exposure Factors Used in Iowa Tier 1 Table Generation

Parameter		Residential	Nonresidential
AT_c (years)	averaging time for carcinogens	70	70
AT_n (years)	averaging time for noncarcinogens	30	25
BW (kg)	body weight	70	70
ED (years)	exposure duration	30	25
EF (days/year)	exposure frequency	350	250
IR_{air} (m^3/day)	daily indoor inhalation rate	15	20
IR_w (L/day)	daily water ingestion rate	2	1
THQ (unitless)	target hazard quotient for individual constituents	1.0	1.0

Building Parameters Used in Iowa Tier 1 Table Generation

Parameter		Residential	Nonresidential
ER (s^{-1})	enclosed space air exchange rate	0.00014	0.00023
L_B (cm)	enclosed space volume/infiltration area ratio	200	300
L_{crack} (cm)	enclosed space foundation or wall thickness	15	15
η	areal fraction of cracks in foundation/wall	0.01	0.01

Chemical-Specific Parameter Values Used for Iowa Tier 1 Table Generation

Chemical	D^{air} (cm^2/s)	D^{wat} (cm^2/s)	H (L-air/L-water)	log(K_{oc}), L/kg
Benzene	0.093	1.1e-5	0.22	1.58
Toluene	0.085	9.4e-6	0.26	2.13
Ethylbenzene	0.076	8.5e-6	0.32	1.98
Xylenes	0.072	8.5e-6	0.29	2.38
Naphthalene	0.072	9.4e-6	0.049	3.11
Benzo(a)pyrene	0.050	5.8e-6	5.8e-8	5.59
Benz(a)anthracene	0.05	9.0e-6	5.74e-7	6.14
Chrysene	0.025	6.2e-6	4.9e-7	5.30

Saturation Values Used to Determine "NA" for the Iowa Tier 1 Table

Chemical	Solubility in Water (mg/L) S	Saturation in Soil (mg/kg) C_s^{sat}
Benzene	1,750	801
Toluene	535	765
Ethylbenzene	152	159
Xylenes	198	492
Naphthalene	31	401
Benzo(a)pyrene	0.0012	4.69
Benz(a)anthracene	0.014	193.3
Chrysene	0.0028	5.59

The maximum solubility of the pure chemical in water is listed in the table above. The equation below is used to calculate the soil concentration (C_s^{sat}) at which dissolved pore-water and vapor phases become saturated. Tier 1 default values are used in the equation. "NA" (for not applicable) is used in the Tier 1 table when the risk-based value exceeds maximum solubility for water (S) or maximum saturation for soil (C_s^{sat}).

$$C_s^{sat}(\text{mg/kg-soil}) = S/\rho_s \times (H\theta_{as} + \theta_{ws} + k_s \rho_s)$$

Slope Factors and Reference Doses Used for Iowa Tier 1 Table Generation

Chemical	SF_i ((kg-day)/mg)	SF_o ((kg-day)/mg)	RfD_i (mg/(kg-day))	RfD_o (mg/(kg-day))
Benzene	0.029	0.029	—	—
Toluene	—	—	0.114	0.2
Ethylbenzene	—	—	0.286	0.1
Xylenes	—	—	2.0	2.0
Naphthalene	—	—	0.004	0.004
Benzo(a)pyrene	6.1	7.3	—	—
Benz(a)anthracene	0.61	0.73	—	—
Chrysene	0.061	0.073	—	—

[**ARC 9011B**, IAB 8/25/10, effective 9/29/10]

Appendix B – Tier 2 Equations and Parameter Values (Revised Model)

All Tier 1 equations and parameters apply at Tier 2 except as specified below.

Equation for Tier 2 Groundwater Contaminant Transport Model

Equation (1)

$$C(x) = C_s \exp\left(\frac{x_m}{2\alpha_x}\left[1-\sqrt{1+\frac{4\lambda\alpha_x}{u}}\right]\right) erf\left(\frac{S_w}{4\sqrt{\alpha_y x_m}}\right) erf\left(\frac{S_d}{4\sqrt{\alpha_z x_m}}\right)$$

Equation (2)

Where $x_m = ax + bx^c$

The value of X_m is computed from Equation (2), where the values for a, b and c in Equation (2) are given in Table 1.

Table 1. Parameter Values for Equation (2)

Chemical	a	b	c
Benzene	1	0.000000227987	3.929438689
Toluene	1	0.000030701	3.133842393
Ethylbenzene	1	0.0001	2.8
Xylenes	1	0.0	0.0
TEH-Diesel	1	0.000000565	3.625804634
TEH-Waste Oil	1	0.000000565	3.625804634
Naphthalene	1	0	0

Variable definitions

x: distance in the x direction downgradient from the source
erf( ): the error function
C(x): chemical concentration in groundwater at x
C_s: Source concentration in groundwater (groundwater concentration at x=0)
S_w: width of the source (perpendicular to x)
S_d: vertical thickness of the source
u: groundwater velocity (pore water velocity); u=Ki/θe
K: hydraulic conductivity
i: groundwater head gradient
θe: effective porosity
λ: first order decay coefficient, chemical specific
αx, αy, αz: dispersivities in the x, y and z directions, respectively

For the following lists of parameters, one of three is required: site-specific measurements, defaults or the option of either (which means the default may be used or replaced with a site-specific measurement).

Soil parameters

Parameter		Default Value	Required
ρ_s	soil bulk density	1.86 g/cm^3	option
f_{oc}	fraction organic carbon in the soil	0.01 kg-C/kg-soil	option
θ_T	total soil porosity	0.3cm^3-voids/cm^3-soil	option
θ_{as}	volumetric air content in vadose zone	0.2cm^3-air/cm^3-soil	default
θ_{ws}	volumetric water content in vadose zone	0.1cm^3-H_2O/cm^3-soil	default

Parameter		Default Value	Required
θ_{acrack}	volumetric air content in foundation/wall cracks	0.2cm^3-air/cm^3-soil	default
I	infiltration rate of water through soil	7 cm/year	default

If the total porosity is measured, assume 1/3 is air filled and 2/3 is water filled for determining the water and air fraction in the vadose zone soil and floor cracks.

Groundwater Transport Modeling Parameters

Parameter		Default Value	Required
K	hydraulic conductivity	16060 cm/year	site-specific
i	groundwater head gradient	0.01 cm/cm	site-specific
S_w	width of the source	use procedure specified in 135.10(2)	site-specific
S_d	vertical thickness of the source	3 m	default
αx	dispersivity in the x direction	0.1x	default
αy	dispersivity in the y direction	$0.33\alpha x$	default
αz	dispersivity in the z direction	$0.05\alpha x$	default
θe	effective porosity	0.1	default

where $u=Ki/\theta e$

First-order Decay Coefficients

Chemical	Default Valueλ (d-1)	Required
Benzene	0.000127441	default
Toluene	0.0000208066	default
Ethylbenzene	0.0	default
Xylenes	0.0005	default
Naphthalene	0.00013	default
TEH-Diesel	0.0000554955	default
TEH-Waste Oil	0.0000554955	default

Other Parameters for Groundwater Vapor to Enclosed Space

Parameter		Default Value	Required
Lgw	depth to groundwater from the enclosed space foundation	1 cm	option
L_B	enclosed space volume/infiltration area ratio	200 cm	option
ER (s-1)	enclosed space air exchange rate	0.00014	default
Lcrack	enclosed space foundation or wall thickness	15 cm	default
η	areal fraction of cracks in foundation/wall	0.01	default

Other Parameters for Soil Vapor to Enclosed Space

Parameter		Default Value	Required
L_s	depth to subsurface soil sources from the enclosed space foundation	1 cm	option
L_B	enclosed space volume/infiltration area ratio	250 cm *	option
ER (s-1)	enclosed space air exchange rate	0.000185 *	default
Lcrack	enclosed space foundation or wall thickness	15 cm	default
η	areal fraction of cracks in foundation/wall	0.01	default

*These values are an average of residential and nonresidential factors.

Soil Leaching to Groundwater

Parameter		Default Value	Required
δ	groundwater mixing zone	2 m	default

Building Parameters for Iowa Tier 2

Parameter		Residential	Nonresidential
ER (s-1)	enclosed space air exchange rate	0.00014	0.00023
L_B	enclosed space volume/infiltration area ratio	200 cm	300 cm

Other Parameters

For Tier 2, the following are the same as Tier 1 values (refer to Appendix A): chemical-specific parameters, slope factors and reference doses, and exposure factors (except for those listed below).

Exposure Factors for Tier 2 Groundwater Vapor to Enclosed Space Modeling:

Potential Residential: use residential exposure and residential building parameters.

Potential Nonresidential: use nonresidential exposure and nonresidential building parameters.

Diesel and Waste Oil

Diesel and Waste Oil			Chemical-Specific Values for Tier 1			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater Ingestion	actual	150	0.012	0.12	1.2
		potential	150	1.2	12.0	NA
	Groundwater Vapor to Enclosed Space	all	4,440	NA	NA	NA
	Groundwater to Water Line	all	150	1.2	12.0	NA
	Surface Water	all	150	1.2	12.0	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	7.6	NA	NA	NA
	Soil Vapor to Enclosed Space	all	95	NA	NA	NA
	Soil to Water Line	all	21	NA	NA	NA

Due to difficulties with analytical methods for the four individual chemicals listed in the above table, Total Extractable Hydrocarbon (TEH) default values were calculated for each chemical, using the assumption that diesel contains 0.2% napthalene, 0.001% benzo(a)pyrene, 0.001% benz(a)anthracene, and 0.001% chrysene. Resulting TEH Default Values are shown in the following table.

Diesel			TEH Default Values			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater Ingestion	actual	75,000	1,200	12,000	120,000
		potential	75,000	120,000	1,200,000	NA
	Groundwater Vapor to Enclosed Space	all	2,200,000	NA	NA	NA
	Groundwater to Water Line	all	75,000	120,000	1,200,000	NA
	Surface Water	all	75,000	120,000	1,200,000	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	3,800	NA	NA	NA
	Soil Vapor to Enclosed Space	all	47,500	NA	NA	NA
	Soil to Water Line	all	10,500	NA	NA	NA

The lowest TEH default value for each pathway (shown as a shaded box) was used in the Tier 1 Table.

Due to difficulties with analytical methods for the four individual chemicals, Total Extractable Hydrocarbon (TEH) default values were calculated for each chemical, using the assumption that waste oil contains no naphthalene, 0.003% benzo(a)pyrene, 0.003% benz(a)anthracene, and 0.003% chrysene. Resulting TEH Default Values are shown in the following table.

Waste Oil			TEH Default Values			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater Ingestion	actual	NA	400	4,000	40,000
		potential	NA	40,000	400,000	NA
Groundwater (ug/L)	Groundwater Vapor to Enclosed Space	all	NA	NA	NA	NA
	Groundwater to Water Line	all	NA	40,000	400,000	NA
	Surface Water	all	NA	40,000	400,000	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	NA	NA	NA	NA
	Soil Vapor to Enclosed Space	all	NA	NA	NA	NA
	Soil to Water Line	all	NA	NA	NA	NA

The lowest TEH default value for each pathway (shown as a shaded box) was used in the Tier 1 Table.

Water Line Calculations

Explanation of Target Levels for
Petroleum Fuel-Derived BTEX Compounds in Groundwater and Soil

GROUNDWATER

PVC or Gasketed Mains

Benzene: 7,500 µg/L
Gasoline-saturated groundwater was considered to be an extreme condition of environmental contamination, and it was considered unacceptable to leave water lines, regardless of material, in contact with this level of benzene contamination. While Ong et al. (2008) showed that gasoline-saturated groundwater would not pose a significant risk of permeation exceeding the 5 µg/L MCL for benzene of gasketed DI or PVC water mains, a safety factor of 1/8th was applied to the level of benzene in premium gasoline-saturated water determined by Ong et al. (2008). A 1/2 safety factor was compounded for each of four potential safety risks: material defects in the pipe (= 1/2), presence of service line taps (= 1/4), stagnation of water (= 1/6), and water line breaks (= 1/8). This was an average of 67.5 mg/L ± 4.9 mg/L for multiple preparations of gasoline-saturated water and was rounded to 60.0 mg/L to conservatively account for the statistical uncertainty. Hence,

$$\textit{Target Level} = \frac{1}{8} \times 60{,}000\ \mu g/L = 7{,}500\ \mu g/L\ \textit{benzene}$$

Toluene: 6,250 µg/L
The target level for toluene was determined similarly to that for benzene. The level of toluene in premium gasoline-saturated water was determined by Ong et al. (2008) to be 56.2 mg/L ± 4.9 mg/L and conservatively rounded to 50.0 mg/L. Hence,

$$\textit{Target Level} = \frac{1}{8} \times 50{,}000\ \mu g/L = 6{,}250\ \mu g/L\ \textit{toluene}$$

Ethylbenzene: 40,000 µg/L
The target level was set to be double that for PVC or Gasketed Service Lines (20,000 µg/L – see below).

Total Xylenes: 48,000 µg/L
The target level was set to be double that for PVC or Gasketed Service Lines (24,000 µg/L – see below).

PVC or Gasketed Service Lines

Benzene: 3,750 µg/L
The target level was set to be one-half of that for PVC or Gasketed Mains (7,500 µg/L as above) since service lines tend to be of higher risk than mains owing to their smaller diameter and greater potential for stagnation.

Toluene: 3,120 µg/L
Similar to benzene, the target level was set to be one-half of that for PVC or Gasketed Mains (6,250 µg/L as above) since service lines tend to be of higher risk than mains owing to their smaller diameter and greater potential for stagnation. Odd-even rounding to 3 significant figures was applied.

Ethylbenzene: 20,000 µg/L
The target level was based on two observations by Ong et al. (2008): (1) premium gasoline-saturated water has an average concentration of 3.4 mg/L ethylbenzene and (2) ethylene permeates high density polyethylene 46 times slower than does benzene (presumably, this is reasonably representative of other materials such as rubber gaskets). The 1/8 safety factor was also applied, as above. Odd-even rounding to 2 significant figures was applied. Hence:

$$\textit{Target Level} = 3{,}400\ \mu g/L \times 46x \times \frac{1}{8} = 19{,}550\ \mu g/L = 20{,}000\ \mu g/L$$

Total Xylenes: 24,000 µg/L
Similar to ethylbenzene, the target level was based on (1) premium gasoline-saturated water has an average concentration of 19 mg/L total xylenes and (2) total xylenes permeate high density polyethylene 10 times slower than does benzene. The 1/8 safety factor was also applied, as above. Odd-even rounding to 2 significant figures was applied. Hence:

$$\textit{Target Level} = 19{,}000\ \mu g/L \times 10x \times \frac{1}{8} = 23{,}750\ \mu g/L = 24{,}000\ \mu g/L$$

<u>PE/PB/AC</u>

Benzene: 200 µg/L
The target level was set at the concentration of benzene in groundwater surrounding a 1″ HDPE service line (SIDR 9 IPS) that would result in a concentration of 2 µg/L benzene in the service line after a 24 hr stagnation period. This level was chosen because 2 µg/L is generally the minimum reportable concentration of benzene in laboratory reports received by the department.

The permeation rate is a function of the concentration of benzene in the groundwater as described by Ong et al. (2008), equation 3.4a:

$$P_m = 0.0079 C_{bulk}^{1.1323}$$

where P_m is the benzene permeation rate in µg/cm^2/day through the pipe described above (cm^2 refers to the inner surface of the pipe) and C_{bulk} is the concentration of benzene in the groundwater (mg/L).

For any length of exposed 1″ SIDR 9 IPS pipe, l (cm), the concentration in the pipe after 24 hr stagnation, C_{24hr} (µg/L), can be computed from P_m and the ratio of the inner surface of the pipe to the internal volume:

$$C_{24hr} = P_m \times \left(\frac{2\pi r l}{\pi r^2 l/1000}\right) = 0.0079 C_{bulk}^{1.1323} \times \frac{2000}{r}$$

where r is the inside radius of the pipe (cm), l is the length of exposed pipe (cm), and dividing by 1000 converts from cm^3 to liters (and, therefore, 2000/r converts µg/cm^2/day to µg/L/day).

Solving for C_{bulk} (mg/L) with C_{24hr}= 2 µg/L and r = 1.28 cm (per manufacturer's specifications):

$$C_{bulk}^{1.1323} = \frac{2 \times 1.28}{0.0079 \times 2000}$$

and

$$C_{bulk} = \sqrt[1.1323]{0.162} = 0.200 mg/L = 200 \mu g/L$$

While the target level is expressed as 200 µg/L for clarity, the underlying data support only two significant figures. In a stricter treatment of the data, this would be expressed as 20×10^1 µg/L.

Toluene: 3,120 µg/L
The target level was set to be equal to that for PVC or Gasketed Service Lines. Calculations similar to those used above for benzene (Ong et al. (2008), equation 3.4b) indicate that 3,120 µg/L toluene in groundwater would result in 50 µg/L inside a 1" SIDR 9 IPS HDPE pipe after 24 hours of stagnation, which is 1/20th of the 1,000 µg/L MCL for toluene.

Ethylbenzene: 3,400 µg/L
The target level was set to be equal to the concentration of ethylbenzene in premium gasoline-saturated water (see discussion above for PVC or Gasketed Mains/Benzene). Unlike other target levels based on contaminant concentrations in gasoline-saturated water, the 1/8th safety factor was not applied because of the very low permeation rate of ethylbenzene through HDPE, the relatively low solubility of ethylbenzene in water, and the relatively high MCL (700 µg/L). Ong et al. (2008) found that permeation of HDPE by aqueous ethylbenzene was minimal and of no consequence for public health.

Total Xylenes: 19,000 µg/L
The target level was set to be equal to the concentration of ethylbenzene in premium gasoline-saturated water following the same reasoning for ethylbenzene (above). The permeation rate and water solubility are also very low, and the MCL is 10,000 µg/L. Ong et al. (2008) found that permeation of HDPE by aqueous xylenes was minimal and of no consequence for public health.

SOIL

Target levels for soil were set to be the same for mains and service lines of any material discussed above under "Groundwater." The underlying data support two significant figures for target levels in soil. Odd-even rounding was applied where appropriate.

Benzene: 2.0 mg/Kg
The target level was derived from the concentration of benzene (mg/Kg) that would result if soil that was 10% moisture and 1% organic matter was equilibrated with premium gasoline-saturated water (60 mg/L benzene – as per discussion of PVC or Gasketed Mains/Benzene above). The equilibrium concentration in soil was calculated using the approach of Chiou et al. (1983). The 1/8th safety factor discussed previously for groundwater was applied. Accordingly:

$$C_T = C_W K_d + C_W \theta$$

where C_T is the total concentration of benzene in soil (mg/Kg), θ is the fraction of moisture in the soil (Kg/Kg), and K_d is the partition coefficient from water to soil (L/Kg). Further:

$$K_d = K_{om} f_{om}$$

where K_{om} is the partition coefficient from water to organic matter in the soil, which is 16.8 L/Kg for benzene in soils with naturally occurring organic matter (Chiou et al. (1983)), and f_{om} is the fraction of organic matter in the dry soil (Kg/Kg).

For soil containing 1% naturally occurring organic matter and 10% moisture, the total concentration of benzene upon exposure to premium gasoline-saturated groundwater (60 mg/L benzene, as per above discussion of PVC or Gasketed Mains) would be:

$$C_T = \left(\frac{60\ mg}{L} \times \left(\frac{16.8\ L}{Kg} \times \frac{0.01\ Kg}{Kg}\right)\right) + \left(\frac{60\ mg}{L} \times \frac{0.1\ Kg}{Kg}\right) = \frac{16\ mg}{Kg}$$

Applying the 1/8th safety factor:

$$Target\ Level = \frac{1}{8} \times \frac{16\ mg}{Kg} = \frac{2.0\ mg}{Kg}$$

Toluene: 3.2 mg/Kg

The target level was derived in the same manner as for benzene except that the concentration of toluene in premium gasoline-saturated water is 50 mg/L and K_{om} is 42 L/Kg. Accordingly:

$$C_T = \left(\frac{50\ mg}{L} \times \left(\frac{42\ L}{Kg} \times \frac{0.01\ Kg}{Kg}\right)\right) + \left(\frac{50\ mg}{L} \times \frac{0.1\ Kg}{Kg}\right) = \frac{26\ mg}{Kg}$$

and

$$Target\ Level = \frac{1}{8} \times \frac{26\ mg}{Kg} = \frac{3.2\ mg}{Kg}$$

Ethylbenzene: 45 mg/Kg

The target level was based on the target level set for Groundwater/PVC or Gasketed Mains (40,000 µg/L, rounded from 39,100 µg/L, or 39.1 mg/L) and the principles of Chiou et al. (1983) discussed above. In a manner similar to that for benzene in soil, C_W was 3.4 mg/L, K_d was 0.106 L/Kg, and C_T was calculated to be 3.9 mg/Kg. The target level for soil that is equivalent to the target level set for groundwater was calculated as follows:

$$Target\ Level\ mg/Kg = 39.1\ mg/L \times \frac{3.9\ mg/Kg}{3.4\ mg/L} = 45\ mg/Kg$$

Total Xylenes: 52 mg/Kg

The target level was set in the same manner as for ethylbenzene (above), based on the groundwater target level of 48,000 µg/L (rounded from 47.5 mg/L). C_W was 19 mg/L, K_d was 1.001 L/Kg (assuming a mixture of m-, o-, and p-xylenes which is 60%, 20%, and 20%, respectively, which is typical of xylenes derived from petroleum), and C_T was calculated to be 21 mg/Kg. Hence:

$$Target\ Level\ mg/Kg = 47.5\ mg/L \times \frac{21\ mg/Kg}{19\ mg/L} = 52\ mg/Kg$$

NOTE: The 1/8th safety factor was applied above to the target levels for ethylbenzene and total xylenes for Groundwater, PVC or Gasketed Service Lines, thence the target levels for Groundwater, PVC or Gasketed Mains, were derived. Consequently, the 1/8th safety factor has also been applied to the target levels for both ethylbenzene and total xylenes in soil.

REFERENCES

Chiou, C. T., P. E. Porter and D. W. Schmedding. 1983. Partition equilibria of nonionic organic compounds between soil organic matter and water. Environ. Sci. Technol., 17(4)227-231.

Ong, S. K., J. A. Gaunt, F. Mao, C. L. Cheng, L. Esteve-Agelet, and C. R. Hurburgh. 2008. Impact of hydrocarbons on PE/PVC pipes and pipe gaskets, Publication 91204. Awwa Research Foundation (presently Water Research Foundation), Denver, CO.

Appendix B-1 – Tier 2 Equations and Parameter Values (Old Model)

All Tier 1 equations and parameters apply at Tier 2 except as specified below.

Equation for Tier 2 Groundwater Contaminant Transport Model

$$C(x) = C_s \exp\left(\frac{x}{2\alpha_x}\left[1-\sqrt{1+\frac{4\lambda\alpha_x}{u}}\right]\right) \operatorname{erf}\left(\frac{S_w}{4\sqrt{\alpha_y x}}\right) \operatorname{erf}\left(\frac{S_d}{4\sqrt{\alpha_z x}}\right)$$

Variable definitions

x: distance in the x direction downgradient from the source
erf( ): the error function
C(x): chemical concentration in groundwater at x
C_s: Source concentration in groundwater (groundwater concentration at x=0)
S_w: width of the source (perpendicular to x)
S_d: vertical thickness of the source
u: groundwater velocity (pore water velocity); u=Ki/θe
K: hydraulic conductivity
i: groundwater head gradient
θe: effective porosity
λ: first-order decay coefficient, chemical specific
αx, αy, αz: dispersivities in the x, y and z directions, respectively

For the following lists of parameters, one of three is required: site-specific measurements, defaults or the option of either (which means the default may be used or replaced with a site-specific measurement).

Soil parameters

Parameter		Default Value	Required
ρ_s	soil bulk density	1.86 g/cm^3	option
f_{oc}	fraction organic carbon in the soil	0.01 kg-C/kg-soil	option
θ_T	total soil porosity	0.3cm^3-voids/cm^3-soil	option
θ_{as}	volumetric air content in vadose zone	0.2cm^3-air/cm^3-soil	default
θ_{ws}	volumetric water content in vadose zone	0.1cm^3-H_2O/cm^3-soil	default
θ_{acrack}	volumetric air content in foundation/wall cracks	0.2cm^3-air/cm^3-soil	default
θ_{wcrack}	volumetric water content in foundation/wall cracks	0.1cm^3-H_2O/cm^3-soil	default
I	infiltration rate of water through soil	7 cm/year	default

If the total porosity is measured, assume 1/3 is air filled and 2/3 is water filled for determining the water and air fraction in the vadose zone soil and floor cracks.

Groundwater Transport Modeling Parameters

Parameter		Default Value	Required
K	hydraulic conductivity	16060 cm/year	site-specific
i	groundwater head gradient	0.01 cm/cm	site-specific
S_w	width of the source	use procedure specified in 135.10(2)	site-specific
S_d	vertical thickness of the source	3 m	default
αx	dispersivity in the x direction	0.1x	default
αy	dispersivity in the y direction	$0.33\alpha x$	default
αz	dispersivity in the z direction	$0.05\alpha x$	default
θe	effective porosity	0.1	default

where $u=Ki/\theta e$

First-order Decay Coefficients

Chemical	Default Valueλ (d-1)	Required
Benzene	0.0005	default
Toluene	0.0007	default
Ethylbenzene	0.00013	default
Xylenes	0.0005	default
Naphthalene	0.00013	default
Benzo(a)pyrene	0	default
Benz(a)anthracene	0	default
Chrysene	0	default

Other Parameters for Groundwater Vapor to Enclosed Space

Parameter		Default Value	Required
Lgw	depth to groundwater from the enclosed space foundation	1 cm	option
L_B	enclosed space volume/infiltration area ratio	200 cm	option
ER (s-1)	enclosed space air exchange rate	0.00014	default
Lcrack	enclosed space foundation or wall thickness	15 cm	default
η	areal fraction of cracks in foundation/wall	0.01	default

Other Parameters for Soil Vapor to Enclosed Space

Parameter		Default Value	Required
L_s	depth to subsurface soil sources from the enclosed space foundation	1 cm	option
L_B	enclosed space volume/infiltration area ratio	250 cm *	option
ER (s-1)	enclosed space air exchange rate	0.000185 *	default
Lcrack	enclosed space foundation or wall thickness	15 cm	default
η	areal fraction of cracks in foundation/wall	0.01	default

*These values are an average of residential and nonresidential factors.

Soil Leaching to Groundwater

Parameter		Default Value	Required
δ	groundwater mixing zone	2 m	default

Building Parameters for Iowa Tier 2

Parameter		Residential	Nonresidential
ER (s-1)	enclosed space air exchange rate	0.00014	0.00023
L_B	enclosed space volume/infiltration area ratio	200 cm	300 cm

Other Parameters

For Tier 2, the following are the same as Tier 1 values (refer to Appendix A): chemical-specific parameters, slope factors and reference doses, and exposure factors (except for those listed below).

Exposure Factors for Tier 2 Groundwater Vapor to Enclosed Space Modeling:
Potential Residential: use residential exposure and residential building parameters.
Potential Nonresidential: use nonresidential exposure and nonresidential building parameters.

Diesel and Waste Oil

Diesel and Waste Oil			Chemical-Specific Values for Tier 1			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater Ingestion	actual	150	0.012	0.12	1.2
		potential	150	1.2	12.0	NA
	Groundwater Vapor to Enclosed Space	all	4,440	NA	NA	NA
	Groundwater to Plastic Water Line	all	150	1.2	12.0	NA
	Surface Water	all	150	1.2	12.0	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	7.6	NA	NA	NA
	Soil Vapor to Enclosed Space	all	95	NA	NA	NA
	Soil to Plastic Water Line	all	21	NA	NA	NA

Due to difficulties with analytical methods for the four individual chemicals listed in the above table, Total Extractable Hydrocarbon (TEH) default values were calculated for each chemical, using the assumption that diesel contains 0.2% napthalene, 0.001% benzo(a)pyrene, 0.001% benz(a)anthracene, and 0.001% chrysene. Resulting TEH Default Values are shown in the following table.

Diesel			TEH Default Values			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater Ingestion	actual	75,000	1,200	12,000	120,000
		potential	75,000	120,000	1,200,000	NA
	Groundwater Vapor to Enclosed Space	all	2,200,000	NA	NA	NA
	Groundwater to Plastic Water Line	all	75,000	120,000	1,200,000	NA
	Surface Water	all	75,000	120,000	1,200,000	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	3,800	NA	NA	NA
	Soil Vapor to Enclosed Space	all	47,500	NA	NA	NA
	Soil to Plastic Water Line	all	10,500	NA	NA	NA

The lowest TEH default value for each pathway (shown as a shaded box) was used in the Tier 1 Table.

Due to difficulties with analytical methods for the four individual chemicals, Total Extractable Hydrocarbon (TEH) default values were calculated for each chemical, using the assumption that waste oil contains no naphthalene, 0.003% benzo(a)pyrene, 0.003% benz(a)anthracene, and 0.003% chrysene. Resulting TEH Default Values are shown in the following table.

Waste Oil			TEH Default Values			
Media	Exposure Pathway	Receptor	Naphthalene	Benzo(a) pyrene	Benz(a) anthracene	Chrysene
Groundwater (ug/L)	Groundwater Ingestion	actual	NA	400	4,000	40,000
		potential	NA	40,000	400,000	NA
Groundwater (ug/L)	Groundwater Vapor to Enclosed Space	all	NA	NA	NA	NA
	Groundwater to Plastic Water Line	all	NA	40,000	400,000	NA
	Surface Water	all	NA	40,000	400,000	NA
Soil (mg/kg)	Soil Leaching to Groundwater	all	NA	NA	NA	NA
	Soil Vapor to Enclosed Space	all	NA	NA	NA	NA
	Soil to Plastic Water Line	all	NA	NA	NA	NA

The lowest TEH default value for each pathway (shown as a shaded box) was used in the Tier 1 Table.
[**ARC 9011B**, IAB 8/25/10, effective 9/29/10]

APPENDIX C
DECLARATION OF RESTRICTIVE COVENANTS
Rescinded IAB 7/19/06, effective 8/23/06

APPENDIX D
IOWA DEPARTMENT OF NATURAL RESOURCES

NO FURTHER ACTION CERTIFICATE

This document certifies that the referenced underground storage tank site has been classified by the Iowa Department of Natural Resources (IDNR) as "no action required" as provided in the 1995 Iowa Code Supplement 455B.474(1)"h"(1). This certificate may be recorded as provided by law.

ISSUED TO: OWNERS/OPERATORS OF TANKS
DATE OF ISSUANCE:
IDNR FILE REFERENCES: LUST # REGISTRATION #
LEGAL DESCRIPTION OF UNDERGROUND STORAGE TANK SITE:

Issuance of this certificate does not preclude the IDNR from requiring further corrective action due to new releases and is based on the information available to date. The department is precluded from requiring additional corrective action solely because governmental action standards are changed. See 1995 Iowa Code Supplement 455B.474(1)"h"(1).

This certificate does not constitute a warranty or a representation of any kind to any person as to the environmental condition, marketability or value of the above referenced property other than that certification required by 1995 Iowa Code Supplement 455B.474(1)"h".

These rules are intended to implement Iowa Code sections 455B.304, 455B.424 and 455B.474.

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[Editorial change: IAC Supplement 11/27/13]

[1] July 15, 1987, effective date of 135.9(4) delayed 70 days by Administrative Rules Review Committee at its June 1987 meeting.

[2] August 6, 2008, effective date of **ARC 6892B** delayed 70 days by Administrative Rules Review Committee at its July 2008 meeting. At its meeting held October 14, 2008, the Committee delayed until adjournment of the 2009 Session of the General Assembly the following provisions: **567—135.2(455B)**, definition of "Sensitive area"; **135.9(4)"f"**; **135.10(4)"a,"** last sentence: "A public water supply screening and risk assessment must be conducted in accordance with 135.10(4)"f" for this pathway" and **135.10(4)"b,"** last sentence of the first paragraph: "The certified groundwater professional or the department may request additional sampling of drinking water wells and non-drinking water wells as part of its evaluation"; **135.10(4)"f"**; **135.10(11)"h."**

[3] February 17, 2010, effective date of 135.5(1)"e" delayed 70 days by the Administrative Rules Review Committee at its meeting held February 8, 2010. At its meeting held April 13, 2010, the Committee delayed the effective date of 135.5(1)"e" until adjournment of the 2011 Session of the General Assembly.

CHAPTER 136
FINANCIAL RESPONSIBILITY FOR UNDERGROUND STORAGE TANKS

567—136.1(455B) Applicability.

136.1(1) This chapter applies to owners and operators of all petroleum underground storage tank (UST) systems except as otherwise provided in this rule.

136.1(2) Owners and operators of petroleum UST systems are subject to these requirements.

136.1(3) State and federal government entities whose debts and liabilities are the debts and liabilities of a state or the United States are exempt from the requirements of this chapter.

136.1(4) The requirements of this chapter do not apply to owners and operators of farm or residential tanks of 1,100 gallons or less capacity or any UST system described in 567—paragraph 135.1(3)*"b"* or *"c."*

136.1(5) If the owner and operator of a petroleum underground storage tank are separate persons, only one person is required to demonstrate financial responsibility; however, both parties are liable in event of noncompliance.

567—136.2(455B) Compliance dates. Rescinded IAB 4/17/02, effective 5/22/02.

567—136.3(455B) Definition of terms.

"Accidental release" means any sudden or nonsudden release of petroleum from an underground storage tank that results in a need for corrective action and/or compensation for bodily injury or property damage neither expected nor intended by the tank owner or operator.

"Bodily injury" shall have the meaning given to this term by applicable state law; however, this term shall not include those liabilities which, consistent with standard insurance industry practices, are excluded from coverage in liability insurance policies for bodily injury.

"Chief financial officer," in the case of local government owners and operators, means the individual with the overall authority and responsibility for the collection, disbursement, and use of funds by the local government.

"Controlling interest" means direct ownership of at least 50 percent of the voting stock of another entity.

"Director" means the director of the Iowa department of natural resources or local agency responsible for carrying out an approved UST program.

"Financial reporting year" means the latest consecutive 12-month period for which any of the following reports used to support a financial test is prepared:

1. A 10-K report submitted to the SEC;
2. An annual report of tangible net worth submitted to Dun and Bradstreet; or
3. Annual reports submitted to the Energy Information Administration or the Rural Electrification Administration.

"Financial reporting year" may thus comprise a fiscal- or a calendar-year period.

"Legal defense cost" is any expense that an owner or operator or provider of financial assurance incurs in defending against claims or actions brought;

1. By EPA or a state to require corrective action or to recover the costs of corrective action;
2. By or on behalf of a third party for bodily injury or property damage caused by an accidental release; or
3. By any person to enforce the terms of a financial assurance mechanism.

"Local government" means counties, municipalities, townships, separately chartered and operated special districts (including local government public transit systems and redevelopment authorities), and independent school districts authorized as governmental bodies by state charter or constitution and special districts and independent school districts established by counties, municipalities, townships, and other general purpose governments to provide essential services.

"Occurrence" means an accident, including continuous or repeated exposure to conditions, which results in a release from an underground storage tank.

NOTE: This definition is intended to assist in the understanding of these rules and is not intended either to limit the meaning of "occurrence" in a way that conflicts with standard insurance usage or to prevent the use of other standard insurance terms in place of "occurrence."

"Owner or operator," when the owner or operator are separate parties, refers to the party that is obtaining or has obtained financial assurances.

"Petroleum marketing facilities" include all facilities at which petroleum is produced or refined and all facilities from which petroleum is sold or transferred to other petroleum marketers or to the public.

"Petroleum marketing firms" are all firms owning petroleum marketing facilities. Firms owning other types of facilities with USTs as well as petroleum marketing facilities are considered to be petroleum marketing firms.

"Property damage" shall have the meaning given this term by applicable state law. This term shall not include those liabilities which, consistent with standard insurance industry practices, are excluded from coverage in liability insurance policies for property damage. However, such exclusions for property damage shall not include corrective action associated with releases from tanks which are covered by the policy.

"Provider of financial assurance" means an entity that provides financial assurance to an owner or operator of an underground storage tank through one of the mechanisms listed in rules 136.6(455B) to 136.16(455B), including a guarantor, insurer, risk retention group, surety, issuer of a letter of credit, issuer of a state-required mechanism, or a state.

"Substantial business relationship" means the extent of a business relationship necessary under applicable state law to make a guarantee contract issued incident to that relationship valid and enforceable. A guarantee contract is issued "incident to that relationship" if it arises from and depends on existing economic transactions between the guarantor and the owner or operator.

"Substantial governmental relationship" means the extent of a governmental relationship necessary under applicable state law to make an added guarantee contract issued incident to that relationship valid and enforceable. A guarantee contract is issued "incident to that relationship" if it arises from a clear commonality of interest in the event of UST release such as coterminous boundaries, overlapping constituencies, common groundwater aquifer, or other relationship other than monetary compensation that provides a motivation for the guarantor to provide a guarantee.

"Tangible net worth" means the tangible assets that remain after deducting liabilities; such assets do not include intangibles such as goodwill and rights to patents or royalties. For purposes of this definition, "assets" means all existing and all probable future economic benefits obtained or controlled by a particular entity as a result of past transactions.

"Termination" under 136.8(2)*"a"* and *"b"* means only those changes that could result in a gap in coverage as where the insured has not obtained substitute coverage or has obtained substitute coverage with a different retroactive date than the retroactive date of the original policy date for compliance established in rule 136.2(455B).

567—136.4(455B) Amount and scope of required financial responsibility.

136.4(1) Owners or operators of petroleum underground storage tanks must demonstrate financial responsibility for taking corrective action and for compensating third parties for bodily injury and property damage caused by accidental releases arising from the operation of petroleum underground storage tanks in at least the following per-occurrence amounts:

a. For owners or operators of petroleum underground storage tanks that are located at petroleum marketing facilities, or that handle an average of more than 10,000 gallons of petroleum per month based on annual throughput for the previous calendar year; $1 million.

b. For all other owners or operators of petroleum underground storage tanks; $500,000.

136.4(2) Owners or operators of petroleum underground storage tanks must demonstrate financial responsibility for taking corrective action and for compensating third parties for bodily injury and property damage caused by accidental releases arising from the operation of petroleum underground storage tanks in at least the following annual aggregate amounts:

a. For owners or operators of 1 to 100 petroleum underground storage tanks, $1 million.

b. For owners or operators of 101 or more petroleum underground storage tanks, $2 million.

136.4(3) For the purposes of subrules 136.4(2) and 136.4(6) only, a petroleum underground storage tank means a single containment unit and does not mean combinations of single containment units.

136.4(4) Except as provided in subrule 136.4(5), if the owner or operator uses separate mechanisms or separate combinations of mechanisms to demonstrate financial responsibility for:

a. Taking corrective action;

b. Compensating third parties for bodily injury and property damage caused by sudden accidental releases; or

c. Compensating third parties for bodily injury and property damage caused by nonsudden accidental releases, the amount of assurance provided by each mechanism or combination of mechanisms must be in the full amount specified in subrules 136.4(1) and 136.4(2).

136.4(5) If an owner or operator uses separate mechanisms or separate combinations of mechanisms to demonstrate financial responsibility for different petroleum underground storage tanks, the annual aggregate required shall be based on the number of tanks covered by each such separate mechanism or combination of mechanisms.

136.4(6) Owners or operators shall review the amount of aggregate assurance provided whenever additional petroleum underground storage tanks are acquired or installed. If the number of petroleum underground storage tanks for which assurance must be provided exceeds 100, the owner or operator shall demonstrate financial responsibility in the amount of at least $2 million of annual aggregate assurance by the anniversary of the date on which the mechanism demonstrating financial responsibility became effective. If assurance is being demonstrated by a combination of mechanisms, the owner or operator shall demonstrate financial responsibility in the amount of at least $2 million of annual aggregate assurance by the first-occurring effective date anniversary of any one of the mechanisms combined (other than a financial test or guarantee) to provide assurance.

136.4(7) The amounts of assurance required under this rule exclude legal defense costs.

136.4(8) The required per-occurrence and annual aggregate coverage amounts do not in any way limit the liability of the owner or operator.

567—136.5(455B) Allowable mechanisms and combinations of mechanisms.

136.5(1) Subject to the limitations of subrule 136.5(2):

a. An owner or operator, including a local government owner or operator, may use any one or combination of the mechanisms listed in rules 136.6(455B) to 136.12(455B) to demonstrate financial responsibility under this chapter for one or more underground storage tanks, and

b. A local government owner or operator may use any one or combination of the mechanisms listed in rules 136.13(455B) to 136.16(455B) to demonstrate financial responsibility under this chapter for one or more underground storage tanks.

136.5(2) An owner or operator may use self-insurance in combination with a guarantee only if, for the purpose of meeting the requirements of the financial test under this chapter, the financial statements of the owner or operator are not consolidated with the financial statements of the guarantor.

567—136.6(455B) Financial test of self-insurance.

136.6(1) An owner or operator, and/or guarantor, may satisfy the requirements of rule 136.4(455B) by passing a financial test as specified in this rule. To pass the financial test of self-insurance, the owner or operator, and/or guarantor must meet the criteria of subrule 136.6(2) or 136.6(3) based on year-end financial statements for the latest completed fiscal year.

136.6(2) Financial test alternative I.

a. The owner or operator, and/or guarantor, must have a tangible net worth of at least ten times:

(1) The total of the applicable aggregate amount required by rule 136.4(455B), based on the number of underground storage tanks for which a financial test is used to demonstrate financial responsibility to the Iowa department of natural resources under this rule.

(2) The sum of the corrective action cost estimates, the current closure and postclosure care cost estimates, and amount of liability coverage for which a financial test is used to demonstrate financial

responsibility to EPA under 40 CFR Parts 264.101, 264.143, 264.145, 264.147, 265.143, 265.145, and 265.147 or to a state implementing agency under a state program authorized by EPA under 40 CFR Part 271; and

(3) The sum of current plugging and abandonment cost estimates for which a financial test is used to demonstrate financial responsibility to EPA under 40 CFR Part 144.63 or to a state implementing agency under a state program authorized by EPA under 40 CFR Part 145.

b. The owner or operator, and/or guarantor, must have a tangible net worth of at least $10 million.

c. The owner or operator, and/or guarantor, must have a letter signed by the chief financial officer worded as specified in subrule 136.6(4).

d. The owner or operator, and/or guarantor, must either:

(1) File financial statements annually with the U.S. Securities and Exchange Commission, the Energy Information Administration, or the Rural Electrification Administration; or

(2) Report annually the firm's tangible net worth to Dun and Bradstreet, and Dun and Bradstreet must have assigned the firm a financial strength rating of 4A or 5A.

e. The firm's year-end financial statements, if independently audited, cannot include an adverse auditor's opinion, a disclaimer of opinion, or a "going concern" qualification.

136.6(3) Financial test alternative II.

a. The owner or operator, and/or guarantor must meet the financial test requirements of 40 CFR 264.147(f)(1) substituting the appropriate amounts specified in 136.4(2), paragraphs *"a"* and *"b,"* for the "amount of liability coverage" each time specified in that section.

b. The owner, operator, or guarantor must have a tangible net worth of at least $10 million.

c. The owner, operator, or guarantor must have a tangible net worth of at least six times the amount of the applicable UST aggregate.

d. At least 90 percent of the total assets of the owner, operator, or guarantor must be U.S. assets, or U.S. assets at least six times the amount of the applicable UST aggregate, and either:

(1) Net working capital at least six times the applicable UST aggregate; or

(2) A current bond rating for the most recent bond issue of AAA, AA, A or BBB as issued by Standard and Poor's, or Aaa, Aa, A or Baa as issued by Moody's.

e. The fiscal year-end financial statements of the owner or operator, and/or guarantor, must be examined by an independent certified public accountant and be accompanied by the accountant's report of the examination.

f. The firm's year-end financial statements cannot include an adverse auditor's opinion, a disclaimer of opinion, or a "going concern" qualification.

g. The owner or operator, and/or guarantor, must have a letter signed by the chief financial officer, worded as specified in subrule 136.6(4).

h. If the financial statements of the owner or operator, and/or guarantor, are not submitted annually to the U.S. Securities and Exchange Commission, the Energy Information Administration or the Rural Electrification Administration, the owner or operator, and/or guarantor, must obtain a special report by an independent certified public accountant stating that:

(1) The accountant has compared the data that the letter from the chief financial officer specifies as having been derived from the latest year-end financial statements of the owner or operator, and/or guarantor, with the amounts in such financial statements; and

(2) In connection with that comparison, no matters came to the accountant's attention which caused the belief that the specified data should be adjusted.

136.6(4) To demonstrate that it meets the financial test under subrule 136.6(2) or 136.6(3), the chief financial officer of the owner or operator, and/or guarantor, must sign, within 120 days of the close of each financial reporting year, as defined by the 12-month period for which financial statements used to support the financial test are prepared, a letter worded exactly as follows, except that the instructions in brackets are to be replaced by the relevant information and the brackets deleted:

Letter from Chief Financial Officer

I am the chief financial officer of [insert: name and address of the owner or operator, or guarantor]. This letter is in support of the use of [insert: "the financial test of self-insurance," and/or

"guarantee"] to demonstrate financial responsibility for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage"] caused by [insert: "sudden accidental releases" and/or "nonsudden accidental releases"] in the amount of at least [insert: dollar amount] per occurrence and [insert: dollar amount] annual aggregate arising from operating (an) underground storage tank(s).

Underground storage tanks at the following facilities are assured by this financial test by this [insert: "owner or operator," and/or "guarantor"]: [List for each facility: the name and address of the facility where tanks assured by this financial test are located and whether tanks are assured by this financial test. If separate mechanisms or combinations of mechanisms are being used to assure any of the tanks at this facility, list each tank assured by this financial test by the tank identification number provided in the notification submitted pursuant to subrule 135.3(3)].

A [insert: "financial test," and/or "guarantee"] is also used by this [insert: "owner or operator," or "guarantor"] to demonstrate evidence of financial responsibility in the following amounts under other EPA regulations or state programs authorized by EPA under 50 CFR Parts 271 and 145:

EPA Regulation:	Amount
Closure (§§264.143 and 265.143)	$ _____
Postclosure Care (§§264.145 and 265.145)	$ _____
Liability Coverage (§§264.147 and 265.147)	$ _____
Corrective Action (§264.101(b))	$ _____
Plugging and Abandonment (§144.63)	$ _____
Authorized State Programs:	
Closure	$ _____
Postclosure Care	$ _____
Liability Coverage	$ _____
Corrective Action	$ _____
Plugging and Abandonment	$ _____
TOTAL	$ _____

This [insert: "owner or operator," or "guarantor"] has not received an adverse opinion, a disclaimer of opinion, or a "going concern" qualification from an independent auditor on financial statements for the latest completed fiscal year.

[Fill in the information for Alternative I if the criteria of subrule 136.6(2) are being used to demonstrate compliance with the financial test requirements. Fill in the information of Alternative II if the criteria of subrule 136.6(3) are being used to demonstrate compliance with the financial test requirements.]

ALTERNATIVE I

1.	Amount of annual UST aggregate coverage being assured by a financial test, and/or guarantee	$ _____
2.	Amount of corrective action, closure and postclosure care costs, liability coverage, and plugging and abandonment costs covered by a financial test, and/or guarantee	$ _____
3.	Sum of lines 1 and 2	$ _____
4.	Total tangible assets	$ _____
5.	Total liabilities [if any of the amount reported on line 3 is included in total liabilities, you may deduct that amount from this line and add that amount to line 6]	$ _____
6.	Tangible net worth [subtract line 5 from line 4]	$ _____

		Yes	No
7.	Is line 6 at least $10 million?	____	____
8.	Is line 6 at least 10 times line 3?	____	____
9.	Have financial statements for the latest fiscal year been filed with the Securities and Exchange Commission?	____	____
10.	Have financial statements for the latest fiscal year been filed with the Energy Information Administration?	____	____
11.	Have financial statements for the latest fiscal year been filed with the Rural Electrification Administration?	____	____
12.	Has financial information been provided to Dun and Bradstreet, and has Dun and Bradstreet provided a financial strength rating of 4A or 5A? [Answer "Yes" only if both criteria have been met.]	____	____

ALTERNATIVE II

1.	Amount of annual UST aggregate coverage being assured by a financial test, and/or guarantee	$ _____	
2.	Amount of corrective action, closure and postclosure care costs, liability coverage, and plugging and abandonment costs covered by a financial test, and/or guarantee	$ _____	
3.	Sum of lines 1 and 2	$ _____	
4.	Total tangible assets	$ _____	
5.	Total liabilities [if any of the amount reported on line 3 is included in total liabilities, you may deduct that amount from this line and add that amount to line 6]	$ _____	
6.	Tangible net worth [subtract line 5 from line 4]	$ _____	
7.	Total assets in the U.S. [required only if less than 90 percent of assets are located in the U.S.]	$ _____	
8.	Is line 6 at least $10 million?	____	____
9.	Is line 6 at least 6 times line 3?	____	____
10.	Are at least 90 percent of assets located in the U.S.? [If "No," complete line 11.]	____	____
11.	Is line 7 at least 6 times line 3? [Fill in either lines 12-15 or lines 16-18.]	____	____
12.	Current assets	$ _____	
13.	Current liabilities	$ _____	
14.	Net working capital [subtract line 13 from line 12]	$ _____	
15.	Is line 14 at least 6 times line 3?	____	____
16.	Current bond rating of most recent bond issue	_____	
17.	Name of rating service	_____	
18.	Date of maturity of bond	_____	
19.	Have financial statements for the latest fiscal year been filed with the SEC, the Energy Information Administration, or the Rural Electrification Administration?	____	____

[If "No," please attach a report from an independent certified public accountant certifying that there are no material differences between the data as reported in lines 4-18 above and the financial statements for the latest fiscal year.]

[For both Alternative I and Alternative II complete the certification with this statement.]

I hereby certify that the wording of this letter is identical to the wording specified in subrule 136.6(4) as such regulations were constituted on the date shown immediately below.

[Signature]

[Name]

[Title]
[Date]

136.6(5) If an owner or operator using the test to provide financial assurance finds that the requirements of the financial test based on the year-end financial statements are no longer being met, the owner or operator must obtain alternative coverage within 150 days of the end of the year for which financial statements have been prepared.

136.6(6) The director may require reports of financial condition at any time from the owner or operator, and/or guarantor. If the director finds, on the basis of such reports or other information, that the owner or operator, and/or guarantor, no longer meets the financial test requirements of subrule 136.6(2) or 136.6(3) or 136.6(4), the owner or operator must obtain alternate coverage within 30 days after notification of such a finding.

136.6(7) If the owner or operator fails to obtain alternate assurance within 150 days of finding that the requirements of the financial test based on the year-end financial statements are no longer being met, or within 30 days of notification by the director that the requirements of the financial test are no longer being met, the owner or operator must notify the director of such failure within 10 days.

567—136.7(455B) Guarantee.

136.7(1) An owner or operator may satisfy the requirements of rule 136.4(455B) by obtaining guarantee that conforms to the requirements of this rule. The guarantor must be:

a. A firm that possesses a controlling interest in the owner or operator; possesses a controlling interest in such a firm; or is controlled through stock ownership by a common parent firm that possesses a controlling interest in the owner or operator; or

b. A firm engaged in a substantial business relationship with the owner or operator and issuing the guarantee as an act incident to that business relationship.

136.7(2) Within 120 days of the close of each financial reporting year the guarantor must demonstrate that it meets the financial test criteria of rule 136.6(455B) based on year-end financial statements for the latest completed financial reporting year by completing the letter from the chief financial officer described in subrule 136.6(4) and must deliver the letter to the owner or operator. If the guarantor fails to meet the requirements of the financial test at the end of any financial reporting year, within 120 days of the end of that financial reporting year the guarantor shall send by certified mail, before cancellation or nonrenewal of the guarantee, notice to the owner or operator. If the director notifies the guarantor that the requirements of the financial test of subrules 136.6(2) or 136.6(3) and 136.6(4) are no longer being met, the guarantor must notify the owner or operator within 10 days of receiving such notification from the director. In both cases, the guarantee will terminate no less than 120 days after the date the owner or operator receives the notification, as evidenced by the return receipt. The owner or operator must obtain alternate coverage as specified in subrule 136.23(3).

136.7(3) The guarantee must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

GUARANTEE

Guarantee made this [date] by [name of guaranteeing entity], a business entity organized under the laws of the state of Iowa, herein referred to as guarantor, to the Iowa Department of Natural Resources and to any and all third parties, and obligees, on behalf of [owner or operator] of [business address].

Recitals.

1. Guarantor meets or exceeds the financial test criteria of subrules 567—136.6(2) or 136.6(3) and 136.6(4) and agrees to comply with the requirements for guarantors as specified in subrule 136.7(2).

2. [Owner or operator] owns or operates the following underground storage tank(s) covered by this guarantee: [List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is

used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to subrule 135.3(3) and the name and address of the facility.] This guarantee satisfies 567—Chapter 136 requirements for assuring funding for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases"; if coverage is different for different tanks or locations, indicate the type of coverage applicable to each tank or location] arising from operating the above-identified underground storage tank(s) in the amount of [insert dollar amount] per occurrence and [insert dollar amount] annual aggregate.

3. [Insert appropriate phrase: "On behalf of our subsidiary" (if guarantor is corporate parent of the owner or operator); "On behalf of our affiliate" (if guarantor is a related firm of the owner or operator); or "Incident to our business relationship with" (if guarantor is providing the guarantee as an incident to a substantial business relationship with owner or operator)] [owner or operator], guarantor guarantees to the Iowa Department of Natural Resources and to any and all third parties that:

In the event that [owner or operator] fails to provide alternate coverage within 60 days after receipt of a notice of cancellation of this guarantee and the Director of the Iowa Department of Natural Resources has determined or suspects that a release has occurred at an underground storage tank covered by this guarantee, the guarantor, upon instructions from the Director, shall fund a standby trust fund in accordance with the provisions of rule 567—136.21(455B), in an amount not to exceed the coverage limits specified above.

In the event that the Director determines that [owner or operator] has failed to perform corrective action for releases arising out of the operation of the above-identified tank(s) in accordance with rule 567—135.7(455B), the guarantor upon written instructions from the Director shall fund a standby trust in accordance with the provisions of rule 567—136.21(455B), in an amount not to exceed the coverage limit specified above.

If [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental releases arising from the operation of the above-identified tank(s), or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor, upon written instructions from the Director, shall fund a standby trust in accordance with the provisions of rule 567—136.21(455B) to satisfy such judgment(s), award(s), or settlement agreement(s) up to the limits of coverage specified above.

4. Guarantor agrees that if, at the end of any fiscal year before cancellation of this guarantee, the guarantor fails to meet the financial test criteria of subrules 567—136.6(2) or 136.6(3) and 136.6(4), guarantor shall send within 120 days of such failure, by certified mail, notice to [owner or operator]. The guarantee will terminate 120 days from the date of receipt of the notice by [owner or operator], as evidenced by the return receipt.

5. Guarantor agrees to notify [owner or operator] by certified mail of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

6. Guarantor agrees to remain bound under this guarantee notwithstanding any modification or alteration of any obligation of [owner or operator] pursuant to 567—Chapter 135 or Chapter 136.

7. Guarantor agrees to remain bound under this guarantee for so long as [owner or operator] must comply with the applicable financial responsibility requirements of 567—Chapter 136 for the above-identified tank(s), except that guarantor may cancel this guarantee by sending notice by certified mail to [owner or operator], such cancellation to become effective no earlier than 120 days after receipt of such notice by [owner or operator], as evidenced by the return receipt.

8. The guarantor's obligation does not apply to any of the following:

(a) Any obligation of [insert owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or other similar law;

(b) Bodily injury to an employee of [insert owner or operator] arising from, and in the course of, employment by [insert owner or operator];

(c) Bodily injury or property damage arising from the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft;

(d) Property damage to any property owned, rented, loaned to, in the care, custody, or control of, or occupied by [insert owner or operator] that is not the direct result of a release from a petroleum underground storage tank;

(e) Bodily damage or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement other than a contract or agreement entered into to meet the requirements of rule 567—136.4(455B).

9. Guarantor expressly waives notice of acceptance of this guarantee by the Iowa Department of Natural Resources, by any or all third parties, or by [owner or operator].

I hereby certify that the wording of this guarantee is identical to the wording specified in subrule 567—136.7(3) as such regulations were constituted on the effective date shown immediately below.

Effective date: _____

[Name of guarantor]

[Authorized signature for guarantor]

[Name of person signing]

[Title of person signing]

Signature of witness or notary: _____

136.7(4) An owner or operator who uses a guarantee to satisfy the requirements of rule 136.4(455B) must establish a standby trust fund when the guarantee is obtained. Under the terms of the guarantee, all amounts paid by the guarantor under the guarantee will be deposited directly into the standby trust fund in accordance with instructions from the director under rule 136.21(455B). This standby trust fund must meet the requirements specified in rule 136.12(455B).

567—136.8(455B) Insurance and risk retention group coverage.

136.8(1) An owner or operator may satisfy the requirements of rule 136.4(455B) by obtaining liability insurance that conforms to the requirements of this rule from a qualified insurer or risk retention group. Such insurance may be in the form of a separate insurance policy or an endorsement to an existing insurance policy.

136.8(2) Each insurance policy must be amended by an endorsement worded as specified in 136.8(2)*"a"* "ENDORSEMENT" or evidenced by a certificate of insurance worded as specified in 136.8(2)*"b"* "CERTIFICATE OF INSURANCE," except that instructions in brackets must be replaced with the relevant information and the brackets deleted:

a. ENDORSEMENT

Name: _____

Address: _____[address of each covered location]_____

_____

_____

Policy Number: _____

Period of Coverage: _____[current policy period]_____

Name of [Insurer or Risk Retention Group]:

_____

_____

Address of [Insurer or Risk Retention Group]:

_____

_____

Name of Insured: _____

Address of Insured: _____

_____

_____

Endorsement:

(1) This endorsement certifies that the policy to which the endorsement is attached provides liability insurance covering the following underground storage tanks:

[List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to 567—subrule 135.3(3) and the name and address of the facility.]

for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental release; in accordance with and subject to the limits of liability, exclusions, conditions, and other terms of the policy"; if coverage is different for different tanks or locations, indicate the type of coverage applicable to each tank or location] arising from operating the underground storage tank(s) identified above.

The limits of liability are [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the Insurer's or Group's liability; if the amount of coverage is different for different types of

coverage or for different underground storage tanks or locations, indicate the amount of coverage for each type of coverage and/or for each underground storage tank or location], exclusive of legal defense costs, which are subject to a separate limit under the policy. This coverage is provided under [policy number]. The effective date of said policy is [date].

(2) The insurance afforded with respect to such occurrences is subject to all of the terms and conditions of the policy; provided, however, that any provisions inconsistent with numbered paragraphs "1" to "7" of this subparagraph are hereby amended to conform with numbered paragraphs "1" to "7":

1. Bankruptcy or insolvency of the insured shall not relieve the ["Insurer" or "Group"] of its obligation under the policy to which this endorsement is attached.

2. The ["Insurer" or "Group"] is liable for the payment of amounts within any deductible applicable to the policy to the provider of corrective action or a damaged third party, with a right of reimbursement by the insured for any such payment made by the ["Insurer" or "Group"]. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated under another mechanism or combination of mechanisms as specified in rules 567—136.6(455B) to 136.11(455B).

3. Whenever requested by the Director of the Iowa Department of Natural Resources, the ["Insurer" or "Group"] agrees to furnish to the director a signed duplicate original of the policy and all endorsements.

4. Cancellation or any other termination of the insurance by the ["Insurer" or "Group"] except for nonpayment of premium or misrepresentation by the insured will be effective only upon written notice and only after the expiration of 60 days after a copy of such written notice is received by the insured. Cancellation for nonpayment of premium or misrepresentation by the insured will be effective only upon written notice and only after expiration of a minimum of ten days after a copy of such written notice is received by the insured.

Insert for claims-made policies:

5. The insurance covers claims otherwise covered by the policy that are reported to the ["Insurer" or "Group"] within six months of the effective date of cancellation or nonrenewal of the policy except where the new or renewed policy has the same retroactive date or a retroactive date earlier than that of the previous policy, and which arise out of any covered occurrence that commenced after the policy retroactive date, if applicable, and prior to such policy renewal or termination date. Claims reported during such extended reporting period are subject to the terms, conditions, limits, including limits of liability, and exclusions of the policy

6. The ["Insurer" "Group"] will notify the insured and any additional named insureds of the six-month extended reporting expiration date as provided in paragraph 136.8(2)*"a"*(2)"5" in any written final cancellation or nonrenewal notice in accordance with rule 567—136.18(455B).

7. Timely notice of a release and claim for coverage to the insurer by the Iowa Department of Natural Resources shall be deemed sufficient notice on behalf of the insured under the terms, conditions, and exclusions of this policy. Notice by the department does not modify or enlarge the terms, conditions and exclusions of coverage but is only intended to preserve coverage to which the insured may otherwise be entitled under the policy.

I hereby certify that the wording of this instrument is identical to the wording in 567—subrule 136.8(2) "ENDORSEMENT" and that the ["Insurer" or "Group"] is [licensed to transact the business of insurance or eligible to provide insurance as an excess or surplus lines insurer in one or more states].

[Signature of authorized representative of Insurer or Risk Retention Group]

[Name of person signing]

[Title of person signing], Authorized Representative of [name of Insurer or Risk Retention Group]

[Address of Representative]

b. CERTIFICATE OF INSURANCE

Name: _____[name of each covered location]_____

Address: _____[address of each covered location]_____

_____

_____

Policy Number: _____

Endorsement (if applicable): _____

Period of Coverage: _____[current policy period]_____

Name of [Insurer or Risk Retention Group]:

_____

_____

Address of [Insurer or Risk Retention Group]:

_____

_____

Name of Insured: _____

Address of Insured: _____

_____

_____

Certification:

(1) [Name of Insurer or Risk Retention Group], [the "Insurer" or "Group"], except for the nonpayment of premium or misrepresentation by the insured, as identified above, hereby certifies that it has issued liability insurance covering the following underground storage tank(s):

[List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to 567—subrule 135.3(3) and the name and address of the facility.]

for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental release; in accordance with and subject to the limits of liability, exclusions, conditions, and other terms of the policy"; if coverage is different for different tanks or locations, indicate the type of coverage applicable to each tank or location] arising from operating the underground storage tank(s) identified above.

The limits of liability are [insert the dollar amount of the "each occurrence" and "annual aggregate" limits of the Insurer's or Group's liability; if the amount of coverage is different for different types of coverage or for different underground storage tanks or locations, indicate the amount of coverage for each type of coverage and/or for each underground storage tank or location], exclusive of legal defense costs which are subject to a separate limit under the policy. This coverage is provided under [policy number]. The effective date of said policy is [date].

(2) The ["Insurer" or "Group"] further certifies the following with respect to the insurance described in subparagraph (1):

1. Bankruptcy or insolvency of the insured shall not relieve the ["Insurer" or "Group"] of its obligations under the policy to which this certificate applies.

2. The ["Insurer" or "Group"] is liable for the payment of amounts within any deductible applicable to the policy to the provider of corrective action or a damaged third party, with a right of reimbursement by the insured for any such payment made by the ["Insurer" or "Group"]. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated under another mechanism or combination of mechanisms as specified in 567—136.6(455B) to 136.17(455B).

3. Whenever requested by the Director of the Iowa Department of Natural Resources, the ["Insurer" or "Group"] agrees to furnish to the director a signed duplicate original of the policy and all endorsements.

4. Cancellation or any other termination of the insurance by the ["Insurer" or "Group"] except for nonpayment of premium or misrepresentation by the insured will be effective only upon written notice and only after the expiration of 60 days after a copy of such written notice is received by the insured. Cancellation for nonpayment of premium or misrepresentation by the insured will be effective only upon written notice and only after expiration of a minimum of 10 days after a copy of such written notice is received by the insured.

Insert for claims-made policies:

5. The insurance covers claims otherwise covered by the policy that are reported to the ["Insured" or "Group"] within six months of the effective date of cancellation or nonrenewal of the policy except where the new or renewed policy has the same retroactive date or a retroactive date earlier than that of the prior policy, and which arise out of any covered occurrence that commenced after the policy retroactive date, if applicable, and prior to such policy renewal or termination date. Claims reported during such extended reporting period are subject to the terms, conditions, limits, including limits of liability, and exclusions of the policy.

6. The ["Insurer" or "Group"] will notify the insured and any additional named insured of the six-month extended reporting expiration date as provided in paragraph 136.8(2)*"b"*(2)"5" in any written final cancellation or nonrenewal notice in accordance with rule 567—136.18(455B).

7. Timely notice of a release and claim for coverage to the insurer by the Iowa Department of Natural Resources shall be deemed sufficient notice on behalf of the insured under the terms, conditions and exclusions of this policy. Notice by the department does not modify or enlarge the terms, conditions and exclusions of coverage but is only intended to preserve coverage to which the insured may otherwise be entitled under the policy.

I hereby certify that the wording of this instrument is identical to the wording in 567—subrule 136.8(2) "CERTIFICATE OF INSURANCE" and that the ["Insurer" or "Group"] is ["licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more states"].

[Signature of authorized representative of Insurer]

[Type name]

[Title], Authorized Representative of [name of Insurer or Risk Retention Group]

[Address of Representative]

136.8(3) Each insurance policy must be issued by an insurer or a risk retention group that, at a minimum, is licensed to transact the business of insurance or eligible to provide insurance as an excess or surplus lines insurer in one or more states.

567—136.9(455B) Surety bond.

136.9(1) An owner or operator may satisfy the requirements of rule 136.4(455B) by obtaining a surety bond that conforms to the requirements of this rule. The surety company issuing the bond must be among those listed as acceptable sureties on federal bonds in the latest Circular 570 of the U.S. Department of the Treasury.

136.9(2) The surety bond must be worded as follows, except that instructions in brackets must be replaced with the relevant information and the brackets deleted:

PERFORMANCE BOND

Date bond executed: _____

Period of coverage: _____

Principal: _____[legal name and business address of owner or operator]_____

Type of organization: [insert "individual," "joint venture," "partnership," or "corporation"]

State of incorporation (if applicable): _____

Surety(ies): _____[name(s) and business address(es)]_____

_____

Scope of Coverage: [List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to 567—subrule 135.3(3), and the name and address of the facility. List the coverage guaranteed by the bond: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases" "arising from operating the underground storage tank"].

Penal sums of bond: Per occurrence $ _____

Annual aggregate $ _____

Surety's bond number: _____

Know All Persons by These Presents, that we, the Principal and Surety(ies), hereto are firmly bound to The Iowa Department of Natural Resources, in the above penal sums for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sums jointly and severally only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sums only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sums.

Whereas said Principal is required under Subtitle I of the Resource Conservation and Recovery Act (RCRA), as amended, to provide financial assurance for [insert: "Taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases"; if coverage is different for

different tanks or locations, indicate the type of coverage applicable to each tank or location] arising from operating the underground storage tanks identified above, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, therefore, the conditions of the obligation are such that if the Principal shall faithfully ["take corrective action, in accordance with rule 567—135.7(455B) and the Director of the Iowa Department of Natural Resources instructions for," and/or "compensate injured third parties for bodily injury and property damage caused by" either "sudden" or "nonsudden" or "sudden and nonsudden"] accidental releases arising from operating the tank(s) identified above, or if the Principal shall provide alternate financial assurance, as specified in 567—Chapter 136, within 120 days after the date the notice of cancellation is received by the Principal from the Surety(ies), then this obligation shall be null and void; otherwise it is to remain in full force and effect.

Such obligation does not apply to any of the following:

a. Any obligation of [insert owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or other similar law;

b. Bodily injury to an employee of [insert owner or operator] arising from, and in the course of, employment by [insert owner or operator];

c. Bodily injury or property damage arising from the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft;

d. Property damage to any property owned, rented, loaned to, in the care, custody, or control of, or occupied by [insert owner or operator] that is not the direct result of a release from a petroleum underground storage tank;

e. Bodily injury or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement other than a contract or agreement entered into to meet the requirements of rule 567—136.4(455B).

The Surety(ies) shall become liable on the bond obligation only when the Principal has failed to fulfill the conditions described above.

Upon notification by the director of the Iowa department of natural resources that the Principal has failed to ["take corrective action, in accordance with rule 567—135.7(455B) and the director's instructions," and/or "compensate injured third parties"] as guaranteed by this bond, the Surety(ies) shall either perform ["corrective action in accordance with 567—Chapter 135 and the director's instructions," and/or "third-party liability compensation"] or place funds in an amount up to the annual aggregate penal sum into the standby trust fund as directed by the director under rule 567—136.7(455B).

Upon notification by the director that the Principal has failed to provide alternate financial assurance within 60 days after the date the notice of cancellation is received by the Principal from the Surety(ies) and that the director has determined or suspects that a release has occurred, the Surety(ies) shall place funds in an amount not exceeding the annual aggregate penal sum into the standby trust fund as directed by the director under rule 567—136.21(455B).

The Surety(ies) hereby waive(s) notification of amendments to applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the annual aggregate to the penal sum shown on the face of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said annual aggregate penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the Principal, provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by the Principal, as evidenced by the return receipt.

The Principal may terminate this bond by sending written notice to the Surety(ies).

In Witness Thereof, the Principal and Surety(ies) have executed this Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording of this surety bond is identical to the wording specified in 567—subrule 136.9(2) as such rules were constituted on the date this bond was executed.

PRINCIPAL

[Signature(s)]

[Name(s)]

[Title(s)]

[Corporate seal]

CORPORATE SURETY(IES)

[Name and address]

State of Incorporation: _____

Liability limit: $ _____

[Signature(s)]

[Name(s) and title(s)]

[Corporate seal]

[For every co-surety, provide signature(s), corporate seal, and other information in the same manner as for Surety above.]

Bond premium: $ _____

136.9(3) Under the terms of the bond, the surety will become liable on the bond obligation when the owner or operator fails to perform as guaranteed by the bond. In all cases, the surety's liability is limited to the per occurrence and annual aggregate penal sums.

136.9(4) The owner or operator who uses a surety bond to satisfy the requirements of rule 136.4 (455B)must establish a standby trust fund when the surety bond is acquired. Under the terms of the bond, all amounts paid by the surety under the bond will be deposited directly into the standby trust fund in accordance with instructions from the director under rule 136.23(455B). This standby trust fund must meet the requirements specified in rule 136.18(455B).

567—136.10(455B) Letter of credit.

136.10(1) An owner or operator may satisfy the requirements of rule 136.4(455B) by obtaining an irrevocable standby letter of credit that conforms to the requirements of this subrule. The issuing institution must be an entity that has the authority to issue letters of credit in Iowa and whose letter-of-credit operations are regulated and examined by a federal or state agency.

136.10(2) The letter of credit must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

IRREVOCABLE STANDBY LETTER OF CREDIT

[Name and address of issuing institution]
[Name and address of Director of Iowa Department of Natural Resources]

Dear Sir or Madam: We hereby establish our Irrevocable Standby Letter of Credit No. _____ in your favor, at the request and for the account of [owner or operator name] of [address] up to the aggregate amount of [in words] U.S. dollars ($[insert dollar amount]), available upon presentation of

(1) your sight draft, bearing reference to this letter of credit, No. _____ , and

(2) your signed statement reading as follows: "I certify that the amount of the draft is payable pursuant to regulations issued under authority of Subtitle I of the Resource Conservation and Recovery Act of 1976, as amended."

This letter of credit may be drawn on to cover [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases"] arising from operating the underground storage tank(s) identified below in the amount of [in words] $[insert dollar amount] per occurrence and [in words] $[insert dollar amount] annual aggregate:

[List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to 567—subrule 135.3(3) and the name and address of the facility.]

The letter of credit may not be drawn on to cover any of the following:

(a) Any obligation of [insert owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or other similar law;

(b) Bodily injury to an employee of [insert owner or operator] arising from, and in the course of, employment by [insert owner or operator];

(c) Bodily injury or property damage arising from the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft;

(d) Property damage to any property owned, rented, loaned to, in the care, custody, or control of, or occupied by [insert owner or operator] that is not the direct result of a release from a petroleum underground storage tank;

(e) Bodily injury or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement other than a contract or agreement entered into to meet the requirements of rule 567—136.4(455B).

This letter of credit is effective as of [date] and shall expire on [date], but such expiration date shall be automatically extended for a period of [at least the length of the original term] on [expiration date] and on each successive expiration date, unless, at least 120 days before the current expiration date, we notify [owner or operator] by certified mail that we have decided not to extend this letter of credit beyond the current expiration date. In the event that [owner or operator] is so notified, any unused portion of the credit shall be available upon presentation of your sight draft for 120 days after the date of receipt by [owner or operator], as shown on the signed return receipt.

Whenever this letter of credit is drawn on under and in compliance with the terms of this credit, we shall duly honor such draft upon presentation to us, and we shall deposit the amount of the draft directly into the standby trust fund of [owner or operator] in accordance with your instructions.

We certify that the wording of this letter of credit is identical to the wording specified in 567—subrule 136.10(2) as such regulations were constituted on the date shown immediately below.

[Signature(s) and title(s) of official(s) of issuing institution]
[Date]

This credit is subject to [insert "the most recent edition of the Uniform Customs and Practice for Documentary Credits, published by the International Chamber of Commerce," or "the Uniform Commercial Code"].

136.10(3) An owner or operator who uses a letter of credit to satisfy the requirements of 567—subrule 135.9(4) must also establish a standby trust fund when the letter of credit is acquired. Under the terms of the letter of credit, all amounts paid pursuant to a draft by the director will be deposited by the issuing institution directly into the standby trust fund in accordance with instructions from the director under rule 136.21(455B). This standby trust fund must meet the requirements specified in rule 136.12(455B).

136.10(4) The letter of credit must be irrevocable with a term specified by the issuing institution. The letter of credit must provide that credit be automatically renewed for the same term as the original term, unless, at least 120 days before the current expiration date, the issuing institution notifies the owner or operator by certified mail of its decision not to renew the letter of credit. Under the terms of the letter of credit, the 120 days will begin on the date when the owner or operator receives the notice, as evidenced by the return receipt.

567—136.11(455B) Trust fund.

136.11(1) An owner or operator may satisfy the requirements of rule 136.4(455B) by establishing a trust fund that conforms to the requirements of this rule. The trustee must be an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal agency or an agency of the state in which the fund is established.

136.11(2) The wording of the trust agreement must be identical to the wording specified in subrule 136.12(2), "TRUST AGREEMENT," and must be accompanied by a formal certification of acknowledgment as specified in subrule 136.12(2), "CERTIFICATION."

136.11(3) The trust fund, when established, must be funded for the full required amount of coverage, or funded for part of the required amount of coverage and used in combination with other mechanism(s) that provide the remaining required coverage.

136.11(4) If the value of the trust fund is greater than the required amount of coverage, the owner or operator may submit a written request to the director for release of the excess.

136.11(5) If other financial assurances as specified in this rule are substituted for all or part of the trust fund, the owner or operator may submit a written request to the director for release of the excess.

136.11(6) Within 60 days after receiving a request from the owner or operator for release of funds as specified in 136.11(4) or 136.11(5), the director will instruct the trustee to release to the owner or operator such funds as the director specifies in writing.

567—136.12(455B) Standby trust fund.

136.12(1) An owner or operator using any one of the mechanisms authorized by rules 136.7(455B), 136.9(455B) or 136.10(455B) must establish a standby trust fund when the mechanism is acquired. The trustee of the standby trust fund must be an entity that has the authority to act as a trustee and whose trust operations are regulated and examined by a federal agency or an agency of the state in which the fund is established.

136.12(2) The standby trust agreement or trust agreement must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the bracket deleted:

TRUST AGREEMENT

Trust agreement, the "Agreement," entered into as of [date] by and between [name of the owner or operator], a [name of state] [insert "corporation," "partnership," "association," or "proprietorship"], the "Grantor," and [name of corporate trustee], [insert "Incorporated in the state of _____" or "a national bank"], the "Trustee."

[Whereas, the Iowa Department of Natural Resources has established certain rules applicable to the Grantor, requiring that an owner or operator of an underground storage tank shall provide assurance that funds will be available when needed for corrective action and third-party

compensation for bodily injury and property damage caused by sudden and nonsudden accidental releases arising from the operation of the underground storage tank. The attached Schedule A lists the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located that are covered by the standby trust agreement.]

[Whereas, the Grantor has elected to establish [insert either "a guarantee," "surety bond," or "letter of credit"] to provide all or part of such financial assurance for the underground storage tanks identified herein and is required to establish a standby trust fund able to accept payments from the instrument (This paragraph is only applicable to the standby trust agreement.)];

[Whereas, the Grantor, acting through its duly authorized officers, has selected the Trustee to be the trustee under this agreement, and the Trustee is willing to act as trustee];

Now, therefore, the Grantor and the Trustee agree as follows:

Section 1. Definitions. As used in this Agreement:

(a) The term "Grantor" means the owner or operator who enters into this Agreement and any successors or assigns of the Grantor.

(b) The term "Trustee" means the Trustee who enters into this Agreement and any successor Trustee.

[*Section 2. Identification of the Financial Assurance Mechanism.* This Agreement pertains to the [identify the financial assurance mechanism, either a guarantee, surety bond, or letter of credit, from which the standby trust fund is established to receive payments (This paragraph is only applicable to the standby trust agreement.)].

Section 3. Establishment of Fund. The Grantor and the Trustee hereby establish a trust fund, the "Fund," for the benefit of the Iowa Department of Natural Resources. The Grantor and the Trustee intend that no third party have access to the Fund except as herein provided. [The Fund is established initially as a standby to receive payments and shall not consist of any property.] Payments made by the provider of financial assurance pursuant to the Director of the Iowa Department of Natural Resources. Instructions are transferred to the Trustee and are referred to as the Fund, together with all earnings and profits thereon, less any payments or distributions made by the Trustee pursuant to this Agreement. The Fund shall be held by the Trustee, IN TRUST, as hereinafter provided. The Trustee shall not be responsible nor shall it undertake any responsibility for the amount or adequacy of, nor any duty to collect from the Grantor as provider of financial assurance, any payments necessary to discharge any liability of the Grantor established by the Iowa Department of Natural Resources.

Section 4. Payment for ["Corrective Action" and/or "Third-Party Liability Claims"]. The Trustee shall make payments from the Fund as the Director of the Iowa Department of Natural Resources shall direct, in writing, to provide for the payment of the costs of [insert: "Taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases"] arising from operating the tanks covered by the financial assurance mechanism identified in this Agreement.

The Fund may not be drawn upon to cover any of the following:

(a) Any obligation of [insert owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or other similar law;

(b) Bodily injury to an employee of [insert owner or operator] arising from, and in the course of, employment by [insert owner or operator];

(c) Bodily injury or property damage arising from the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft;

(d) Property damage to any property owned, rented, loaned to, in the care, custody, or control of, or occupied by [insert owner or operator] that is not the direct result of a release from a petroleum underground storage tank;

(e) Bodily injury or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement other than a contract or agreement entered into to meet the requirements of rule 567—136.4(455B).

The Trustee shall reimburse the Grantor, or other persons as specified by the Director, from the Fund for corrective action expenditures and/or third-party liability claims in such amounts as the Director shall direct in writing. In addition, the Trustee shall refund to the Grantor such amounts as the Director specifies in writing. Upon refund, such funds shall no longer constitute part of the Fund as defined herein.

Section 5. Payments Comprising the Fund. Payments made to the Trustee for the Fund shall consist of cash and securities acceptable to the Trustee.

Section 6. Trustee Management. The Trustee shall invest and reinvest the principal and income of the Fund and keep the Fund invested as a single fund, without distinction between principal and income, in accordance with general investment policies and guidelines which the Grantor may communicate in writing to the Trustee from time to time, subject, however, to the provisions of this Section. In investing, reinvesting, exchanging, selling, and managing the Fund, the Trustee shall discharge duties with respect to the trust fund solely in the interest of the beneficiaries and with the care, skill, prudence, and diligence under the circumstances then prevailing which persons of prudence, acting in a like capacity and familiar with such matters, would use in the conduct of an enterprise of like character and with like aims; except that:

(i) Securities or other obligations of the Grantor, or any other owner or operator of the tanks, or any of their affiliates as defined in the Investment Company Act of 1940, as amended, 15 U.S.C. 80a-2(a), shall not be acquired or held, unless they are securities or other obligations of the federal or a state government;

(ii) The Trustee is authorized to invest the Fund in time or demand deposits of the Trustee, to the extent insured by an agency of the federal or state government; and

(iii) The Trustee is authorized to hold cash awaiting investment or distribution uninvested for a reasonable time and without liability for the payment of interest thereon.

Section 7. Commingling and Investment. The Trustee is expressly authorized in its discretion:

(a) To transfer from time to time any or all of the assets of the Fund to any common, commingled, or collective trust fund created by the Trustee in which the Fund is eligible to participate, subject to all of the provisions thereof, to be commingled with the assets of other trusts participating therein; and

(b) To purchase shares in any investment company registered under the Investment Company Act of 1940, 15 U.S.C. 80a-1 et seq., including one which may be created, managed, underwritten, or to which investment advice is rendered or the shares of which are sold by the Trustee. The Trustee may vote such shares in its discretion.

Section 8. Express Powers of Trustee. Without in any way limiting the powers and discretions conferred upon the Trustee by the other provisions of this Agreement or by law, the Trustee is expressly authorized and empowered:

(a) To sell, exchange, convey, transfer, or otherwise dispose of any property held by it, by public or private sale. No person dealing with the Trustee shall be bound to see to the application of the purchase money or to inquire into the validity or expediency of any such sale or other disposition;

(b) To make, execute, acknowledge, and deliver any and all documents of transfer and conveyance and any and all other instruments that may be necessary or appropriate to carry out the powers herein granted;

(c) To register any securities held in the Fund in its own name or in the name of a nominee and to hold any security in bearer form or in book entry, or to combine certificates representing such securities with certificates of the same issue held by the Trustee in other fiduciary capacities, or to deposit or arrange for the deposit of such securities in a qualified central depository even though, when so deposited, such securities may be merged and held in bulk in the name of the nominee of such depository with other securities deposited therein by another person, or to deposit or arrange for the deposit of any securities issued by the United States Government, or any agency or instrumentality thereof, with a Federal Reserve bank, but the books and records of the Trustee shall at all times show that all such securities are part of the Fund;

(d) To deposit any cash in the Fund in interest-bearing accounts maintained or saving certificates issued by the Trustee, in its separate corporate capacity, or in any other banking institution affiliated with the Trustee, to the extent insured by an agency of the federal or state government; and

(e) To compromise or otherwise adjust all claims in favor of or against the Fund.

Section 9. Taxes and Expenses. All taxes of any kind that may be assessed or levied against or in respect of the Fund and all brokerage commissions incurred by the Fund shall be paid from the Fund. All other expenses incurred by the Trustee in connection with the administration of this Trust, including fees for legal services rendered to the Trustee, the compensation of the Trustee to the extent not paid directly by the Grantor, and all other proper charges and disbursements of the Trustee shall be paid from the Fund.

Section 10. Advice of Counsel. The Trustee may from time to time consult with counsel, who may be counsel to the Grantor, with respect to any questions arising as to the construction of this Agreement or any action to be taken hereunder. The Trustee shall be fully protected, to the extent permitted by law, in acting upon the advice of counsel.

Section 11. Trustee Compensation. The Trustee shall be entitled to reasonable compensation for its services as agreed upon in writing from time to time with the Grantor.

Section 12. Successor Trustee. The Trustee may resign or the Grantor may replace the Trustee, but such resignation or replacement shall not be effective until the Grantor has appointed a successor trustee and this successor accepts the appointment. The successor trustee shall have the same powers and duties as those conferred upon the Trustee hereunder. Upon the successor trustee's acceptance of the appointment, the Trustee shall assign, transfer, and pay over to the successor trustee the funds and properties then constituting the Fund. If for any reason the Grantor cannot or does not act in the event of the resignation of the Trustee, the Trustee may apply to a court of competent jurisdiction for the appointment of a successor trustee or for instructions. The successor trustee shall specify the date on which it assumes administration of the trust in writing sent to the Grantor and the present Trustee by certified mail 10 days before such change becomes effective. Any expenses incurred by the Trustee as a result of any of the acts contemplated by this Section shall be paid as provided in Section 9.

Section 13. Instructions to the Trustee. All orders, requests and instructions by the Grantor to the Trustee shall be in writing, signed by such persons as are designated in the attached Schedule B or such other designees as the Grantor may designate by amendment to Schedule B. The Trustee shall be fully protected in acting without inquiry in accordance with the Grantor's orders, requests, and instructions. All orders, requests, and instructions by the Director of the Iowa Department of Natural Resources to the Trustee shall be in writing, signed by the Director, and the Trustee shall act and shall be fully protected in acting in accordance with such orders, requests, and instructions. The Trustee shall have the right to assume, in the absence of written notice to the contrary, that no event constituting a change or a termination of the authority of any person to act on behalf of the Grantor or the Director hereunder has occurred. The Trustee shall have no duty to act in the absence of such orders, requests, and instructions from the Grantor and/or the Director, except as provided for herein.

Section 14. Amendment of Agreement. This Agreement may be amended by an instrument in writing executed by the Grantor and the Trustee, or by the Trustee and the Director of the Iowa Department of Natural Resources if the Grantor ceases to exist.

Section 15. Irrevocability and Termination. Subject to the right of the parties to amend this Agreement as provided in Section 14, this Trust shall be irrevocable and shall continue until terminated at the written direction of the Grantor and the Trustee, or by the Trustee and the Director of the Iowa Department of Natural Resources, if the Grantor ceases to exist. Upon termination of the Trust, all remaining trust property, less final trust administration expenses, shall be delivered to the Grantor.

Section 16. Immunity and Indemnification. The Trustee shall not incur personal liability of any nature in connection with any act or omission, made in good faith, in the administration of

this Trust, or in carrying out any directions by the Grantor or the Director of the Iowa Department of Natural Resources issued in accordance with this Agreement. The Trustee shall be indemnified and saved harmless by the Grantor, from and against any personal liability to which the Trustee may be subjected by reason of any act or conduct in its official capacity, including all expenses reasonably incurred in its defense in the event the Grantor fails to provide such defense.

Section 17. Choice of Law. This Agreement shall be administered, construed, and enforced according to the laws of the state of Iowa, or the Comptroller of the Currency in the case of National Association banks.

Section 18. Interpretation. As used in this Agreement, words in the singular include the plural and words in the plural include the singular. The descriptive headings for each section of the Agreement shall not affect the interpretation or the legal efficacy of this Agreement.

In Witness whereof the parties have caused this Agreement to be executed by their respective officers duly authorized and their corporate seals (if applicable) to be hereunto affixed and attested as of the date first above written. The parties below certify that the wording of this Agreement is identical to the wording specified in 567—subrule 136.12(2) "TRUST AGREEMENT" as such regulations were constituted on the date written above.

[Signature of Grantor]
[Name of the Grantor]
[Title]

Attest:

[Signature of Trustee]
[Name of the Trustee]
[Title]
[Seal]

Attest:

[Signature of Witness]
[Name of Witness]
[Title]
[Seal]

The standby trust agreement must be accompanied by a formal certification of acknowledgment similar to the following.

CERTIFICATION

State of _____

County of _____

On this [date], before me personally came [owner or operator] to me known, who, being by me duly sworn, did depose and say that she/he resides at [address], that she/he is [title] of [corporation], the corporation described in and which executed the above instrument; that she/he knows the seal of said corporation; that the seal affixed to such instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation; and that she/he signed her/his name thereto by like order.

[Signature of Notary Public]
[Name of Notary Public]

136.12(3) The director of the Iowa department of natural resources instructs the trustee to refund the balance of the standby trust fund to the provider of financial assurance if the director determines that no additional corrective action costs of third-party liability claims will occur as a result of a release covered by the financial assurance mechanism for which the standby trust fund was established.

136.12(4) An owner or operator may establish one trust fund as the depository mechanism for all funds assured in compliance with this chapter.

567—136.13(455B) Local government bond rating test.

136.13(1) A general purpose local government owner or operator and/or local government serving as a guarantor may satisfy the requirements of rule 136.4(455B) by having a currently outstanding issue or issues of general obligation bonds of $1 million or more, excluding refunded obligations, with a Moody's rating of Aaa, Aa, A, or Baa, or a Standard & Poor's rating of AAA, AA, A, or BBB. Where a local government has multiple outstanding issues, or where a local government's bonds are rated by both Moody's and Standard & Poor's, the lower rating must be used to determine eligibility. Bonds that are backed by credit enhancement other than municipal bond insurance may not be considered in determining the amount of applicable bonds outstanding.

136.13(2) A local government owner or operator or local government serving as a guarantor that is not a general purpose local government and does not have the legal authority to issue general obligation bonds may satisfy the requirements of rule 136.4(455B) by having a currently outstanding issue or issues of revenue bonds of $1 million or more, excluding refunded issues, and having a Moody's rating of Aaa, Aa, A, or Baa, or a Standard & Poor's rating of AAA, AA, A, or BBB as the lowest rating for any rated revenue bond issued by the local government. Where bonds are rated by both Moody's and Standard & Poor's, the lower rating for each bond must be used to determine eligibility. Bonds that are backed by credit enhancement may not be considered in determining the amount of applicable bonds outstanding.

136.13(3) The local government owner or operator and/or guarantor must maintain a copy of its bond rating published within the last 12 months by Moody's or Standard & Poor's.

136.13(4) To demonstrate that it meets the local government bond rating test, the chief financial officer of a general purpose local government owner or operator and/or guarantor must sign a letter worded exactly as follows, except that the instructions in brackets are to be replaced by the relevant information and the brackets deleted:

Letter from Chief Financial Officer

I am the chief financial officer of [insert: name and address of local government owner or operator, or guarantor]. This letter is in support of the use of the bond rating test to demonstrate financial responsibility for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage"] caused by [insert: "sudden accidental releases" and/or "nonsudden accidental releases"] in the amount of at least [insert: dollar amount] per occurrence and [insert: dollar amount] annual aggregate arising from operating (an) underground storage tank(s).

Underground storage tanks at the following facilities are assured by this bond rating test: [List for each facility: the name and address of the facility where tanks are assured by the bond rating test].

The details of the issue date, maturity, outstanding amount, bond rating, and bond rating agency of all outstanding bond issues that are being used by [name of local government owner or operator, or guarantor] to demonstrate financial responsibility are as follows: [complete table]

Issue Date	Maturity Date	Outstanding Amount	Bond Rating	Rating Agency
				[Moody's or Standard & Poor's]

The total outstanding obligation of [insert amount], excluding refunded bond issues, exceeds the minimum amount of $1 million. All outstanding general obligation bonds issued by this government that have been rated by Moody's or Standard & Poor's are rated as at least investment grade (Moody's Baa or Standard & Poor's BBB) based on the most recent ratings published within the last 12 months. Neither rating service has provided notification within the last 12 months of downgrading of bond ratings below investment grade or of withdrawal of bond rating other than for repayment of outstanding bond issues.

I hereby certify that the wording of this letter is identical to the wording specified in 567—subrule 136.13(4) of the Iowa Administrative Code on the date shown immediately below.

[Signature]
[Name]
[Title]
[Date]

136.13(5) To demonstrate that it meets the local government bond rating test, the chief financial officer or local government owner or operator and/or guarantor other than a general purpose government must sign a letter worded exactly as follows, except that the instructions in brackets are to be replaced by the relevant information and the brackets deleted:

Letter from Chief Financial Officer

I am the chief financial officer of [insert: name and address of local government owner or operator, or guarantor]. This letter is in support of the use of the bond rating test to demonstrate financial responsibility for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage"] caused by [insert: "sudden accidental releases" and/or "nonsudden accidental releases"] in the amount of at least [insert: dollar amount] per occurrence and [insert: dollar amount] annual aggregate arising from operating (an) underground storage tank(s). This local government is not organized to provide general governmental services and does not have the legal authority under state law or constitutional provisions to issue general obligation debt.

Underground storage tanks at the following facilities are assured by this bond rating test: [List for each facility: the name and address of the facility where tanks are assured by the bond rating test].

The details of the issue date, maturity, outstanding amount, bond rating, and bond rating agency of all outstanding revenue bond issues that are being used by [name of local government owner or operator, or guarantor] to demonstrate financial responsibility are as follows: [complete table]

Issue Date	Maturity Date	Outstanding Amount	Bond Rating	Rating Agency
				[Moody's or Standard & Poor's]

The total outstanding obligation of [insert amount], excluding refunded bond issues, exceeds the minimum amount of $1 million. All outstanding revenue bonds issued by this government that have been rated by Moody's or Standard & Poor's are rated as at least investment grade (Moody's Baa or Standard & Poor's BBB) based on the most recent ratings published within the last 12 months. The revenue bonds listed are not backed by third-party credit enhancement or are insured by a municipal bond insurance company. Neither rating service has provided notification within the last 12 months of downgrading of bond ratings below investment grade or of withdrawal of bond rating other than for repayment of outstanding bond issues.

I hereby certify that the wording of this letter is identical to the wording specified in 567—subrule 136.13(5) of the Iowa Administrative Code on the date shown immediately below.

[Signature]
[Name]
[Title]
[Date]

136.13(6) The director of the Iowa department of natural resources may require reports of financial condition at any time from the local government owner or operator, and/or local government guarantor. If the director finds, on the basis of such reports or other information, that the local government owner or operator, and/or guarantor, no longer meets the local government bond rating test requirements of this rule, the local government owner or operator must obtain alternative coverage within 30 days after notification of such a finding.

136.13(7) If a local government owner or operator using the bond rating test to provide financial assurance finds that it no longer meets the bond rating test requirements, the local government owner or operator must obtain alternative coverage within 150 days of the change in status.

567—136.14(455B) Local government financial test.

136.14(1) A local government owner or operator may satisfy the requirements of rule 136.4(455B) by passing the financial test specified therein. To be eligible to use the financial test, the local government owner or operator must have the ability and authority to assess and levy taxes or to freely establish fees and charges.

To pass the local government financial test, the owner or operator must meet the criteria of subrules 136.14(3) and 136.14(4) based on year-end financial statements for the latest completed fiscal year.

136.14(2) The local government owner or operator must have the following information available, as shown in the year-end financial statements for the latest completed fiscal year:

a. *Total revenues.* Total revenues consist of the sum of general fund operating and nonoperating revenues including net local taxes, licenses and permits, fines and forfeitures, revenues from use of money and property, charges for services, investment earnings, sales (property, publications, etc.), intergovernmental revenues (restricted and unrestricted), and total revenues from all other governmental funds including enterprise, debt service, capital projects, and special revenues, but excluding revenues to funds held in a trust or agency capacity. For purposes of this test, the calculation of total revenues shall exclude all transfers between funds under the direct control of the local government using the financial test (interfund transfers), liquidation of investments, and issuance of debt.

b. *Total expenditures.* Total expenditures consist of the sum of general fund operating and nonoperating expenditures including public safety, public utilities, transportation, public works, environmental protection, cultural and recreational, community development, revenue sharing, employee benefits and compensation, office management, planning and zoning, capital projects, interest payments on debt, payments for retirement of debt principal, and total expenditures from all other governmental funds including enterprise, debt service, capital projects, and special revenues. For purposes of this test, the calculation of total expenditures shall exclude all transfers between funds under the direct control of the local government using the financial test (interfund transfers).

c. *Local revenues.* Local revenues consist of total revenues, as defined in paragraph 136.14(2)*"a,"* minus the sum of all transfers from other governmental entities, including all moneys received from federal, state, or local government sources.

d. *Debt service.* Debt service consists of the sum of all interest and principal payments on all long-term credit obligations and all interest-bearing short-term credit obligations; includes interest and principal payments on general obligation bonds, revenue bonds, notes, mortgages, judgments, and interest-bearing warrants; and excludes payments on noninterest-bearing short-term obligations, interfund obligations, amounts owed in a trust or agency capacity, and advances and contingent loans from other governments.

e. *Total funds.* Total funds consist of the sum of cash and investment securities from all funds, including general, enterprise, debt service, capital projects, and special revenue funds, but excluding employee retirement funds, at the end of the local government's financial reporting year. Total funds include federal securities, federal agency securities, state and local government securities, and other securities such as bonds, notes and mortgages. For purposes of this test, the calculation of total funds shall exclude agency funds, private trust funds, accounts receivable, value of real property, and other nonsecurity assets.

f. *Population.* Population consists of the number of people in the area served by the local government.

136.14(3) The local government's year-end financial statements, if independently audited, cannot include an adverse auditor's opinion or a disclaimer of opinion. The local government cannot have outstanding issues of general obligation or revenue bonds that are rated as less than investment grade.

136.14(4) The local government owner or operator must have a letter signed by the chief financial officer worded as specified in subrule 136.14(5).

136.14(5) To demonstrate that it meets the financial test under subrules 136.14(2) to 136.14(4), the chief financial officer of the local government owner or operator must sign, within 120 days of the close of each financial reporting year, as defined by the 12-month period for which financial statements used to support the financial test are prepared, a letter worded exactly as follows, except that the instructions in brackets are to be replaced by the relevant information and the brackets deleted:

Letter from Chief Financial Officer

I am the chief financial officer of [insert: name and address of the owner or operator]. This letter is in support of the use of the local government financial test to demonstrate financial responsibility for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage"] caused by [insert: "sudden accidental releases" and/or "nonsudden accidental releases"] in the amount of at least [insert: dollar amount] per occurrence and [insert: dollar amount] annual aggregate arising from operating (an) underground storage tank(s).

Underground storage tanks at the following facilities are assured by this financial test [List for each facility: the name and address of the facility where tanks assured by this financial test are located. If separate mechanisms or combinations of mechanisms are being used to assure any of the tanks at this facility, list each tank assured by this financial test by the tank identification number provided in the notification submitted pursuant to 567—135.3(455B) of the Iowa Administrative Code.]

This owner or operator has not received an adverse opinion, or a disclaimer of opinion from an independent auditor on its financial statements for the latest completed fiscal year. Any outstanding issues of general obligation or revenue bonds, if rated, have a Moody's rating of Aaa, Aa, A, or Baa or a Standard & Poor's rating of AAA, AA, A, or BBB; if rated by both firms, the bonds have a Moody's rating of Aaa, Aa, A, or Baa and a Standard & Poor's rating of AAA, AA, A, or BBB.

WORKSHEET FOR MUNICIPAL FINANCIAL TEST

PART I: BASIC INFORMATION

1. Total Revenues

a. Revenues (dollars) _____

Value of revenues excludes liquidation of investments and issuance of debt.

Value includes all general fund operating and nonoperating revenues, as well as all revenues from all other governmental funds including enterprise, debt service, capital projects, and special revenues, but excluding revenues to funds held in a trust or agency capacity.

b. Subtract interfund transfers (dollars) _____

c. Total Revenues (dollars) _____

2. Total Expenditures

a. Expenditures (dollars) _____

Value consists of the sum of general fund operating and nonoperating expenditures including interest payments on debt, payments for retirement of debt principal, and total expenditures from all other governmental funds including enterprise, debt service, capital projects, and special revenues.

b. Subtract interfund transfers (dollars) _____

c. Total expenditures (dollars) _____

3. Local Revenues

a. Total Revenues (from 1c) (dollars) _____
b. Subtract total intergovernmental transfers (dollars) _____
c. Local Revenues (dollars) _____

4. Debt Service

a. Interest and fiscal charges (dollars) _____
b. Add debt retirement (dollars) _____
c. Total Debt Service (dollars) _____

5. Total Funds (dollars)

(Sum of amounts held as cash and investment securities from all funds, excluding amounts held for employee retirement funds, agency funds, and trust funds) _____

6. Population (persons) _____

PART II: APPLICATION OF TEST

7. Total Revenues to Population

a. Total Revenues (from 1c) _____
b. Population (from 6) _____
c. Divide 7a by 7b _____
d. Subtract 417 _____
e. Divide by 5,212 _____
f. Multiply by 4.095 _____

8. Total Expenses to Population

a. Total Expenditures (from 2c) _____
b. Population (from 6) _____
c. Divide 8a by 8b _____
d. Subtract 524 _____
e. Divide by 5,401 _____
f. Multiply by 4.095 _____

9. Local Revenues to Total Revenues

a. Local Revenues (from 3c) _____
b. Total Revenues (from 1c) _____
c. Divide 9a by 9b _____
d. Subtract .695 _____
e. Divide by .205 _____
f. Multiply by 2.840 _____

10. Debt Service to Population

a. Debt Service (from 4c) _____
b. Population (from 6) _____
c. Divide 10a by 10b _____
d. Subtract 51 _____
e. Divide by 1,038 _____
f. Multiply by - 1.866 _____

11. Debt Service to Total Revenues

a. Debt Service (from 4c) _____
b. Total Revenues (from 1c) _____
c. Divide 11a by 11b _____
d. Subtract .068 _____
e. Divide by .259 _____
f. Multiply by - 3.533 _____

12. Total Revenues to Total Expenses

a. Total Revenues (from 1c) _____
b. Total Expenditures (from 2c) _____
c. Divide 12a by 12b _____
d. Subtract .910 _____
e. Divide by .899 _____
f. Multiply by 3.458 _____

13. Funds Balance to Total Revenues

a. Total Funds (from 5) _____
b. Total Revenues (from 1c) _____
c. Divide 13a by 13b _____
d. Subtract .891 _____
e. Divide by 9.156 _____
f. Multiply by 3.270 _____

14. Funds Balance to Total Expenses

a. Total Funds (from 5) _____
b. Total Expenditures (from 2c) _____
c. Divide 14a by 14b _____
d. Subtract .866 _____
e. Divide by 6.409 _____
f. Multiply by 3.270 _____

15. Total Funds to Population

a. Total Funds (from 5) _____
b. Population (from 6) _____
c. Divide 15a by 15b _____
d. Subtract 270 _____
e. Divide by 4,548 _____
f. Multiply by 1.866 _____

16. Add 7f + 8f + 9f + 10f + 11f + 12f + 13f + 14f + 15f + 4.937 _____

I hereby certify that the financial index shown on line 16 of the worksheet is greater than zero and that the wording of this letter is identical to the wording specified in 567—subrule 136.14(5) of the Iowa Administrative Code on the date shown immediately below.

[Signature]
[Name]
[Title]
[Date]

136.14(6) If a local government owner or operator using the test to provide financial assurance finds that it no longer meets the requirements of the financial test based on the year-end financial statements, the owner or operator must obtain alternative coverage within 150 days of the end of the year for which financial statements have been prepared.

136.14(7) The director of the Iowa department of natural resources may require reports of financial condition at any time from the local government owner or operator. If the director finds, on the basis of such reports or other information, that the local government owner or operator no longer meets the financial test requirements of subrules 136.13(2) to 136.13(5), the owner or operator must obtain alternate coverage within 30 days after notification of such a finding.

136.14(8) If the local government owner or operator fails to obtain alternate assurance within 150 days of finding that it no longer meets the requirements of the financial test based on the year-end financial statements or within 30 days of notification by the director of the Iowa department of natural resources that it no longer meets the requirements of the financial test, the owner or operator must notify the director of such failure within 10 days.

567—136.15(455B) Local government guarantee.

136.15(1) A local government owner or operator may satisfy the requirements of rule 136.4(455B) by obtaining a guarantee that conforms to the requirements of this rule. The guarantor must be either the state in which the local government owner or operator is located or a local government having a "substantial governmental relationship" with the owner and operator and issuing the guarantee as an act incident to that relationship. A local government acting as a guarantor must:

a. Demonstrate that it meets the bond rating test requirement of rule 136.13(455B) and deliver a copy of the chief financial officer's letter as contained in subrule 136.13(4) to the local government owner or operator; or

b. Demonstrate that it meets the worksheet test requirements of rule 136.14(455B) and deliver a copy of the chief financial officer's letter as contained in subrule 136.14(5) to the local government owner or operator; or

c. Demonstrate that it meets the local government fund requirements of subrule 136.16(1), 136.16(2), or 136.16(3) and deliver a copy of the chief financial officer's letter as contained in rule 136.16(455B) to the local government owner or operator.

136.15(2) If the local government guarantor is unable to demonstrate financial assurance under rule 136.13(455B) or 136.14(455B) or subrule 136.16(1), 136.16(2), or 136.16(3) at the end of the financial reporting year, the guarantor shall send by certified mail, before cancellation or nonrenewal of

the guarantee, notice to the owner or operator. The guarantee will terminate no less than 120 days after the date the owner or operator receives the notification, as evidenced by the return receipt. The owner or operator must obtain alternative coverage as specified in subrule 136.23(3).

136.15(3) The guarantee agreement must be worded as specified in subrule 136.15(4) or 136.15(5), depending on which of the following alternative guarantee arrangements is selected:

a. If, in the default or incapacity of the owner or operator, the guarantor guarantees to fund a standby trust as directed by the director of the Iowa department of natural resources, the guarantee shall be worded as specified in 136.15(4).

b. If, in the default or incapacity of the owner or operator, the guarantor guarantees to make payments as directed by the director of the Iowa department of natural resources for taking corrective action or compensating third parties for bodily injury and property damage, the guarantee shall be worded as specified in subrule 136.15(5).

136.15(4) If the guarantor is a state, the local government guarantee with standby trust must be worded as specified in paragraph *"a,"* except that instructions in brackets are to be replaced with relevant information and the brackets deleted. If the guarantor is a local government, the local government guarantee with standby trust must be worded as specified in paragraph *"b,"* except that instructions in brackets are to be replaced with relevant information and the brackets deleted.

a. Local Government Guarantee With Standby Trust Made by a State Guarantee made this [date] by [name of state], herein referred to as guarantor, to Iowa department of natural resources and to any and all third parties, and obligees, on behalf of [local government owner or operator].

Recitals

(1) Guarantor is a state.

(2) [Local government owner or operator] owns or operates the following underground storage tank(s) covered by this guarantee: [List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to 567—Chapter 135 of the Iowa Administrative Code (IAC), and the name and address of the facility.] This guarantee satisfies 567—Chapter 136 IAC requirements for assuring funding for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases"; if coverage is different for different tanks or locations, indicate the type of coverage applicable to each tank or location] arising from operating the above-identified underground storage tank(s) in the amount of [insert dollar amount] per occurrence and [insert dollar amount] annual aggregate.

(3) Guarantor guarantees to Iowa department of natural resources and to any and all third parties that:

In the event that [local government owner or operator] fails to provide alternative coverage within 60 days after receipt of a notice of cancellation of this guarantee and the [director] of the Iowa department of natural resources has determined or suspects that a release has occurred at an underground storage tank covered by this guarantee, the guarantor, upon instructions from the director shall fund a standby trust fund in accordance with the provisions of 567—136.21(455B) IAC, in an amount not to exceed the coverage limits specified above.

In the event that the [director] determines that [local government owner or operator] has failed to perform corrective action for releases arising out of the operation of the above-identified tank(s) in accordance with 567—Chapter 135 IAC, the guarantor upon written instructions from the director shall fund a standby trust fund in accordance with the provisions of 567—136.21(455B) IAC, in an amount not to exceed the coverage limits specified above.

If [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental releases arising from the operation of the above-identified tank(s), or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor, upon

written instructions from the [director], shall fund a standby trust in accordance with the provisions of 567—136.21(455B) IAC to satisfy such judgment(s), award(s), or settlement agreement(s) up to the limits of coverage specified above.

(4) Guarantor agrees to notify [owner or operator] by certified mail of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code naming guarantor as debtor, within 10 days after commencement of the proceeding.

(5) Guarantor agrees to remain bound under this guarantee notwithstanding any modification or alteration of any obligation of [owner or operator] pursuant to 567—Chapter 135 or 136 IAC.

(6) Guarantor agrees to remain bound under this guarantee for so long as [local government owner or operator] must comply with the applicable financial responsibility requirements of 567—Chapter 136 IAC for the above-identified tank(s), except that guarantor may cancel this guarantee by sending notice by certified mail to [owner or operator], such cancellation to become effective no earlier than 120 days after receipt of such notice by [owner or operator], as evidenced by the return receipt.

(7) The guarantor's obligation does not apply to any of the following:

1. Any obligation of [local government owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or other similar law;

2. Bodily injury to an employee of [insert: local government owner or operator] arising from, and in the course of, employment by [insert: local government owner or operator];

3. Bodily injury or property damage arising from the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft;

4. Property damage to any property owned, rented, loaned to, in the care, custody, or control of, or occupied by [insert: local government owner or operator] that is not the direct result of a release from a petroleum underground storage tank;

5. Bodily damage or property damage for which [insert owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement other than a contract or agreement entered into to meet the requirements of 567—136.4(455B) IAC.

(8) Guarantor expressly waives notice of acceptance of this guarantee by the Iowa department of natural resources, by any or all third parties, or by [local government owner or operator].

I hereby certify that the wording of this guarantee is identical to the wording specified in 567—subrule 136.14(4) IAC on the effective date shown immediately below.

Effective date:

[Name of guarantor]

[Authorized signature for guarantor]

[Name of person signing]

[Title of person signing]

Signature of witness or notary:

b. Local Government Guarantee With Standby Trust Made by a Local Government Guarantee made this [date] by [name of guaranteeing entity], a local government organized under the laws of Iowa, herein referred to as guarantor, to the Iowa department of natural resources and to any and all third parties, and obligees, on behalf of [local government owner or operator].

Recitals

(1) Guarantor meets or exceeds [select one: the local government bond rating test requirements of 567—136.13(455B) of the Iowa Administrative Code (IAC), the local government financial test requirements of 567—136.14(455B) IAC, or the local government fund under 567—subrule 136.16(1), 136.16(2), or 136.16(3) IAC.

(2) [Local government owner or operator] owns or operates the following underground storage tank(s) covered by this guarantee: [List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to 567—135.3(455B) IAC or the corresponding

state requirement, and the name and address of the facility.] This guarantee satisfies 567—Chapter 136 IAC requirements for assuring funding for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases"; if coverage is different for different tanks or locations, indicate the type of coverage applicable to each tank or location] arising from operating the above-identified underground storage tank(s) in the amount of [insert: dollar amount] per occurrence and [insert: dollar amount] annual aggregate.

(3) Incident to our substantial governmental relationship with [local government owner or operator], guarantor guarantees to the Iowa department of natural resources and to any and all third parties that:

In the event that [local government owner or operator] fails to provide alternative coverage within 60 days after receipt of a notice of cancellation of this guarantee and the director of the Iowa department of natural resources has determined or suspects that a release has occurred at an underground storage tank covered by this guarantee, the guarantor, upon instructions from the [director], shall fund a standby trust fund in accordance with the provisions of 567—136.21(455B) IAC, in an amount not to exceed the coverage limits specified above.

In the event that the [director] determines that [local government owner or operator] has failed to perform corrective action for releases arising out of the operation of the above-identified tank(s) in accordance with 567—Chapter 135 IAC, the guarantor, upon written instructions from the [director], shall fund a standby trust fund in accordance with the provisions of 567—136.21(455B) IAC, in an amount not to exceed the coverage limits specified above.

If [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental releases arising from the operation of the above-identified tank(s), or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor, upon written instructions from the [director], shall fund a standby trust in accordance with the provisions of 567—136.21(455B) IAC to satisfy such judgment(s), award(s), or settlement agreement(s) up to the limits of coverage specified above.

(4) Guarantor agrees that, if at the end of any fiscal year before cancellation of this guarantee, the guarantor fails to meet or exceed the requirements of the financial responsibility mechanism specified in paragraph (1), guarantor shall send within 120 days of such failure, by certified mail, notice to [local government owner or operator], as evidenced by the return receipt.

(5) Guarantor agrees to notify [owner or operator] by certified mail of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

(6) Guarantor agrees to remain bound under this guarantee notwithstanding any modification or alteration of any obligation of [owner or operator] pursuant to 567—Chapter 135 or 136 IAC.

(7) Guarantor agrees to remain bound under this guarantee for so long as [local government owner or operator] must comply with the applicable financial responsibility requirements of 567—Chapter 136 IAC for the above-identified tank(s), except that guarantor may cancel this guarantee by sending notice by certified mail to [owner or operator], such cancellation to become effective no earlier than 120 days after receipt of such notice by [owner or operator], as evidenced by the return receipt.

(8) The guarantor's obligation does not apply to any of the following:

1. Any obligation of [local government owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or other similar law;

2. Bodily injury to an employee of [insert: local government owner or operator] arising from, and in the course of, employment by [insert: local government owner or operator];

3. Bodily injury or property damage arising from the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft;

4. Property damage to any property owned, rented, loaned to, in the care, custody, or control of, or occupied by [insert: local government owner or operator] that is not the direct result of a release from a petroleum underground storage tank;

5. Bodily damage or property damage for which [insert: owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement other than a contract or agreement entered into to meet the requirements of 567—136.4(455B) IAC.

(9) Guarantor expressly waives notice of acceptance of this guarantee by the Iowa department of natural resources, by any or all third parties, or by [local government owner or operator].

I hereby certify that the wording of this guarantee is identical to the wording specified in 567—subrule 136.15(4) IAC on the effective date shown immediately below.

Effective date:

[Name of guarantor]

[Authorized signature for guarantor]

[Name of person signing]

[Title of person signing]

Signature of witness or notary:

136.15(5) If the guarantor is a state, the local government guarantee without standby trust must be worded as specified in paragraph *"a,"* except that instructions in brackets are to be replaced with relevant information and the brackets deleted. If the guarantor is a local government, the local government guarantee without standby trust must be worded as specified in paragraph *"b,"* except that instructions in brackets are to be replaced with relevant information and the brackets deleted.

a. Local Government Guarantee Without Standby Trust Made by a State Guarantee made this [date] by [name of state], herein referred to as guarantor, to the Iowa department of natural resources and to any and all third parties, and obligees, on behalf of [local government owner or operator].

Recitals

(1) Guarantor is a state.

(2) [Local government owner or operator] owns or operates the following underground storage tank(s) covered by this guarantee: [List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to 567—Chapter 135 of the Iowa Administrative Code (IAC), and the name and address of the facility.] This guarantee satisfies 567—Chapter 136 IAC requirements for assuring funding for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases"; if coverage is different for different tanks or locations, indicate the type of coverage applicable to each tank or location] arising from operating the above-identified underground storage tank(s) in the amount of [insert: dollar amount] per occurrence and [insert: dollar amount] annual aggregate.

(3) Guarantor guarantees to the department of natural resources and to any and all third parties and obligees that:

In the event that [local government owner or operator] fails to provide alternative coverage within 60 days after receipt of a notice of cancellation of this guarantee and the director of the Iowa department of natural resources has determined or suspects that a release has occurred at an underground storage tank covered by this guarantee, the guarantor, upon written instructions from the [director], shall make funds available to pay for corrective actions and compensate third parties for bodily injury and property damage in an amount not to exceed the coverage limits specified above.

In the event that the [director] determines that [local government owner or operator] has failed to perform corrective action for releases arising out of the operation of the above-identified tank(s) in accordance with 567—Chapter 135 IAC, the guarantor, upon written instructions from the [director], shall make funds available to pay for corrective actions in an amount not to exceed the coverage limits specified above.

If [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental releases arising from the operation of the above-identified tank(s), or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor, upon written instructions from the [director], shall make funds available to compensate third parties for bodily injury and property damage in an amount not to exceed the coverage limits specified above.

(4) Guarantor agrees to notify [owner or operator] by certified mail of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

(5) Guarantor agrees to remain bound under this guarantee notwithstanding any modification or alteration of any obligation of [owner or operator] pursuant to 567—Chapter 135 or 136 IAC.

(6) Guarantor agrees to remain bound under this guarantee for so long as [local government owner or operator] must comply with the applicable financial responsibility requirements of 567—Chapter 136 IAC for the above-identified tank(s), except that guarantor may cancel this guarantee by sending notice by certified mail to [owner or operator], such cancellation to become effective no earlier than 120 days after receipt of such notice by [owner or operator], as evidenced by the return receipt. If notified of a probable release, the guarantor agrees to remain bound to the terms of this guarantee for all charges arising from the release, up to the coverage limits specified above, notwithstanding the cancellation of the guarantee with respect to future releases.

(7) The guarantor's obligation does not apply to any of the following:

1. Any obligation of [local government owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or other similar law;

2. Bodily injury to an employee of [insert: local government owner or operator] arising from, and in the course of, employment by [insert: local government owner or operator];

3. Bodily injury or property damage arising from the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft;

4. Property damage to any property owned, rented, loaned to, in the care, custody, or control of, or occupied by [insert: local government owner or operator] that is not the direct result of a release from a petroleum underground storage tank;

5. Bodily damage or property damage for which [insert: owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement other than a contract or agreement entered into to meet the requirements of 567—136.4(455B) IAC.

(8) Guarantor expressly waives notice of acceptance of this guarantee by [the implementing agency], by any or all third parties, or by [local government owner or operator].

I hereby certify that the wording of this guarantee is identical to the wording specified in 567—subrule 136.15(5) IAC on the effective date shown immediately below.

Effective date:

[Name of guarantor]

[Authorized signature for guarantor]

[Name of person signing]

[Title of person signing]

Signature of witness or notary:

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b. Local Government Guarantee Without Standby Trust Made by a Local Government Guarantee made this [date] by [name of guaranteeing entity], a local government organized under the laws of [name of state], herein referred to as guarantor, to the Iowa department of natural resources and to any and all third parties, and obligees, on behalf of [local government owner or operator].

Recitals

(1) Guarantor meets or exceeds [select one: the local government bond rating test requirements of 567—136.13(455B) of the Iowa Administrative Code (IAC), the local government financial test

requirements of 567—136.14(455B) IAC, the local government fund under 567—subrule 136.16(1), 136.16(2) or 136.16(3) IAC.

(2) [Local government owner or operator] owns or operates the following underground storage tank(s) covered by this guarantee: [List the number of tanks at each facility and the name(s) and address(es) of the facility(ies) where the tanks are located. If more than one instrument is used to assure different tanks at any one facility, for each tank covered by this instrument, list the tank identification number provided in the notification submitted pursuant to 567—Chapter 135 IAC or the corresponding state requirement, and the name and address of the facility.] This guarantee satisfies 567—Chapter 136 IAC requirements for assuring funding for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases"; if coverage is different for different tanks or locations, indicate the type of coverage applicable to each tank or location] arising from operating the above-identified underground storage tank(s) in the amount of [insert: dollar amount] per occurrence and [insert: dollar amount] annual aggregate.

(3) Incident to our substantial governmental relationship with [local government owner or operator], guarantor guarantees to the Iowa department of natural resources and to any and all third parties and obligees that:

In the event that [local government owner or operator] fails to provide alternative coverage within 60 days after receipt of a notice of cancellation of this guarantee and the director of the Iowa department of natural resources has determined or suspects that a release has occurred at an underground storage tank covered by this guarantee, the guarantor, upon written instructions from the [director], shall make funds available to pay for corrective actions and compensate third parties for bodily injury and property damage in an amount not to exceed the coverage limits specified above.

In the event that the [director] determines that [local government owner or operator] has failed to perform corrective action for releases arising out of the operation of the above-identified tank(s) in accordance with 567—Chapter 135 IAC, the guarantor, upon written instructions from the [director], shall make funds available to pay for corrective actions in an amount not to exceed the coverage limits specified above.

If [owner or operator] fails to satisfy a judgment or award based on a determination of liability for bodily injury or property damage to third parties caused by ["sudden" and/or "nonsudden"] accidental releases arising from the operation of the above-identified tank(s), or fails to pay an amount agreed to in settlement of a claim arising from or alleged to arise from such injury or damage, the guarantor, upon written instructions from the [director], shall make funds available to compensate third parties for bodily injury and property damage in an amount not to exceed the coverage limits specified above.

(4) Guarantor agrees that if at the end of any fiscal year before cancellation of this guarantee, the guarantor fails to meet or exceed the requirements of the financial responsibility mechanism specified in paragraph (1), guarantor shall send within 120 days of such failure, by certified mail, notice to [local government owner or operator], as evidenced by the return receipt.

(5) Guarantor agrees to notify [owner or operator] by certified mail of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

(6) Guarantor agrees to remain bound under this guarantee notwithstanding any modification or alteration of any obligation of [owner or operator] pursuant to 567—Chapter 135 or 136 IAC.

(7) Guarantor agrees to remain bound under this guarantee for so long as [local government owner or operator] must comply with the applicable financial responsibility requirements of 567—Chapter 136 IAC for the above-identified tank(s), except that guarantor may cancel this guarantee by sending notice by certified mail to [owner or operator], such cancellation to become effective no earlier than 120 days after receipt of such notice by [owner or operator], as evidenced by the return receipt. If notified of a probable release, the guarantor agrees to remain bound to the terms of this guarantee for all charges arising from the release, up to the coverage limits specified above, notwithstanding the cancellation of the guarantee with respect to future releases.

(8) The guarantor's obligation does not apply to any of the following:

1. Any obligation of [local government owner or operator] under a workers' compensation, disability benefits, or unemployment compensation law or other similar law;

2. Bodily injury to an employee of [insert: local government owner or operator] arising from, and in the course of, employment by [insert: local government owner or operator];

3. Bodily injury or property damage arising from the ownership, maintenance, use, or entrustment to others of any aircraft, motor vehicle, or watercraft;

4. Property damage to any property owned, rented, loaned to, in the care, custody, or control of, or occupied by [insert: local government owner or operator] that is not the direct result of a release from a petroleum underground storage tank;

5. Bodily damage or property damage for which [insert: owner or operator] is obligated to pay damages by reason of the assumption of liability in a contract or agreement other than a contract or agreement entered into to meet the requirements of 567—136.4(455B) IAC.

(9) Guarantor expressly waives notice of acceptance of this guarantee by the Iowa department of natural resources, by any or all third parties, or by [local government owner or operator].

I hereby certify that the wording of this guarantee is identical to the wording specified in 567—subrule 136.15(5) IAC on the effective date shown immediately below.

Effective date:

[Name of guarantor]

[Authorized signature for guarantor]

[Name of person signing]

[Title of person signing]

Signature of witness or notary:

567—136.16(455B) Local government fund. A local government owner or operator may satisfy the requirements of rule 136.4(455B) by establishing a dedicated fund account that conforms to the requirements of this rule. Except as specified in subrule 136.16(2), a dedicated fund may not be commingled with other funds or otherwise used in normal operations. A dedicated fund will be considered eligible if it meets one of the following requirements:

136.16(1) The fund is dedicated by state constitutional provision, or local government statute, charter, ordinance, or order to pay for taking corrective action and for compensating third parties for bodily injury and property damage caused by accidental releases arising from the operation of petroleum underground storage tanks and is funded for the full amount of coverage required under rule 136.4(455B), or funded for part of the required amount of coverage and used in combination with other mechanism(s) that provide the remaining coverage; or

136.16(2) The fund is dedicated by state constitutional provision, or local government statute, charter, ordinance, or order as a contingency fund for general emergencies, including taking corrective action and compensating third parties for bodily injury and property damage caused by accidental releases arising from the operation of petroleum underground storage tanks, and is funded for five times the full amount of coverage required under rule 136.4(455B), or funded for part of the required amount of coverage and used in combination with other mechanism(s) that provide the remaining coverage. If the fund is funded for less than five times the amount of coverage required under rule 136.4(455B), the amount of financial responsibility demonstrated by the fund may not exceed one-fifth the amount in the fund; or

136.16(3) The fund is dedicated by state constitutional provision, or local government statute, charter, ordinance, or order to pay for taking corrective action and for compensating third parties for bodily injury and property damage caused by accidental releases arising from the operation of petroleum underground storage tanks. A payment is made to the fund once every year for seven years until the fund is fully funded. This seven-year period is hereafter referred to as the "pay-in period." The amount of each payment must be determined by this formula:

$$\underline{TF - CF}$$

Y

Where TF is the total required financial assurance for the owner or operator, CF is the current amount in the fund, and Y is the number of years remaining in the pay-in period; and

a. The local government owner or operator has available bonding authority, approved through voter referendum (if such approval is necessary prior to the issuance of bonds), for an amount equal to the difference between the required amount of coverage and the amount held in the dedicated fund. This bonding authority shall be available for taking corrective action and for compensating third parties for bodily injury and property damage caused by accidental releases arising from the operation of petroleum underground storage tanks, or

b. The local government owner or operator has a letter signed by the appropriate state attorney general stating that the use of the bonding authority will not increase the local government's debt beyond the legal debt ceilings established by the relevant state laws. The letter must also state that prior voter approval is not necessary before use of the bonding authority.

136.16(4) To demonstrate that it meets the requirements of the local government fund, the chief financial officer of the local government owner or operator and/or guarantor must sign a letter worded exactly as follows, except that the instructions in brackets are to be replaced by the relevant information and the brackets deleted:

Letter from Chief Financial Officer

I am the chief financial officer of [insert: name and address of local government owner or operator, or guarantor]. This letter is in support of the use of the local government fund mechanism to demonstrate financial responsibility for [insert: "taking corrective action" and/or "compensating third parties for bodily injury and property damage"] caused by [insert: "sudden accidental releases" and/or "nonsudden accidental releases"] in the amount of at least [insert: dollar amount] per occurrence and [insert: dollar amount] annual aggregate arising from operating (an) underground storage tank(s).

Underground storage tanks at the following facilities are assured by this local government fund mechanism: [List for each facility: the name and address of the facility where tanks are assured by the local government fund].

[Insert: "The local government fund is funded for the full amount of coverage required under 567—136.4(455B) of the Iowa Administrative Code (IAC), or funded for part of the required amount of coverage and used in combination with other mechanism(s) that provide the remaining coverage," or "The local government fund is funded for ten times the full amount of coverage required under 567—136.4(455B) IAC, or funded for part of the required amount of coverage and used in combination with other mechanism(s) that provide the remaining coverage," or "A payment is made to the fund once every year for seven years until the fund is fully funded and [name of local government owner or operator] has available bonding authority, approved through voter referendum, of an amount equal to the difference between the required amount of coverage and the amount held in the dedicated fund" or "A payment is made to the fund once every year for seven years until the fund is fully funded and I have attached a letter signed by the state attorney general stating that (1) the use of the bonding authority will not increase the local government's debt beyond the legal debt ceilings established by the relevant state laws and (2) prior voter approval is not necessary before use of the bonding authority".]

The details of the local government fund are as follows:

Amount in fund (market value of fund at close of last fiscal year): _____

[If fund balance is incrementally funded as specified in 567—subrule 136.16(4) IAC, insert:

Amount added to fund in the most recently completed fiscal year: _____

Number of years remaining in the pay-in period: _____]

A copy of the state constitutional provision, or local government statute, charter, ordinance, or order dedicating the fund is attached.

I hereby certify that the wording of this letter is identical to the wording specified in 567—subrule 136.16(4) IAC on the date shown immediately below.

[Signature]

[Name]

[Title]
[Date]

567—136.17(455B) Substitution of financial assurance mechanisms by owner or operator.

136.17(1) An owner or operator may substitute any alternate financial assurance mechanisms as specified in this chapter provided that at all times an effective financial assurance mechanism or combination of mechanisms that satisfied the requirements of rule 136.4(455B) is maintained.

136.17(2) After obtaining alternate financial assurance as specified in this chapter, an owner or operator may cancel a financial assurance mechanism by providing notice to the provider of financial assurance.

567—136.18(455B) Cancellation or nonrenewal by a provider of financial assurance.

136.18(1) Except as otherwise provided, a provider of financial assurance may cancel or fail to renew an assurance mechanism by sending a notice of termination by certified mail to the owner or operator. For claims-made policies, the notice of termination must clearly advise the insured and any named additional insureds of the effective termination date and the applicable extended reporting period under which a claim must be made to preserve coverage as provided in 136.8(2)*"a"*(2)"6" and 136.8(2)*"b"*(2)"6." In the alternative, insertion of the following unnumbered paragraph into a notice of termination satisfies this requirement. The provider of the financial assurance must also provide a copy of the notice of termination to the underground storage tank section of the department of natural resources. Failure to notify or timely provide a copy to the department will not invalidate a provider's action to terminate coverage or deny renewal of coverage.

[IOWA DEPARTMENT OF NATURAL RESOURCES NOTICE

EXTENDED COVERAGE

Iowa department of natural resources rules require that all insured persons be afforded 180 days from the date of policy cancellation or nonrenewal to give notice of a release and make a claim for coverage under the terms and conditions of this policy. This means that, if you fail to give notice of a release and submit a claim as provided in this policy within 180 days of cancellation, you may be barred from making a claim for coverage under the terms of your policy, even if a release is later discovered and demonstrated to have occurred during the coverage period.]

a. Termination of a local government guarantee, a guarantee, a surety bond, or a letter of credit may not occur until 120 days after the date on which the owner or operator receives the notice of termination, as evidenced by the return receipt.

b. Termination of insurance or risk retention group coverage, except for nonpayment or misrepresentation by the insured, or state-funded assurance may not occur until 60 days after the date on which the owner or operator receives the notice of termination, as evidenced by the return receipt. Termination for nonpayment of premium or misrepresentation by the insured may not occur until a minimum of 10 days after the date on which the owner or operator receives the notice of termination, as evidenced by the return receipt.

136.18(2) If a provider of financial responsibility cancels or fails to renew for reasons other than incapacity of the provider as specified in rule 136.23(455B), the owner or operator must obtain alternate coverage as specified in this chapter within 60 days after receipt of the notice of termination. If the owner or operator fails to obtain alternate coverage within 60 days after receipt of the notice of termination, the owner or operator must notify the director of the Iowa department of natural resources of such failure and submit the name and address of the provider of financial assurance; the effective date of termination; and the evidence of the financial assurance mechanism subject to the termination maintained in accordance with subrule 136.20(2).

567—136.19(455B) Reporting by owner or operator.

136.19(1) An owner or operator must submit the appropriate forms listed in subrule 136.20(2) documenting current evidence of financial responsibility to the director of the Iowa department of natural resources.

a. Within 30 days after the owner or operator identifies a release from an underground storage tank required to be reported under 567—subrule 135.6(4) or 135.7(2);

b. If the owner or operator fails to obtain alternate coverage as required by this chapter, within 30 days after the owner or operator receives notice of:

(1) Commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming a provider of financial assurance as a debtor,

(2) Suspension or revocation of the authority of a provider of financial assurance to issue a financial assurance mechanism,

(3) Failure of a guarantor to meet the requirements of the financial test,

(4) Other incapacity of a provider of financial assurance; or

c. As required by subrules 136.6(7) and 136.18(2).

136.19(2) An owner or operator must certify compliance with the financial responsibility requirements of this chapter as specified in the new tank notification form when notifying the appropriate state or local agency of the installation of a new underground storage tank under 567—subrule 135.3(3).

136.19(3) The director may require an owner or operator to submit evidence of financial assurance as described in subrule 136.20(2) or other information relevant to compliance with this chapter at any time.

567—136.20(455B) Record keeping.

136.20(1) Owners or operators must maintain evidence of all financial assurance mechanisms used to demonstrate financial responsibility under this chapter for an underground storage tank until released from the requirements of this chapter under rule 136.22(455B). An owner or operator must maintain such evidence at the underground storage tank site or the owner's or operator's place of work. Records maintained offsite must be made available upon request of the Iowa department of natural resources.

136.20(2) An owner or operator must maintain the following types of evidence of financial responsibility:

a. An owner or operator using an assurance mechanism specified in rules 136.6(455B) to 136.11(455B) or rules 136.13(455B) to 136.16(455B) must maintain a copy of the instrument worded as specified.

b. An owner or operator using a financial test or guarantee, or a local government financial test or a local government guarantee supported by the local government financial test must maintain a copy of the chief financial officer's letter based on year-end financial statements for the most recent completed financial reporting year. Such evidence must be on file no later than 120 days after the close of the financial reporting year.

c. An owner or operator using a guarantee, surety bond, or letter of credit must maintain a copy of the signed standby trust fund agreement and copies of any amendments to the agreement.

d. A local government owner or operator using a local government guarantee under subrule 136.15(4) must maintain a copy of the signed standby trust fund agreement and copies of any amendments to the agreement.

e. A local government owner or operator using the local government bond rating test under rule 136.13(455B) must maintain a copy of its bond rating published within the last 12 months by Moody's or Standard & Poor's.

f. A local government owner or operator using the local government guarantee under rule 136.15(455B), where the guarantor's demonstration of financial responsibility relies on the bond rating test under rule 136.13(455B), must maintain a copy of the guarantor's bond rating published within the last 12 months by Moody's or Standard & Poor's.

g. An owner or operator using an insurance policy or risk retention group coverage must maintain a copy of the signed insurance policy or risk retention group coverage policy, with the endorsement or certificate of insurance and any amendments to the agreements.

h. An owner or operator using a local government fund under rule 136.16(455B) must maintain the following documents:

(1) A copy of the state constitutional provision or local government statute, charter, ordinance, or order dedicating the fund, and

(2) Year-end financial statements for the most recent completed financial reporting year showing the amount in the fund. If the fund is established under subrule 136.16(3) using incremental funding backed by bonding authority, the financial statements must show the previous year's balance, the amount of funding during the year, and the closing balance in the fund.

(3) If the fund is established under subrule 136.16(3) using incremental funding backed by bonding authority, the owner or operator must also maintain documentation of the required bonding authority, including either the results of a voter referendum (under paragraph 136.16(3)*"a"*), or attested by the state attorney general as specified under paragraph 136.16(3)*"b."*

i. A local government owner or operator using the local government guarantee supported by the local government fund must maintain a copy of the guarantor's year-end financial statements for the most recent completed financial reporting year showing the amount of the fund.

j. An owner or operator using an assurance mechanism specified in rules 136.6(455B) through 136.16(455B) must maintain an updated copy of a certification of financial responsibility worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

Certification of Financial Responsibility

[Owner or operator] hereby certifies that it is in compliance with the requirements of 567—Chapter 136 of the Iowa Administrative Code (IAC).

The financial assurance mechanism(s) used to demonstrate financial responsibility under 567—Chapter 136 IAC is (are) as follows:

[For each mechanism, list the type of mechanism, name of issuer, mechanism number, if applicable, amount of coverage, effective period of coverage and whether the mechanism covers "taking corrective action" and/or "compensating third parties for bodily injury and property damage caused by" either "sudden accidental releases" or "nonsudden accidental releases" or "accidental releases".]

[Signature of owner or operator]

[Name of owner or operator]

[Title]

[Date]

[Signature of witness or notary]

[Name of witness or notary]

[Date]

The owner or operator must update this certification whenever the financial assurance mechanism(s) used to demonstrate financial responsibility change(s).

567—136.21(455B) Drawing on financial assurance mechanisms.

136.21(1) The director of the department of natural resources shall require the guarantor, surety, or institution issuing a letter of credit to place the amount of funds stipulated by the director, up to the limit of funds provided by the financial assurance mechanism, into the standby trust if:

a. The owner or operator fails to establish alternate financial assurance within 60 days after receiving notice of cancellation of the guarantee, surety bond, letter of credit, or, as applicable, other financial assurance mechanism; and

The director determines or suspects that a release from an underground storage tank covered by the mechanism has occurred and so notifies the owner or operator or the owner or operator has notified the director pursuant to rule 135.6(455B) or 135.7(455B) of a release from an underground storage tank covered by the mechanism; or

b. The conditions of paragraph 136.21(2)*"a"* or subparagraph 136.21(2)*"b"*(1) or 136.21(2)*"b"*(2) are satisfied.

136.21(2) The director of the Iowa department of natural resources may draw on a standby trust fund when:

a. The director makes a final determination that a release has occurred and immediate or long-term corrective action for the release is needed, and the owner or operator, after appropriate notice and opportunity to comply, has not conducted corrective action as required under rule 567—135.8(455B); or

b. The director has received either:

(1) Certification from the owner or operator and the third-party liability claimant(s) and from attorneys representing the owner or operator and the third-party liability claimant(s) that a third-party liability claim should be paid. The certification must be worded as follows, except that instructions in brackets are to be replaced with the relevant information and the brackets deleted:

CERTIFICATION OF VALID CLAIM

The undersigned, as principals and as legal representatives of [insert owner or operator] and [insert name and address of third-party claimant], hereby certify that the claim of bodily injury [and/or] property damage caused by an accidental release arising from operating [owner's or operator's] underground storage tank should be paid in the amount of $[_____].

[Signatures]	[Signature(s)]
Owner or Operator	Claimant(s)
Attorney for	Attorney(s) for
Owner or Operator	Claimant(s)

(Notary) Date (Notary) Date; or

(2) A valid final court order establishing a judgment against the owner or operator for bodily injury or property damage caused by an accidental release from an underground storage tank covered by financial assurance under this chapter and the director determines that the owner or operator has not satisfied the judgment.

136.21(3) If the director of the department of natural resources determines that the amount of corrective action costs and third-party liability claims eligible for payment under paragraph 136.21(2)*"b"* may exceed the balance of the standby trust fund and the obligation of the provider of financial assurance, the first priority for payment shall be corrective action costs necessary to protect human health and the environment. The director shall pay third-party liability claims in the order in which the director receives certifications under subparagraph 136.21(2)*"b"*(1) and valid court orders under subparagraph 136.21(2)*"b"*(2).

136.21(4) A governmental entity acting as guarantor under subrule 136.15(5), the local government guarantee without standby trust, shall make payments as directed by the director under the circumstances described in subrule 136.21(1), 136.21(2), or 136.21(3).

567—136.22(455B) Release from the requirements. An owner or operator is no longer required to maintain financial responsibility under this chapter for an underground storage tank after the tank has been properly closed or, if corrective action is required, after corrective action has been completed and the tank has been properly closed as required by rule 567—135.15(455B).

567—136.23(455B) Bankruptcy or other incapacity of owner or operator or provider of financial assurance.

136.23(1) Within ten days after commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming an owner or operator as debtor, the owner or operator must notify the director of the Iowa department of natural resources by certified mail of such commencement and submit the appropriate forms listed in subrule 136.20(2) documenting current financial responsibility.

136.23(2) Within ten days after commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming a guarantor providing financial assurance as debtor, such guarantor

must notify the owner or operator by certified mail of such commencement as required under the terms of the guarantee specified in rule 136.7(455B).

136.23(3) Within ten days after commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming a local government owner or operator as debtor, the local government owner or operator must notify the director of the Iowa department of natural resources by certified mail of such commencement and submit the appropriate forms listed in subrule 136.20(2) documenting current financial responsibility.

136.23(4) Within ten days after commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming a guarantor providing a local government financial assurance as debtor, such guarantor must notify the local government owner or operator by certified mail of such commencement as required under the terms of the guarantee specified in rule 136.15(455B).

136.23(5) An owner or operator who obtains financial assurance by a mechanism other than the financial test of self-insurance will be deemed to be without the required financial assurance in the event of a bankruptcy or incapacity of its provider of financial assurance, or a suspension or revocation of the authority of the provider of financial assurance to issue a guarantee, insurance policy, risk retention group coverage policy, surety bond, letter of credit, or state-required mechanism. The owner or operator must obtain alternate financial assurance as specified in this chapter within 30 days after receiving notice of such an event. If the owner or operator does not obtain alternate coverage within 30 days after such notification, the owner or operator must notify the director of the Iowa department of natural resources within 10 days.

136.23(6) Rescinded IAB 4/17/02, effective 5/22/02.

567—136.24(455B) Replenishment of guarantees, letters of credit, or surety bonds.

136.24(1) If at any time after a standby trust is funded upon the instruction of the director with funds drawn from a guarantee, local government guarantee with standby trust, letter of credit, or surety bond, and the amount in the standby trust is reduced below the full amount of coverage required, the owner or operator shall by the anniversary date of the financial mechanism from which the funds were drawn:

a. Replenish the value of financial assurance to equal the full amount of coverage required, or

b. Acquire another financial assurance mechanism for the amount by which funds in the standby trust have been reduced.

136.24(2) For purposes of this rule, the full amount of coverage required is the amount of coverage to be provided by rule 136.4(455B). If a combination of mechanisms was used to provide the assurance funds which were drawn upon, replenishment shall occur by the earliest anniversary date among the mechanisms.

These rules are intended to implement Iowa Code sections 455B.424 and 455B.474.

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CHAPTER 137
IOWA LAND RECYCLING PROGRAM AND RESPONSE ACTION STANDARDS

567—137.1(455H) Authority, purpose and applicability.

137.1(1) *Authority.* This chapter is adopted under the authority of Iowa Code Supplement chapter 455H. These rules establish the policy and procedures for the voluntary enrollment of contaminated property in the "land recycling program" established under chapter 455H. These rules also establish the response action standards which participants must meet in order to qualify for a no further action certificate and the statutory protections and immunities which follow from it.

137.1(2) *Purpose.* Consistent with the declaration of policy stated in Iowa Code Supplement section 455H.104, these rules are intended to achieve the dual objective of addressing the current and future risks associated with contaminated property and thereby enhancing the market conditions which can lead to development of these properties into their highest productive use. These objectives can in part be met through a program which encourages voluntary participation by persons who may have a legal duty to address, in whole or in part, the contamination within an affected area as well as persons who might not have a legal obligation but who have an interest in development of enrolled sites. These rules attempt to provide a degree of certainty in the response action process as an incentive to participants and as a means of assisting participants in quantifying their financial investment. The following statement of principles is intended as a guide both in the interpretation of these rules and as a statement of the department's regulatory philosophy.

a. It is the objective of the department and these rules to establish a collaborative process between the participant(s) and department staff as the most effective means of achieving consensus and resolving disputes on issues which are not or cannot be fully defined and anticipated by rule.

b. Although participation in this program is voluntary, these rules establish basic standards which must be met in order to obtain regulatory closure from the department through issuance of a no further action certificate.

c. Although the scope of the response actions addressed under these rules may not in every case address all known or unknown releases within an affected area, it should be the objective of both the department and the participants to work together and to use all resources available to address all known releases within an affected area in the interest of protecting public health, safety and the environment as well as achieving regulatory finality.

137.1(3) *Applicability.* These rules shall apply only to releases of contaminants which are being addressed at enrolled sites. The department may in its discretion apply the response action rules in 137.4(455H) through 137.10(455H) to releases of contaminants at sites which are not enrolled. These rules do not in any way limit the statutory liabilities of participants or nonparticipants except as expressly provided within the context of enrollment and Iowa Code Supplement chapter 455H. Consistent with Iowa Code Supplement section 455H.505, these rules do not limit the authority of the department or the responsibility of statutorily responsible persons to provide notice of hazardous conditions under 567—Chapter 131 or to respond to new releases and undertake emergency response actions under 567—Chapter 133. For sites which are not enrolled, 567—Chapter 133 rules will remain in effect and for enrolled sites 567—Chapter 133 shall apply to the extent it is not inconsistent with this chapter.

567—137.2(455H) Definitions.

"Affected area" means any real property affected, suspected of being affected, or modeled to be likely affected by a release occurring at an enrolled site.

"Affiliate" means a corporate parent, subsidiary, or predecessor of a participant, a co-owner or co-operator of a participant, a spouse, parent, or child of a participant, an affiliated corporation or enterprise of a participant, or any other person substantially involved in the legal affairs or management of a participant as defined by the department.

"Background standard" means a standard which represents concentrations of contaminants which are naturally occurring or are generally present and not related to a readily identifiable release.

"Carcinogenic health risk" means the incremental risk of a person developing cancer over a lifetime (70 years) as a result of exposure to a hazardous substance, expressed as a probability such as one in a million (10^{-6}). The contaminant level for the probability value is derived from application of certain designated exposure assumptions and a slope factor.

"Contaminant" means any hazardous substance found in the various media of the environment.

"Contaminant of concern" means specific hazardous substances that are identified for evaluation in the risk assessment process. Identification can be based on their historical and current use at the site, detected concentrations in environmental media and their mobility, toxicity, and persistence in the environment.

"Cumulative risk" means a summation of cancer and noncancer risks, determined separately, based on exposure to multiple contaminants from the same medium and exposure of the same individual to contaminants in multiple media.

"Enrolled site" means any property which has been or is suspected to be the site of or affected by a release and which has been enrolled pursuant to this chapter by a participant.

"Environmental protection easement" means an institutional control created under Iowa Code Supplement section 455H.206 which is a statutorily authorized restriction on land use.

"Exposure pathway" means the course a contaminant of concern may take from its source area to an exposed organism. Each exposure pathway includes a source or release from a source, a point of exposure, and an exposure route.

"Exposure route" means the manner in which a contaminant of concern comes in contact with an organism (e.g., ingestion, inhalation, dermal contact).

"Free product" means a hazardous substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water) or is present as a solid in its original form as a product or waste material.

"Gross contamination" means contamination present at concentrations in an amount sufficient to reasonably expect that institutional or technological controls will not be adequately protective of human health or the environment.

"Group A, B, C, D and E chemicals" means hazardous substances which have been classified based on the weight of evidence of human carcinogenicity. Group A substances are carcinogenic to humans. Group B substances are likely to be carcinogenic to humans. Group C substances have suggestive evidence of human carcinogenicity, but not sufficient evidence to assess human carcinogenic potential. Data are inadequate to assess human carcinogenic potential for Group D substances. Group E substances are not likely to be carcinogenic to humans.

"Hazardous substance" means any substance or mixture of substances that presents a danger to the public health or safety and includes, but is not limited to, a substance that is toxic, corrosive, or flammable, or that is an irritant or that generates pressure through decomposition, heat, or other means. "Hazardous substance" may include any hazardous waste identified or listed by the administrator of the United States Environmental Protection Agency under the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976, or any toxic pollutant listed under Section 307 of the federal Water Pollution Control Act as amended to January 1, 1977, or any hazardous substance designated under Section 311 of the federal Water Pollution Control Act as amended to January 1, 1997, or any hazardous material designated by the Secretary of Transportation under the Hazardous Materials Transportation Act.

"Hydraulic conductivity" means a measure of the capacity of a porous medium (rock or soil) to transmit water. It is expressed as the volume of water that will flow through a unit length of a unit cross-sectional area of the porous medium in a unit time with a unit head loss.

"Institutional controls" means a nonphysical action which restricts land use to reduce or eliminate exposure to the contaminants of an affected area.

"Lifetime health advisory level (HAL)" means an advisory level established by the United States Environmental Protection Agency which represents the concentration of a single contaminant in drinking water which is not expected to cause adverse health effects over lifetime exposure.

"Maximum contaminant level (MCL)" means a standard for drinking water established by the United States Environmental Protection Agency under the Safe Drinking Water Act which is the maximum permissible level of a contaminant in water which is delivered to any user of a public water supply.

"No further action certificate" means the same as no further action letter in Iowa Code Supplement section 455H.301. It is a document issued by the department to the participant certifying no further response action is required at an enrolled site for those conditions classified as no further action except the monitoring or the maintenance of institutional or technological controls when required.

"No further action certification" means the department has determined an enrolled site has met all standards applicable for the identified hazardous substances and no further response action is required except the monitoring or the maintenance of institutional or technological controls when required.

"Noncancer health risk" means the potential for adverse systemic or toxic effects caused by exposure to noncarcinogenic hazardous substances expressed as the hazard quotient for a hazardous substance. A hazard quotient is the ratio of the level of exposure of a hazardous substance over a specified time period to a reference dose derived for a similar time period.

"Nonresidential land-use area" means any area that is not a residential land-use area.

"Participant" means any person who enrolls property pursuant to this chapter. A participant is a participant only to the extent the participant complies with the requirements of this chapter.

"Point of compliance" means a location selected within the affected area where the concentration of contaminants of concern must be at or below the target levels established for that point.

"Point of exposure" means the location at which an individual or population may come in contact with a contaminant of concern from the enrolled site.

"Protected groundwater source" means a saturated bed, formation, or group of formations which has a hydraulic conductivity of at least 0.44 meters per day (m/d) and a total dissolved solids concentration of less than 2,500 milligrams per liter (mg/l).

"Receptor" means an individual or population that is or may be affected by a release from the enrolled site.

"Reference dose," expressed in units of milligrams per day exposure to the contaminant per kilogram of body weight of the exposed individual, means the amount of contaminant that an individual can ingest on a daily basis for a lifetime that is not likely to result in adverse noncancer health effects. A reference dose is protective of the entire human population, including sensitive subpopulations.

"Release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a hazardous substance, including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance, but excludes all of the following:

1. Any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons.
2. Emission from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine.
3. The release of source, by-product, or special nuclear material from a nuclear incident, as those terms are defined in the federal Atomic Energy Act of 1954, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under 42 U.S.C. § 2210 or, for the purposes of 42 U.S.C. § 9604 or any other response action, any release of source, by-product, or special nuclear material from any processing site designated under 42 U.S.C. § 7912(a)(1) or § 7942(a).
4. The use of pesticides in accordance with the product label.

"Residential land-use area" means an area zoned for residential use or an area where residential use currently exists, is planned, or is not otherwise precluded. In addition, a residential land-use area includes other areas where frequent, long-term, close contact with soils is likely to occur (e.g., playgrounds, sport fields, gardens, child care facilities).

"Response action" means an action taken to reduce, minimize, eliminate, clean up, control, assess, or monitor a release to protect the public health and safety or the environment. "Response action" includes, but is not limited to, investigation, excavation, removal, disposal, cleaning of groundwaters or

surface waters, natural biodegradation, institutional controls, technological controls, or site management practices.

"Risk evaluation/response action document" means a document based on the site assessment for the enrolled site which includes a risk evaluation, proposed response action, and proposed compliance verification strategy for the enrolled site.

"Site assessment plan" means the optional plan submitted to the department which lays out the rationale and the steps to be followed in the conduct of a site assessment for the enrolled site.

"Site assessment report" means the report of the site assessment which defines the nature and extent of contamination, identifies likely exposure pathways, and allows for characterizing potential and current exposure risks posed by the enrolled site.

"Site-specific standard" means a standard for a specific site which represents a concentration of a contaminant in a media of an affected area at which exposure through a specific pathway is considered unlikely to pose a threat to human health, safety, or the environment given site-specific factors related to contaminant transport and likely exposure.

"Slope factor" means an upper bound estimate that approximates a 95 percent confidence limit of the increased cancer risk from a lifetime exposure to a contaminant. This estimate is expressed in units of the proportion of a population that is affected per milligram per day exposure to the contaminant per kilogram of body weight of the exposed individual.

"Statewide standard" means a standard which represents a concentration of a contaminant in a specific media of an affected area at which normal, unrestricted exposure through a specific exposure pathway is considered unlikely to pose a threat to human health, safety, or the environment.

"Surface water" means general use segments as provided in 567—paragraph 61.3(1)*"a"* and designated use segments of water bodies as provided in 567—paragraph 61.3(1)*"b"* and 567—subrule 61.3(5).

"Target level" means a concentration of a contaminant of concern required to establish compliance with background, statewide or site-specific standards.

"Target organ" means the biological organ(s) most adversely affected from exposure to the contaminant of concern. A "reference dose" used to calculate noncancer health risk is normally established based on adverse impact to a target organ or organs from exposure to the contaminant of concern.

"Technological control" means a physical action whose main purpose is to reduce or eliminate exposure to the contaminants of an affected area.

567—137.3(455H) Enrollment in land recycling program.

137.3(1) *Property eligible for enrollment.* Unless excluded by statute or this rule and subject to eligibility conditions specified in this chapter, property which has been or is suspected to be the site of or affected by a release of a hazardous substance as defined in Iowa Code Supplement section 455H.103 is eligible for enrollment beginning October 27, 1998. The following sites shall not be enrolled in the land recycling program:

a. Property with petroleum releases associated with underground storage tanks subject to regulation under Iowa Code chapter 455B, division IV, part 8; and department rules under 567—Chapter 135. (However, property affected by releases of "regulated substances" from underground storage tanks other than petroleum as defined in rule 567—135.2(455B) subject to regulation under 567—Chapter 135 may be enrolled under this chapter.) Property enrolled and affected by a release from underground storage tanks of regulated substances other than petroleum will be subject to the response action standards in this chapter rather than those in 567—135.8(455B) through 135.12(455B). See also 567—paragraph 135.1(3)*"e."*

b. Property which has been placed or is proposed to be included on the national priorities list established pursuant to the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. Section 9601 et seq. A property will be considered proposed at the time that a public notice of intent to list the property on the national priorities list is published in the Federal Register in accordance with 40 CFR 300.425.

c. An animal feeding operation structure as defined in Iowa Code section 455B.161.

d. Properties subject to administrative or judicial enforcement action by the department or the Environmental Protection Agency or subject to an administrative or judicial consent order addressing environmental conditions. These properties may be eligible for enrollment only with the written approval of and under such terms as determined by the enforcing agency.

e. Eligible properties which are or may be affected by or commingled with ineligible releases or conditions will be evaluated on a case-by-case basis to determine their appropriateness for enrollment. Only the eligible property and participant(s) will be afforded the benefits and immunities available under Iowa Code Supplement chapter 455H. Any protections provided by issuance of a no further action certificate will be limited by and may be subject to reopening due to future conditions associated with the ineligible release. Considerations for enrollment or exclusion include but are not limited to the following:

(1) The extent to which eligible releases and site conditions can be assessed and response action(s) designed and implemented independent of the ineligible releases and property.

(2) The extent to which the liability and other protections offered by Iowa Code Supplement chapter 455H and the conditions of a no further action certificate can reasonably be defined to apply to the eligible site without consideration of or dependence on future conditions associated with the ineligible release and property.

(3) The extent to which a participant is willing to conduct all response action(s) necessary to address the health, safety and environmental conditions implicated by both eligible and ineligible releases and conditions. The extent to which a nonparticipant responsible for the ineligible release and property can establish an intention and ability to cooperatively address and share costs associated with the commingled conditions and satisfy both the standards in this chapter and any other regulatory standards applicable to the ineligible release or condition.

137.3(2) *Enrollment policy and procedures.* Prior to enrollment, the applicant/participant(s) should have conducted sufficient preliminary site investigation and project planning to be prepared to show that a site is eligible for enrollment and the participant(s) is ready and capable of initiating and completing a response action in accordance with these rules. The applicant/participant(s) must submit a completed program application and participation agreement form as supplied by the department. The program application shall contain at least the following information.

a. An acknowledgment of access/control of the site signed by the participant if that person is a fee titleholder in the affected property; if the applicant/participant(s) is not a fee titleholder, then an acknowledgment by the fee titleholder of the affected property. If acknowledgment of access cannot be obtained, the participant must describe efforts to obtain access and reasons why it has been refused.

b. The name, address and other relevant information of each current and anticipated participant(s). The description should include a brief statement of the reasons for each person's participation including but not limited to that person's interest in and legal relationship to the property enrolled and the expected role and scope of any participation. Other persons who are not participants but who may have an interest in the project should be identified, such as state and local development agencies, community groups, and financing sources.

c. The applicant/participant(s) must demonstrate the presence of hazardous substances at concentrations that warrant response action(s) under the standards in this chapter. At a minimum the environmental condition to be addressed must be documented by the submission of a report which includes the following:

(1) Soil and groundwater samples of hazardous substances which have been analyzed by a laboratory certified under 567—Chapter 83 for the analytes being tested. The laboratory analysis should establish the presence of hazardous substances under conditions which exceed or are likely to exceed a statewide standard, if a statewide standard is available. Copies of the laboratory analytical report, boring logs and a site diagram showing the location of the sampling points in relation to the site should be included.

(2) A description of the current and historical uses of the property based on a reasonable and diligent inquiry. This must include a description of the following: known sources and probable locations of hazardous substances and probable location of the sources at the property which the participant proposes

to address as part of the project; a general description of the historical uses of the property and probable hazardous substances which could reasonably be associated with past land use; and a general description of the surface characteristics of the property and surrounding areas such as current zoning, residential, commercial and industrial uses, and current uses of adjoining properties.

d. Any assessments or other reports relating to contamination at the property in excess of a statewide standard or reportable under 567—Chapter 131 which are known to and within the control of the applicant/participant shall be submitted. If the applicant/participant intends to claim that information constitutes a privileged environmental audit as provided in 1998 Iowa Acts, House File 681, the applicant must notify the department of the claim and resolve the issue of privilege prior to submittal. The applicant shall not submit to the department a report or any part of a report which it claims to be privileged and any information submitted under this paragraph shall be deemed a nonprivileged submittal as provided in section 6, paragraph (1)*"a,"* of the Act. This provision does not relieve the applicant/participant of any obligation to notify the department of a hazardous condition as provided in Iowa Code section 455B.386 and rules under 567—Chapter 131.

e. A statement of the project objectives which includes the current use of the property, proposed development activities, and an expected time frame for meeting these objectives. The statement should include a general description of the scope of the proposed environmental condition to be addressed and a proposed schedule for initiation and submittal of site assessment activities pursuant to rule 137.8(455H). The statement should describe any foreseeable barriers toward achieving project objectives such as access to property, financing uncertainties, legal actions, allocation of responsibility amongst parties.

f. A list of all known permits and regulatory actions and directives associated with an environmental condition at the site. If any parcel of the proposed enrolled site is subject to any federal regulatory corrective action directives, administrative orders or judicial actions, these must be explained. The applicant must submit written proof that the appropriate federal regulatory agency has been notified of the applicant's desire to participate in the Iowa land recycling program. Objections, concerns or issues which could lead to disputes regarding dual or conflicting jurisdiction should be resolved prior to application, if possible, and before admission.

g. The department will respond in writing within 60 days of receipt of the enrollment application. The department will notify the applicant/participant(s) whether the site has been accepted and an expected time line for assignment of the project to a manager. If the site is not accepted, the department will notify the applicant of the reason(s). Upon notification of admission, the property shall be considered enrolled. Once the department has assigned the enrolled site to a project manager, the department will enter into a participation agreement with the participant(s).

137.3(3) *Enrollment fees and oversight costs.* A nonrefundable enrollment fee of $750 must be submitted with the program application. This fee is intended to cover the department's cost of reviewing the program application and a minimum amount of subsequent oversight costs. Subsequent fees in excess of the minimum $750 may be assessed for actual oversight costs incurred by the department as provided in this chapter. Department oversight activities may include, but are not limited to: review of documents, meetings with the participant(s), site visits, sampling, and laboratory costs related to verification of submitted materials. The total fees for oversight costs shall not exceed $7,500 per enrolled site enrolled prior to July 1, 2018. For sites enrolled on or after July 1, 2018, the fee shall not exceed $25,000 per enrolled site. Fees shall be assessed and collected as follows:

a. *Hourly billing rate.* Project oversight fees shall be based on an hourly rate to cover wages and overhead costs of personnel employed by the department in the land recycling program. The department shall calculate and publish on an annual basis an hourly billing rate at which oversight fees shall be calculated.

b. *Quarterly payments.* The department shall bill the participant(s) on a quarterly basis for additional oversight costs beyond the review of the application incurred by the department. The participant(s) shall pay the department within 30 days after receiving the department's quarterly fee statement. If there is more than one participant, each shall be jointly and severally responsible for payment. The department will provide split billings if provided with an enforceable written contract allocating the fees amongst the participants.

c. *Failure to pay required fees.* If the participant(s) fails to pay department oversight fees that are required under this subrule, the department shall cease to provide oversight to the participant(s) and terminate enrollment of the site as described in subrule 137.3(7).

137.3(4) *Participation agreement.* All participants shall enter into a participation agreement. This agreement shall be executed at the time the project is assigned to a project manager. At a minimum, the agreement shall establish the following:

a. A requirement that the participant(s) agree and provide necessary documentation to ensure reasonable access to the affected property by department staff and other authorized representatives of the department.

b. A requirement that the participant(s) reimburse the department for the actual costs assessed as provided in 567—subrule 137.3(3).

c. A requirement that the participant(s) certify that the participant(s) has the financial means to complete the project based on an initial estimate of completion costs. The department may require modification and amendment of the financial certification at any stage in the project and may require the participant(s) to provide financial documentation as necessary to support the certification.

d. A requirement that the participation agreement include a general description of the scope of the project and the goals to be achieved, a general time frame for submission and review of documents in accordance with this chapter, allocation of responsibility amongst multiple participants and other appropriate milestones. Either the participant(s) or the department may request a meeting to develop a statement describing the scope, goals, and time frames for the project.

137.3(5) *Prioritization.* Eligible sites will be enrolled in the order in which they are received. The department reserves the right to elevate the priority of a given site if it determines the threat to the public health or environment or environmental conditions in combination with the development objectives consistent with Iowa Code Supplement section 455H.104 is significantly greater than those of sites with an earlier enrollment date.

137.3(6) *Withdrawal procedures.* Enrollment and continued participation in the program are voluntary. The participant(s) may withdraw the enrolled site and individual participants may withdraw from further participation in the land recycling program at any time upon written notice to the department. Any participant who withdraws an enrolled site from further participation in the program shall not be entitled to any refund or credit for the $750 enrollment fee and shall be liable for any oversight costs actually incurred by the department up to the cap of $7,500 per enrolled site. A participant who withdraws a site prior to completion of all response action(s) required by this chapter and issuance of a no further action certificate in accordance with rule 137.11(455H) forfeits all benefits and immunities provided by this chapter and Iowa Code chapter 455H. Prior to withdrawal, the participant(s) shall submit a plan, which must be approved by the department, for stabilization of conditions at the site or a justification for why further action to stabilize the site is not necessary. Participants shall be required to take such actions as the department determines necessary to stabilize conditions at the site, including, but not limited to, securing or properly abandoning monitoring wells, removing or otherwise properly disposing of all contaminated soil excavations, removing or properly disposing of exposed or exhumed contaminants, filling or properly fencing open excavations, and posting safety notices.

137.3(7) *Termination of enrollment.* Enrollment of the participant(s) may be terminated based on a finding of material noncompliance with department rules and statutory requirements including but not limited to the following:

a. Significant failure, after written notice, to comply with schedules for completion and submission of reports and implementation of response action(s) required by these rules or otherwise agreed upon in writing by the department and participants. Written requests for reasonable schedule extensions may be granted upon a showing of extenuating circumstances beyond the control of the participant(s) and the participant(s) agent/contractor.

b. Failure to proceed in a timely manner after written notice in performing the additional response action required due to a failure of technological and institutional controls pursuant to rule 137.7(455H).

c. Material misstatement or omission of fact in reports submitted to the department by the participant or agents of the participant.

d. Evidence that the site falls under one of the exclusion categories in subrule 137.3(1).

e. Failure to pay required fees to the department as required in subrule 137.3(3).

137.3(8) *Appeal rights.* The department will notify participant(s) of a denial of enrollment or of an intent to terminate enrollment and provide a statement of reasons. The participant(s) shall have a right to appeal the decision to deny enrollment or to terminate enrollment. Upon timely appeal, contested case procedures shall be initiated pursuant to 561—Chapter 7.

[**ARC 4426C**, IAB 5/8/19, effective 6/12/19]

567—137.4(455H) Background standards.

137.4(1) *Purpose.* This rule defines the basis and procedure for establishing background standards in groundwater, soil, surface water, and air. Background standards represent concentrations of contaminants that are naturally occurring or generally present and not related to a readily identifiable release. Background standards provide a baseline for assessing impacts of contaminant releases from within the affected area.

137.4(2) *Determination of background standards.* Background standards shall be based on sampling at appropriate site-specific background locations. Background sampling locations shall be outside the influence of any possible contamination associated with releases occurring on the property in which the enrolled site is located. Sufficient supporting information shall be provided to demonstrate the appropriateness of background sampling locations. Appropriateness for background sampling locations has two aspects which shall be addressed:

a. Background samples shall be collected from a location which represents a true background condition with respect to the enrolled site. For example, a background groundwater sample will be collected from an upgradient location relative to groundwater movement.

b. Background samples will represent conditions which are comparable to the contaminated media being addressed. In the case of soils, samples from the affected area and the background areas will be comparable in physical, chemical, and biological attributes.

Sampling conducted for the purpose of establishing a background standard shall meet quality criteria specified for the site assessment, rule 137.8(455H). The minimum number of samples to be collected from the medium of concern for which a background standard is being established shall be consistent with rule 137.10(455H), regarding demonstration of compliance.

567—137.5(455H) Statewide standards.

137.5(1) *Purpose.* This rule defines the basis and procedure for establishing statewide standards for contaminants in groundwater, soil, and surface water. Statewide standards for groundwater and soil represent concentrations of contaminants in these media at which normal exposure via ingestion and dermal contact with soil is considered unlikely to pose a threat to human health. Statewide standards for surface water are based on protection of aquatic life and protection of human health. This rule also describes how air standards are to be addressed.

137.5(2) *Scope.* Statewide standards described herein address what are considered to be the most likely, normal exposure situations. Statewide standards for groundwater address direct exposure via ingestion to individual contaminants in the media of concern only. Statewide standards for soil address direct exposure to individual contaminants via ingestion and dermal contact. In the event exposure to multiple contaminants may occur or exposure from more than one medium may occur, statewide standards alone may not be protective of human health; therefore, cumulative risk standards must be met in accordance with subrule 137.10(7). In addition, the department may deny the use of the statewide standards prescribed herein and require the use of site-specific standards based on site-specific conditions pursuant to subrule 137.6(10).

Examples of exposure concerns not anticipated by the statewide standards might include, but are not limited to:

- Significant plant uptake of contaminants from soil or groundwater;

- Contaminants entering drinking water lines from contact with soil or groundwater;
- Ecological concerns, other than for surface water;
- Groundwater in a nonprotected groundwater source that is used or likely to be used for drinking water or other use.

137.5(3) *Establishment of risk-based contaminant concentrations.*

a. Risk-based concentration formula. Risk-based contaminant concentrations for soil and groundwater, except lead, shall be computed using the following formula, where appropriate:

(Formula I)

$$C = \frac{RF \times AT \times 365 \text{ days/year}}{Abs \times [(ER_c \times EF_c \times ED_c) \div BW_c + (ER_a \times EF_a \times ED_a) \div BW_a] \times CF}$$

NOTE: When a risk-based concentration is computed for two routes of exposure to the same medium (e.g., soil oral exposure and soil dermal exposure), the composite risk-based concentration equals the multiple of the risk-based concentration for each route of exposure divided by the sum of the risk-based concentration for each route of exposure.

Where: C = Concentration of contaminant (soil: mg/kg, water: mg/l)
RF = Risk factor

For protection from cancer health risks:
RF = TR ÷ SF
Where: TR = Target cancer risk (unitless)
SF = Slope factor $[(mg/kg)/day]^{-1}$ for a route of exposure; see paragraph *"c"* for source.

For protection from noncancer health risks:
RF = THQ × RfD
Where: THQ = Target hazard quotient (unitless)
RfD = Reference dose (mg/kg)/day for a route of exposure; see paragraph *"c"* for source.

AT = Averaging time (years); time over which exposure is averaged and potential adverse effects may occur
Abs = Absorption factor (unitless); portion of exposed contaminant absorbed by the body
ER_c = Exposure rate by a child (soil: mg/day, water: l/day)
EF_c = Exposure frequency by a child (days/year)
ED_c = Exposure duration by a child (years)
BW_c = Body weight of exposed child (kg)
ER_a = Exposure rate by an adult (soil: mg/day, water: l/day)
EF_a = Exposure frequency by an adult (days/year)
ED_a = Exposure duration by an adult (years)
BW_a = Body weight of exposed adult (kg)
CF = Conversion factor: 10^{-6} kg/mg for soils; 1 (unitless) for water

b. Carcinogenic classification of chemicals. The potential carcinogenicity of chemicals will be based on the weight-of-evidence classification system utilized by the U.S. Environmental Protection Agency (EPA). Risk-based concentrations will be based on cancer health effects for individual chemicals that are classified as Group A or Group B. The risk-based concentration for an individual chemical will be based on noncancer health effects for chemicals that are classified as Group C, Group D or Group E. In the absence of such classification for a chemical, the Group D classification will be assumed. Noncancer risks for a Group A or Group B chemical will be included in the determination of cumulative noncancer risk in accordance with subrule 137.10(7), if a reference dose exists for that chemical. Cancer

risk associated with a Group C chemical shall be included in the determination of cumulative cancer risk in accordance with subrule 137.10(7), if a cancer slope factor exists for that chemical.

c. Source of toxicity values. EPA's Integrated Risk Information System (IRIS) shall be the primary source of information on toxicity factors (e.g., oral reference doses and oral slope factors), carcinogenic classification for chemicals, and the target organs. Such information that is not available on IRIS shall be obtained from other sources consistent with current EPA guidelines. The Iowa department of public health shall be consulted regarding toxicity values not available on IRIS. Absorption factors for dermal soil exposure shall be based on best available information, which will usually be obtained from EPA guidance documents.

137.5(4) *Statewide standards for groundwater.*

a. Protected groundwater source. Statewide standards for groundwater in a protected groundwater source will be the enforceable Maximum Contaminant Level (MCL) established by the EPA pursuant to the Safe Drinking Water Act, if an MCL exists. If no enforceable MCL exists, the statewide standard for chemicals will be the lifetime health advisory level (HAL) as provided in the latest "Drinking Water Regulations and Health Advisories" by the EPA's Office of Water or equivalent. If no MCL or HAL exists, the statewide standard for a chemical will be calculated using Formula I and input variables for groundwater ingestion in accordance with Table I.

b. Groundwater in a nonprotected groundwater source. The statewide standard for a chemical in groundwater in a nonprotected groundwater source will be five times the statewide standard for the chemical in a protected groundwater source or a risk-based concentration using Formula I with input variables specified in Table I, whichever is larger. The statewide standards for groundwater in a nonprotected groundwater source are based on groundwater ingestion only.

Table I

Input Variables for Risk-Based Statewide Standards for Groundwater from Protected and Nonprotected Groundwater Sources

Parameter	Units	Cancer Group	Protected	Nonprotected
TR	unitless	A, B	5×10^{-6}	1×10^{-4}
SF	$[(mg/kg)/day]^{-1}$	A, B, C	Chem.-spec.	Chem.-spec.*
THQ	unitless	C	0.02	0.1/1*
		D, E	0.2	1
RfD	(mg/kg)/day	C, D, E	Chem.-spec.	Chem.-spec.
AT	years	A - E	70	70
Abs	unitless	A - E	1	1
ER_c	l/day	A - E	1	1
EF_c	days/yr	A - E	0	0
ED_c	years	A - E	6	6
BW_c	kg	A - E	15	15
ER_a	l/day	A - E	2	2
EF_a	days/yr	A - E	365	365
ED_a	years	A - E	70	70
BW_a	kg	A - E	70	70
CF	unitless	A - E	1	1

The risk-based concentration using Formula I for Cancer Group C chemicals that have an SF value established per paragraph 137.5(3)"c"* will be the larger of a value based on the risk factor for protection from noncancer health risks with a THQ = 0.1 or the risk factor for protection from cancer health risks. Risk-based concentrations using Formula I for Cancer Group C chemicals that do not have an SF value

established per paragraph 137.5(3)*"c"* will be a value based on the risk factor for protection from noncancer health risks with a THQ = 1.

137.5(5) *Statewide standards for soil.* Statewide standards for chemicals in soil, except lead, will be calculated using Formula I based on incidental ingestion of soil and dust and dermal contact with soil with input variables in accordance with Table II. The statewide standard for lead in soil shall be 400 mg/kg.

Table II

Input Variables for Statewide Soil Standards

			Route of Exposure	
Parameter	Units	Cancer Group	Oral	Dermal
TR	unitless	A, B	5×10^{-6}	5×10^{-6}
SF	$[(mg/kg)/day]^{-1}$	A, B, C*	Chem.-spec.	Chem.-spec.
THQ	unitless	C*	0.1/1	0.1/1
		D, E	1	1
RfD	(mg/kg)/day	C, D, E	Chem.-spec.	Chem.-spec.
AT	years	A, B	70	70
		C, D, E	6	6
Abs	unitless	A - E	1	Chem.-spec.
ER_c	mg/day	A - E	200	560**
EF_c	days/yr	A - E	350	350
ED_c	years	A - E	6	6
BW_c	kg	A - E	15	15
ER_a	mg/day	A - E	100	400**
EF_a	days/yr	A - E	350	350
ED_a	years	A, B	24	24
		C, D, E	0	0
BW_a	kg	A - E	70	70
CF	kg/mg	A - E	10^{-6}	10^{-6}

The risk-based concentration using Formula I for Cancer Group C chemicals that have an SF value established per paragraph 137.5(3)"c"* will be the larger of a value based on the risk factor for protection from noncancer health risks with a THQ = 0.1 or the risk factor for protection from cancer health risks. Risk-based concentrations using Formula I for Cancer Group C chemicals that do not have an SF value established per paragraph 137.5(3)*"c"* will be a value based on the risk factor for protection from noncancer health risks with a THQ = 1.

**Dermal exposure rate is based on 2,800 cm^2 of exposed skin on a child with 0.2 mg/cm^2 of soil adhering to the child's skin and 5,700 cm^2 of exposed skin on an adult with 0.07 mg/cm^2 of soil adhering to the adult's skin per each dermal exposure event. A dermal exposure event is assumed to be one event per day of exposure.

137.5(6) *Statewide standards for surface water.* Water quality standards pursuant to 567—Chapter 61 shall be considered statewide standards for surface water. If a promulgated water quality standard does not exist for a contaminant of concern, the department may establish an appropriate standard in a manner consistent with 567—Chapter 61.

137.5(7) *Statewide standards for air.* Ambient air quality standards pursuant to 567—Chapter 28 constitute statewide standards for air. Air emission sources must meet air quality emission standards as set forth in 567—Chapters 20 through 31 inclusively, as applicable. Any relevant air quality standard that is subsequently promulgated by statute or rule shall become a statewide standard for air upon the effective date of adoption by the state. In the absence of applicable, adopted standards, site-specific air

standards must be met, in accordance with subrule 137.6(9), when air quality issues are addressed at a site.

137.5(8) *Point of exposure for statewide standards.* The point of exposure associated with the use of only statewide standards in the determination of compliance will be assumed to be anywhere and everywhere, except for surface water. The point of exposure associated with the use of statewide standards for surface water will be assumed to be the point of groundwater or other site runoff immediately before it discharges to the surface water body.

137.5(9) *Practical quantification limits.* In no case will the statewide standard be less than the practical quantification limit, as determined by the department.

137.5(10) *Maintenance of statewide standards.* The toxicity values, absorption factors for dermal exposure to soils, and promulgated standards that are a basis for statewide standards are subject to periodic revision due to actions not governed under this rule. The department in conjunction with the Iowa department of public health will maintain a guidance document that contains a current list of toxicity values, absorption factors for dermal exposure to soils, target organs for cumulative noncarcinogenic health risks, promulgated standards, and the resultant statewide standards that will be readily available to the public. This guidance document will reference all the sources of the information. In the absence of a dermal slope factor or a dermal reference dose for a chemical, the oral slope factor or oral reference dose will be used with adjustments made to account for differences in oral and dermal absorption rates in accordance with current EPA guidance. Statewide standards for individual sites will be locked-in at the beginning of the site assessment process (rule 137.8(455H)). If a statewide standard does not exist for a chemical, it will be the department's responsibility to establish a statewide standard, pursuant to subrules 137.5(4) and 137.5(5), for groundwater and soil, and to add the newly established statewide standard to the comprehensive list of statewide standards in the guidance document maintained by the department.

567—137.6(455H) Site-specific standards.

137.6(1) *Purpose.* As opposed to statewide standards, site-specific standards are derived by applying exposure and risk assumptions applicable to the conditions at a particular site. Like statewide standards, site-specific standards must always be shown to be protective of public health and safety and the environment. Statewide standards may be used in combination with site-specific standards to address different exposure pathways. Site-specific standards may be required to address exposure pathways which the department determines must be evaluated to be protective of human health, safety and the environment and for which statewide standards have not been established under rule 137.5(455H). Site-specific standards may involve development of target levels for contaminants of concern based on site-specific exposure assumptions for use in lieu of background or statewide standards. Site-specific standards may also include consideration of the actual or potential location where exposure to contaminants occurs or may occur, the likelihood of an exposure occurring, and the overall magnitude and extent of contamination. Site-specific standards may involve use of site-specific target levels for contaminants of concern alone or in conjunction with other site-specific criteria, such as the location where the standard is applied.

137.6(2) *General provisions.*

a. This rule establishes a minimum protocol that must be met at all enrolled sites which have not established compliance by application of background or statewide standards. Groundwater ingestion and soil ingestion pathway standards under this rule must be evaluated. Surface water and air quality standards under subrules 137.6(8) and 137.6(9) must be met whenever exposure concerns are evident and the participant or the department determines these pathways may present an unacceptable risk for current or future exposures. This rule is not intended to preclude the department or the participant from addressing other exposure pathways, and the department expressly reserves the right to require evaluation of other exposure pathways and compliance with site-specific standards developed for them, such as dermal contact, ingestion of vegetables containing contaminants from soil or irrigation water, migration of contaminants from groundwater or soil into water distribution lines or into air in a confined space, migration of contaminants from soil to groundwater, and migration of contaminants in a nonprotected groundwater source to a protected groundwater source. Participants must establish compliance with

standards applicable to all exposure pathways required by the department under this rule in order to qualify for no further action classification under rule 137.11(455H) unless granted a variance as provided in Iowa Code section 455H.205.

b. Site-specific standards are subject to the approval of the department. Assurances in the form of technological or institutional controls (rule 137.7(455H)) will be required, as needed, to ensure continued protectiveness of site-specific standards.

c. The following subrules provide options for the site-specific standards. The participant may select any of these options, or combinations thereof, for use as site-specific standards.

137.6(3) *Site-specific groundwater point of exposure.* A site-specific groundwater standard may be an appropriate target level applied at groundwater points of exposure that are limited by technological or institutional controls.

a. A point of exposure for groundwater is a location within the affected area where a well exists or could be placed (potential point of exposure). Where technological or institutional controls are determined to effectively restrict the placement of groundwater wells, the points of exposure apply outside the area of restriction. A sufficient number of points of exposure may be established for determining compliance such that compliance with appropriate target levels at these points will ensure compliance at all points of exposure. Normally a compliance point of exposure will be a location at the boundary of the area restricted by an institutional control where a groundwater well could be installed that would have the highest contaminant concentration. Generally more than one compliance point of exposure must be established due to uncertainties, such as spatial and temporal variabilities in groundwater flow and contaminant occurrence.

b. Target levels. The point of exposure target level for drinking water wells is the statewide standard applicable to groundwater ingestion or an alternative site-specific target level approved under subrule 137.6(10) or 137.6(11). The point of exposure target level for non-drinking water wells is the statewide standard applicable to nonprotected groundwater or an alternative site-specific target level approved under subrule 137.6(10) or 137.6(11). The point of exposure target level for nonused groundwater meeting the conditions in subrule 137.6(5) is the statewide standard for a nonprotected groundwater source.

c. Nonprotected groundwater sources. A nonprotected groundwater source which is affecting or likely to affect an existing drinking water well shall be required to meet the same site-specific standards, including point of exposure target level(s), as applied to a protected groundwater source.

d. Unless conditions can be demonstrated to be stable, predictive techniques in accordance with subrule 137.9(4) must be used to determine the future effects of groundwater contamination on existing drinking and non-drinking water wells and to determine the area predicted to exceed the point of exposure target level(s) where wells could be installed. When using predictive techniques, determining the location(s) where the applicable point of exposure target level is expected to be exceeded may involve comparison of the appropriate numerical standard to the predicted contaminant concentration at a passive monitoring well at the groundwater point of exposure. Alternatively, predictive techniques using site-specific models (paragraph 137.9(4)*"b"*) may involve simulation of pumping at a well located at the point of exposure, in which case the pumping rate used in the simulation shall be the rate that is reasonably possible for the area that yields water with the highest contaminant concentration. In absence of site-specific justification for doing otherwise, long-term pumping will be assumed to be at a rate of 100 gallons per day; the sustainable yield, if less than 100 gallons per day; or a reasonable, higher rate, if such a rate results in higher contaminant concentration.

e. Institutional controls. For a protected groundwater source or a nonprotected groundwater source as described in paragraph *"b"* above, institutional controls must be shown to effectively prohibit the installation of wells for the period of time in which contaminant concentrations might otherwise be expected to result in an exceedance of the appropriate target levels. For a nonprotected groundwater not described as in paragraph *"b"* above, a less stringent standard of effectiveness as well as the type of future well installation to be restricted may be utilized for those areas of potential concern. Unless there is a history of usage of what might otherwise be considered nonprotected groundwater or there is uncertainty as to the uniformity in the hydraulic characteristics of the nonprotected groundwater source,

notice to the authority responsible for permitting private wells under 567—Chapters 39 and 49 may be adequate especially if combined with a municipal or county ordinance prohibiting installation of private wells based on the availability of a public water supply.

137.6(4) *Site-specific groundwater point of compliance.* A site-specific standard may be established for a site-specific groundwater point of compliance that is different from a compliance point of exposure. A site-specific groundwater point of compliance must be used in conjunction with all groundwater compliance points of exposure pursuant to subrule 137.6(3) to provide an alternative monitoring location. Target levels for contaminants of concern at a site-specific groundwater point of compliance must be established using predictive techniques as specified in subrule 137.9(4). A target level established for a groundwater point of compliance must ensure that the appropriate target level at the groundwater compliance points of exposure will be achieved. A groundwater point of compliance shall be located on the contaminant migration path from the contaminant source to the point of exposure to the maximum extent practicable.

137.6(5) *Nonused groundwater in a protected water source.* Statewide standards for groundwater in a nonprotected groundwater source, pursuant to paragraph 137.5(4)*"b,"* may be used as target levels for contaminants in an otherwise protected groundwater source when groundwater in the affected area is not used and is not likely to be used in the future in accordance with the following. It must be demonstrated to the satisfaction of the department that contaminants from the enrolled site do not currently, and likely will not in the future, have an impact on any existing water supply well. Any detection, or predicted detection above the practical quantification limit, of a chemical that can be attributed to a release from the enrolled site will be considered to constitute an impact. In addition, it must be demonstrated to the satisfaction of the department that the impacted or potentially impacted aquifer is not a locally significant water resource. Factors that will go into this determination may include, but are not limited to:

- Existence of a nonimpacted public water supply in the potentially affected area;
- General availability of other water resources in the vicinity;
- Plans for development of public water supplies in the vicinity;
- Potential for use of the impacted aquifer as a water supply (e.g., yield, natural water quality); and
- Identification of the aquifer(s) commonly used for water supply in the vicinity.

A local ordinance prohibiting installation of private drinking water wells or notification to the local water utility and water permitting authority, or both, may constitute acceptable institutional controls for site-specific standards under this subrule.

The target levels that may be used in accordance with this subrule are based solely on groundwater ingestion. Compliance with this site-specific standard will not guarantee that contaminants in groundwater may not cause unacceptable exposure via other pathways (e.g., groundwater to air in a confined space, groundwater to surface water, or groundwater to a water distribution line).

137.6(6) *Site-specific soil standards based on land use and soil depth.* Site-specific soil standards based on land use and soil depth in conjunction with institutional controls may be used. Predetermined site-specific soil exposures based on land use and soil depth are provided in the following paragraphs. Lists of resulting site-specific soil standards for individual contaminants for these land-use and soil-depth categories will be maintained by the department in a guidance document and made readily available to the public. Use of these site-specific soil standards must be supported by appropriate institutional controls. Site-specific soil standards based on land use and soil depth, as described herein, address ingestion of and dermal contact with soil. Compliance with these standards will not guarantee that contaminants in soils may not cause unacceptable exposure via other pathways (e.g., ecological exposure, soil to groundwater, subsurface movement of vapors from soil to indoor air). In addition, the risk factors that form the bases for site-specific soil standards for individual contaminants, with the exception of some Group C chemicals, are the same as acceptable cumulative risk factors allowed for exposure to multiple contaminants in the same medium and multiple media. Therefore, compliance with site-specific soil standards for individual contaminants may not result in compliance with cumulative risk requirements pursuant to rule 137.10(455H).

a. Deep soil in a residential land-use area. Site-specific soil standards for deep soils equaling ten times the statewide standard for soils, except for lead, may be used. The site-specific standard for lead in deep soil in a residential land-use area shall be calculated using the most current version of EPA's Exposure Model for Assessing Risk Associated with Adult Exposures to Lead in Soil. Soils at a depth of ten feet and greater will normally be classified as deep soils. The department may deny the use of a deep soil standard associated with a residential land use or require a modification to the standard due to site-specific considerations including topography, development potential, and actual development plans. The use of a site-specific standard for deep soil in a residential land-use area shall be supported by an institutional control that permanently records the existence of contaminants above statewide standards in deep soils and restricts excavation resulting in deep soils being placed on the surface.

b. Nonresidential land use. The nonresidential land-use designation will be applicable to areas that are not classified as residential. Site-specific soil standards, except for lead, for nonresidential areas may be based on Formula I using the risk and exposure factors shown in Table III. A value of 1,100 mg/kg may be used as a site-specific soil standard for lead in soils less than 2 feet deep in a nonresidential land-use area. In lieu of this default site-specific lead standard, a site-specific standard for lead in soil less than 2 feet deep may be calculated using the most current version of EPA's Exposure Model for Assessing Risk Associated with Adult Exposures to Lead in Soil. The site-specific standard for lead in soils greater than 2 feet deep in a nonresidential land-use area shall be calculated using the most current version of EPA's Exposure Model for Assessing Risk Associated with Adult Exposures to Lead in Soil. The use of a nonresidential land-use classification must be supported by an environmental protection easement that prevents a change in land use to residential.

Table III

Input Variables for Site-Specific Soil Standards for Individual Contaminants for Nonresidential Area Land-Use Designation

Parameter	Units	Cancer Group	Soil Depth (ft.)	
			<2	>2
TR	unitless	A, B	1×10^{-4}	1×10^{-4}
SF (oral)	$[(mg/kg)/day]^{-1}$	A, B, C*	Chem.-spec.	Chem.-spec.
SF (dermal)	$[(mg/kg)/day]^{-1}$	A, B, C*	Chem.-spec.	Chem.-spec.
THQ	unitless	C*	0.1/1	0.1/1
		D, E	1	1
RfD (oral)	(mg/kg)/day	C, D, E	Chem.-spec.	Chem.-spec.
RfD (dermal)	(mg/kg)/day	C, D, E	Chem.-spec.	Chem.-spec.
AT	years	A, B	70	70
		C, D, E	1	1
Abs (oral)	unitless	A - E	1	1
Abs (dermal)	unitless	A - E	Chem.-spec.	Chem.-spec.
ER_c	mg/day	A - E	0	0
EF_c	days/yr	A - E	0	0
ED_c	years	A - E	0	0
BW_c	kg	A - E	15	15
ER_a (oral)	mg/day	A, B	100	330
		C, D, E	330	330
ER_a (dermal)	mg/day	A, B	660**	990**
		C, D, E	660**	990**

Parameter	Units	Cancer Group	Soil Depth (ft.)	
			<2	>2
EF_a	days/yr	A, B	225	200
		C, D, E	200	200
ED_a	years	A, B	25	1
		C, D, E	1	1
BW_a	kg	A - E	70	70
CF	kg/mg	A - E	10^{-6}	10^{-6}

NOTE: Oral and dermal factors are the same unless otherwise noted.

The risk-based concentration using Formula I for Cancer Group C chemicals that have an SF value established per paragraph 137.5(3)"c"* will be the larger of a value based on the risk factor for protection from noncancer health risks with a THQ = 0.1 or the risk factor for protection from cancer health risks. Risk-based concentrations using Formula I for Cancer Group C chemicals that do not have an SF value established per paragraph 137.5(3)*"c"* will be a value based on the risk factor for protection from noncancer health risks with a THQ = 1.

**Dermal exposure rate is based on 3,300 cm^2 of exposed skin on an adult with 0.2 mg/cm^2 of shallow soil adhering to the skin and 0.3 mg/cm^2 of deep soil adhering to the skin per each dermal exposure event. A dermal exposure event is assumed to be one event per day of exposure.

c. Restricted access land use. Rescinded IAB 7/21/04, effective 8/25/04.

137.6(7) *Site-specific cumulative risk for residential exposures to soil.* A cumulative risk standard may be used as a site-specific standard for soil in lieu of statewide standards that are provided in subrule 137.5(5) for individual chemicals and soil. Cumulative risk will be determined using the toxicity values and exposure factors (i.e., the input variables less TR and THQ) from Table II in subrule 137.5(5). Criteria for compliance with the cumulative risk standard are specified in subrule 137.10(7). No institutional control will be required with the use of this site-specific standard.

137.6(8) *Site-specific surface water standards.* The department will establish site-specific surface water standards at the request of the participant. The participant shall provide the department with information necessary to make this determination upon request from the department. Site-specific surface water standards will be generally equivalent to effluent limitations under a National Pollutant Discharge Elimination System (NPDES) permit pursuant to 567—Chapter 62. Mixing zones and allocation of contaminant loads in a surface water body will be considerations in attainment of in-stream water quality standards. If the site-specific surface water quality standards are met, best practical control technology currently available will not be imposed.

137.6(9) *Site-specific air standards.* If there are air quality concerns at a site, they will normally be addressed with site-specific standards until such time as ambient air quality or source-specific standards are adopted for hazardous air pollutants.

a. Explosivity. In no case shall contaminants from the enrolled site cause an explosivity level in a confined space of greater than 10 percent of the lower explosivity limit.

b. Background. In addition to the establishment of a background standard pursuant to rule 137.4(455H), a site-specific air standard may be set at twice the typical background level based on published information for a comparable setting, if approved by the department.

c. Health risk. The U.S. Department of Labor Occupational Safety and Health Administration (OSHA) limits for air contaminants pursuant to 29 CFR 1910, Subpart Z, may be utilized for site-specific standards in workplace settings where the OSHA standards are applicable and the contaminant of concern is used. For locations where OSHA standards are not applicable, site-specific standards for air in a confined space shall be risk-based using the chemical-specific toxicity values of inhalation unit risk (UR) and inhalation reference concentration (RfC) determined in accordance with paragraph 137.5(3)*"c."* Formulas II and III shall be used to calculate risk-based, site-specific air standards based on carcinogenic and noncarcinogenic effects, respectively, where C is the risk-based contaminant concentration in air. If

a value for both RfC and UR exists for a compound, the risk-based site-specific standard will be the smaller of C resulting from Formulas II and III.

(Formula II)

$$C = AF \times TR \div UR$$

(Formula III)

$$C = AF \times RfC$$

The UR and RfC toxicity values are based on a continuous exposure of 20 cubic meters per day by a 70 kg adult. The adjustment factor (AF) in Formulas II and III may be used to adjust for site-specific exposure conditions. A target cancer risk (TR) of 10^{-4} shall be used unless another value is approved by the department.

d. *Institutional or technological controls.* Institutional or technological controls may be used to prevent future exposure to contaminants in air in confined spaces and will be required to prevent residential use of the affected area when a nonresidential air standard is used.

137.6(10) *Site-specific standards based on site-specific factors.* Numerical site-specific standards (i.e., target levels) for groundwater or soil may be established using site-specific exposure factors in Formula I. Site-specific pumping rates greater than specified in paragraph 137.6(3)*"d"* herein may be used when approved by the department. Site-specific exposure factors must be approved by the department. For the department to approve any such site-specific factor there must be well documented rationale for doing so and appropriate institutional or technological controls must be provided.

137.6(11) *Site-specific standards or approaches not anticipated by this rule.* Nothing in this rule precludes the use of site-specific standards derived in some way not anticipated by this rule, provided that the rationale is adequately presented and the approach is both approved by the department and provides a level of protection comparable to standards set forth under this rule.

567—137.7(455H) Institutional and technological controls.

137.7(1) *Technological controls.* The purpose of a technological control is to effectively sever a pathway by use of technologies such that an applicable receptor could not be exposed to hazardous substances above an applicable target risk level. Subject to limitations in this chapter, technological controls are an acceptable response action either alone or in combination with other remediation systems and institutional controls. The purpose of technological controls may be to control plume migration through use of containment technologies, barriers, or other methods, as an interim or permanent response action or to permanently sever a pathway to a receptor. Technological controls may also be appropriate to treat or control contamination at the point of exposure. Any technological control proposed as a permanent response action option without meeting the reduction in contaminant concentrations objectives must establish that the pathway to a receptor will be permanently severed or controlled. The effectiveness of a technological control must be monitored under a department-approved plan. The department may require reasonable proof of financial assurance when necessary to ensure that a technological control remain effective.

137.7(2) *Institutional controls.* The purpose of an institutional control is to restrict access to or use of an affected area such that an existing or future receptor could not be exposed to hazardous substances addressed by the controls for as long as the target level is exceeded at applicable points of exposure and compliance. Single or multiple institutional controls may be used alone or in combination and may also be employed with technological controls and response action to effectively achieve, maintain and enforce an approved level of risk reduction and risk management. The following enumeration of types of institutional and technological controls is not a finding that each is per se an effective control. The effectiveness of any institutional or technological control or combination of controls must be evaluated on a case-by-case basis and in accordance with specified conditions in this chapter. Institutional and technological controls include:

a. A state or federal law or regulation which can be shown to effectively achieve, maintain and enforce the required land-use restrictions and controls.

b. An ordinance of any political subdivision of the state which can be shown to effectively achieve, maintain and enforce the required land-use restrictions and controls.

c. A contractual obligation recorded and executed in a manner satisfying Iowa Code chapter 558. Recorded notices and affidavits, including a no further action letter as provided in rule 137.11(455H), which do not create rights or obligations or restrict land use but serve to put current and future property owners on notice of present or future conditions within the affected area.

d. A control which the participant demonstrates to the department reduces or manages the risk from a release through the period necessary to comply with the applicable standards, including but not limited to informational devices such as public notices, informational registries, notices to regulatory authorities and continuing site activities such as periodic inspections, equipment repair and maintenance, and soil and groundwater monitoring.

e. An environmental covenant established in accordance with 2005 Iowa Code Supplement chapter 455I, 2005 Iowa Code Supplement section 455H.206, and 567—Chapter 14.

137.7(3) *Environmental covenants.* Participants may submit a draft environmental covenant to the department for review and approval in accordance with 567—Chapter 14.

137.7(4) *Public notification.* The department shall prepare a public notice prior to approval of any no further action classification which is conditioned upon use of institutional or technological control(s). The public notice will describe the results of the risk assessment conducted in the affected area, any proposed or completed response action, the vertical and horizontal extent and concentrations of existing soil and groundwater contamination in the affected area, and the actual and potential pathways of exposure the controls are intended to address. The notice will describe the purpose of the institutional and technological control(s) being proposed and the predicted period of coverage. The notice will provide the opportunity for members of the public to review department files, make written comments and request a public hearing. The department may schedule a public hearing on the basis of requests from the public and when it determines the particular remedial options proposed for a site warrant public consideration, for example, when issues of whether and to what concentrations gross contamination should be allowed to remain within the affected area given the relative effectiveness of institutional controls and other community concerns and development plans.

a. The notice will be served by certified mail on all property owners that the actual or modeled data indicates are or may be affected by the present or future conditions addressed by the control. The notice will be published in a newspaper of general circulation most likely to reach persons in the immediate locality.

b. If the controls are intended to restrict surface or subsurface future land use, the notice shall be sent to each local regulatory body having jurisdiction and control over or a direct interest in regulation of these activities. These may include but are not limited to municipal or county zoning boards, municipal building authorities, public utilities and economic development agencies. If the controls are intended to restrict groundwater use, the notice shall be sent to the county or city board of health responsible for private well permitting.

c. Failure to provide notice to an interested party shall not constitute a basis for invalidating a subsequently approved no further action classification.

137.7(5) *No further action certificates.* Any no further action certificate shall contain a specific reference to any applicable institutional and technological control and shall meet the requirements in rule 137.11(455H). The reference must identify the location of any recorded instrument, contractual agreement or other documents applicable to the control, provide a brief description of the terms of the control and, where appropriate, site diagrams.

137.7(6) *Enforcement of institutional and technological controls.* Institutional and technological controls which have been incorporated into a no further action certificate pursuant to rule 137.10(455H), or have been approved prior to issuance of a no further action certificate, may be enforced in Iowa district court by the department, a political subdivision of this state, the participant or any successor in interest to the participant as provided in Iowa Code section 455H.206(4). Enforcement of the terms of an environmental covenant shall be in accordance with 2005 Iowa Code Supplement chapter 455I, 567—Chapter 14, and the terms of the environmental covenant.

137.7(7) *Failure of an institutional and technological control(s).* The effectiveness of institutional and technological controls may be jeopardized for several reasons including situations where the

technological controls are no longer effective in achieving their technical objectives, the validity of technological or institutional control is challenged due to a pending or final administrative or judicial action or legislative action changing its regulatory effect (e.g., change in an ordinance), or persons fail to comply with the terms of the institutional or technological control. The effect of the failure of a technological or institutional control to achieve its intended purpose is to remove the no further action classification and put all interested parties in the same position had the no further action classification not been made. When the department has reason to believe technological or institutional control(s) is jeopardized or determines that the control is no longer effective, the following policy and procedure shall apply:

a. The department shall make reasonable efforts to provide notice of the failure or noncompliance to the participant(s), protected parties, persons having legal standing to enforce the terms of the controls, other persons who may be legally responsible for contamination at the site and persons legally obligated to comply with the terms of the controls. The notice shall inform these parties of the consequences of failure of the controls and provide the opportunity for one or more of them to correct the deficiency by taking further response action or undertaking enforcement action to obtain compliance with the terms of the controls.

b. The participant(s) and other persons legally responsible for contamination at the site shall have primary responsibility to correct deficiencies or seek enforcement of the terms of controls, if they wish to maintain a no further action classification and any attendant statutory protections. The department may in its discretion seek enforcement of controls where persons fail to comply with the terms when it determines there is a strong likelihood of success, other participant(s) or legally responsible persons are unable or unwilling to undertake enforcement, and utilization of the controls remains consistent with these rules and site conditions currently in effect at the site. However, the department is not obligated to seek enforcement of the terms of any technological or institutional controls nor does the election not to undertake enforcement constitute a defense to further action by responsible parties or a basis for challenging the rescission of the no further action classification.

c. The department may also elect to require statutorily responsible parties to correct the deficiency as an alternative to rescinding the no further action classification.

d. Failure of a participant to timely undertake additional response action and response may result in termination of enrollment and loss of benefits under these rules and Iowa Code Supplement chapter 455H. Any person found to have intentionally violated an environmental protection easement or other institutional or technological control, whether included in a no further action letter or as part of an approved response action, may lose any of the benefits under these rules or Iowa Code Supplement chapter 455H.

137.7(8) *Modification and termination of institutional and technological controls.* A participant or successor in interest to a participant, or an owner of property subject to an institutional or technological control, may seek approval from the department for the removal, discontinuance, modification or termination of an institutional or technological control. The person must demonstrate that the control in its present form is no longer required to ensure compliance with applicable standards. The person seeking revision must undertake sufficient risk assessment and provide sufficient assessment data to establish that the applicable compliance standards can be met based on the proposed modification. The department may also determine based on a revised assessment that the applicable controls are no longer effective to meet compliance standards and may require other response action. The department shall issue an amendment to any previously issued no further action letter specifying the approved modification of the institutional or technological controls. Modification and termination of an environmental covenant shall be consistent with these rules and shall conform with 2005 Iowa Code Supplement chapter 455I and 567—Chapter 14.

567—137.8(455H) Site assessment.

137.8(1) *Purpose.* The purpose of the site assessment is to define the nature and extent of contamination, along with identifying likely exposure pathways, with the aim of characterizing potential, current and future risks and making an informed decision concerning an appropriate response

in the context of probable future land uses at the site and in the surrounding area. Assessment is to be conducted with the recognition that contaminant fate and transport may alter the current areal extent and depth of contamination. It is recognized that the scope of such an assessment may be appropriately varied dependent upon interrelated factors including the nature and severity of the contamination, the complexity of specific details of the site and its setting, and the nature of the chosen response, if known.

137.8(2) *Site assessment plan.* The participant is encouraged, but not required, to submit for department review a site assessment plan, prior to proceeding with the site assessment. Participants choosing to initiate site assessment without department review and approval of a work plan shall notify the department in writing of their intentions. Likewise, participants choosing to proceed to the risk evaluation/response action phase in accordance with rule 137.9(455H) without seeking review of the site assessment report shall give prior notice to the department of their intentions. The notice shall include a schedule for implementation and completion, a description of the area to be assessed and the scope of the proposed assessment to be undertaken, any planned construction activities in the affected area and a proposed date for submission of the site assessment report for department review. If the notice includes an intention to go directly to the risk evaluation/response action phase, it shall also include a general description of the site assessment results, a schedule for submission of the risk evaluation/response action document and the reasons for not requesting department review and approval of the site assessment report.

The plan is intended to lay out the rationale to be followed in the conduct of the site assessment. The purpose for this optional stage is to provide an opportunity for the participant and the department to reach a consensus regarding the appropriate scope of the site assessment. The development of a consensus should serve to diminish the likelihood that the department will find the final site assessment to be deficient and, for the benefit of the participant, to avoid the expenditures and time associated with the collection of what may ultimately prove to be unnecessary data.

In order to accomplish this, it is suggested that the plan should address relevant, known characteristics related to the site and its history as well as plans for addressing pertinent details spelled out in the subsequent sections on the site assessment and the site assessment report. Departmental review may result in suggestions from the department regarding perceived shortcomings or proposed activities which are deemed to be unnecessary.

The participant may find it desirable to conduct some preliminary investigation in order to develop a site assessment plan.

137.8(3) *Site assessment details.* In order to meet the stated purpose of the site assessment, it will be necessary to characterize numerous attributes related to the enrolled site and its setting. The following objectives are intended to provide a framework in which to accomplish this purpose. It is recognized that these objectives may exceed the appropriate scope of some site assessments and that there may be situations in which it may be necessary to define additional objectives. Any such deviation would preferably be addressed in a site assessment plan. The department may also develop guidance documents that recommend more specific procedures for accomplishing site assessment objectives. Such guidance documents will be readily available to the public. In general, an acceptable site assessment should address the following items.

a. Identify and address the medium or media of concern associated with the contamination situation for which the site is enrolled. The regulatory classification or jurisdiction of contaminants shall be indicated if applicable and, if known, e.g., the compound is regulated under the Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TSCA), or Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

b. Characterize the nature, extent, and degree of contamination in both horizontal and vertical dimensions. This should involve appropriate sample numbers and locations within the contaminated area and beyond the area contaminated in excess of the background or statewide standard. Analyses should be conducted for the contaminants of concern, breakdown products, and other contaminants likely to be present at significant levels. The department may also require analyses for additional contaminants which are not the focus of enrollment in the program, but which may be of special concern. Special concerns might include waste handling or treatment problems posed by the additional contaminants, or

unacceptable risks remaining unaddressed within the affected area, due to the presence of the additional contaminants. In the case of groundwater, attention should also be given to the possibility of contaminant accumulation in strata overlying confining layers and to the possible presence of non-aqueous phase liquids (NAPL). In the case of groundwater, more than one round of sampling shall be incorporated, appropriately separated in time. In the case of soils, particular attention should be given to characterizing shallow soil contamination, from zero to six inches in depth.

c. Characterize the nature of the source of contamination or propose a conceptual model explaining the presence of the contamination of concern.

d. Characterize local contamination maxima or hot spots for the purposes of evaluation against relevant standards and to identify handling or treatment concerns that they may pose.

e. Characterize the stratigraphy. This should be done to a depth extending to the first significant confining layer below the deepest contamination. Descriptions should rely primarily on results gathered in the site assessment, but relevant reference materials or geologic logs from other sources may be incorporated as a supplement.

f. Characterize the hydrologic properties of the site and its vicinity to a distance appropriate to the fate, transport and exposure concerns associated with the site. This characterization should consider both horizontal and vertical components of groundwater movement as well as other influences on groundwater hydrology such as pumping wells, injection wells, surface water bodies, effects of seasonal or precipitation-driven variability, and possible aquifer interconnections, including those related to existing or abandoned wells. Water level measurements, related to a common datum, screening of appropriate depth intervals, and determination of hydraulic conductivity will generally be considered as necessary.

g. Characterize physical and chemical properties of the site and its environs associated with contaminant fate and transport, e.g., percent organic matter, redox potential, soil bulk density, and transmissivity.

h. Characterize topographic and cultural features of the site and its immediate vicinity. Cultural features may include, but not be limited to, buildings, basements, paved areas, roadways, utilities, storage tanks and associated piping, piles, impoundments, wells, and waste disposal systems.

i. Evaluate concerns related to whether the contamination situation is dynamic or stable; if dynamic, address fate and transport and breakdown products appropriately.

j. Identify and characterize receptor or exposure concerns. This most clearly involves concerns for drinking water and exposures to contaminated soils, as suggested by the statewide standards, but additional concerns should be identified and addressed by the participant or the department, as the situation warrants, e.g., vapors to basements, threats to water supply lines, threats to surface waters, or environmental threats.

k. Characterize current and probable future uses of the site and its surroundings. If probable future uses differ significantly from current uses, then characterize them separately and conduct the assessment in a fashion which addresses concerns arising from the possible change in use.

l. Evaluate the potential for contaminants to migrate from one medium to another. The following subparagraphs prescribe requirements for assessing potential migration of contamination from one medium to another. Requirements in the following subparagraphs may be waived if it can be demonstrated in accordance with procedures established in 567—Chapter 135 or the latest version of ASTM Standards related to the Phase II environmental site assessment process that migration of contamination from one medium to another will not cause a violation of the applicable standard in the receiving medium. The assessment activities prescribed in the following subparagraphs are intended to determine if significant migration of contamination from one medium to another has occurred. If evidence of significant migration of contamination from one medium to another (i.e., generally a contaminant concentration in the receiving medium in excess of the statewide standard) is discovered, full-scale characterization of the receiving medium may be required.

(1) The water from any pond or lake on the site or within 300 feet of the site shall be sampled and analyzed for the contaminants of concern, if it is reasonably possible that contaminants from the site could impact the pond or lake. Any surface stream that runs through the site or within 300 feet of

the site should be sampled at a location downstream of any potential impact from the site and analyzed for the contaminants of concern. Depending on the characteristics of the contaminants (e.g., solubility), associated sampling and analysis of sediments may be required.

(2) Groundwater at the location most likely to be impacted by each known substantial area of soil contamination shall be sampled and analyzed for the contaminants of concern. If the area of soil contamination exceeds 10,000 square feet, additional groundwater samples may be required.

(3) Soil vapors in each area that is most likely to be impacted by known groundwater or soil contamination shall be sampled and analyzed for the volatile organic contaminants of concern. If the area of soil or groundwater contamination exceeds 10,000 square feet, additional soil vapor samples may be required. If vapors may be impacting an existing enclosed space, a soil vapor sample shall be collected from a location that is most likely to have vapor contamination adjacent to the enclosed space.

If the potential for the existence of problematic concentrations of the vapors in the enclosed space cannot be dismissed based on soil vapor sampling, sampling and analysis of vapors inside the enclosed space may be conducted to determine whether or not a problem exists. Appropriate measures for distinguishing between contaminant vapors originating from within the enclosed space versus those from the external sources that are under investigation may be made with the approval of the department.

Ambient air sampling may be required if a very large area or extremely high concentrations of highly volatile contaminants exist in shallow soil or evidence of vapor contamination exists, such as odors or a high vapor reading on a vapor-screening instrument.

(4) If a water line exists within the zone of known organic contamination of soil, groundwater or soil vapor and the potential for significant diffusion of contaminants into the water line cannot otherwise be dismissed, a sample from the water line shall be collected at the nearest location where any impact may exist and that sample shall be analyzed for the organic contaminants of concern. All such samples should be collected at times following minimum movement within the water line (e.g., early morning following a weekend).

137.8(4) *Site assessment report.* The site assessment report shall include the presentation of all information gathered relative to the foregoing description of the site assessment, arranged in appropriate sections of the report. It shall include a summary of preliminary information on which the site assessment is based, e.g., background and site history. The report shall discuss the sampling strategy and methods used in the assessment. The department encourages the use of innovative or screening techniques to expedite investigations and to control costs, provided that such techniques are approved by the department and are supported through verification by accepted scientific practices. The report shall also include a description of the quality assurance/quality control (QA/QC) protocols followed during the investigation. QA/QC protocols shall be consistent with accepted scientific practices, including those set forth in appropriate EPA or ASTM guidance or otherwise approved by the department.

The presentation should be organized so as to facilitate the assimilation of information by the reader. Maps to be presented, as appropriate, might include maps illustrating the location of the site in a larger geographical context; maps showing cultural features associated with the site and its environs; maps illustrating the contamination extent and concentration in three dimensions; maps illustrating the site hydrology in three dimensions; and maps illustrating receptors, potential receptors, and relevant pathways of exposure. Cross-sectional diagrams should be included to illustrate stratigraphy, geological boring information, and hydrologic and contaminant factors with depth. Tables and graphs should be designed for the purpose of summarizing data in a meaningful fashion, including information about successive rounds of sampling. Appendices should include well logs, copies of laboratory analytical reports, and raw data used to calculate parameters presented elsewhere in the report. Appended material shall be labeled in a fashion permitting the cross-referencing of appended materials and the body of the report.

137.8(5) *Approval of site assessment report.* The department suggests, but does not require, that the site assessment report be approved prior to proceeding with the subsequent risk evaluation/response action phase. Unless notice has already been given prior to initiation of the site assessment, participants choosing to proceed to the risk evaluation/response action phase without department review and approval of the site assessment report must notify the department in advance as provided in subrule 137.8(2).

137.8(6) *Public notification.* Before or upon completion of the site assessment, the participant shall provide the department with the names and addresses of the owners and occupants of all property adjacent to the site enrolled in the land recycling program and any additional properties where contaminants from the enrolled site have migrated or are likely to migrate in the future. The department shall notify by direct mailing all such property owners and occupants, the city or county in which the property is located, and officials of any potentially impacted public water supply of the site's enrollment in the land recycling program and of the scope of work described in the participation agreement. The department shall give the notified parties the opportunity to obtain updates regarding the status of activities relating to the site that is enrolled in the land recycling program. The department may also require the participant of a site enrolled in the land recycling program to publish public notice in a local newspaper if the department determines that widespread interest in the site exists or is likely to exist. The department may provide additional opportunities for public participation if, after consultation with the participant, the department determines such opportunities are warranted.

567—137.9(455H) Risk evaluation/response action.

137.9(1) *Purpose.* The purpose of risk evaluation/response action is to utilize information from the site assessment as a basis for:

a. Determining whether current exposures result in risks deemed to be excessive, based on evaluation against appropriate background, statewide, or site-specific standards.

b. Determining whether future exposures may result in risks deemed to be excessive, based on evaluation against appropriate background, statewide, or site-specific standards. This will likely include:

(1) Evaluation of potential changes in usage, e.g., installation of a new well, change in land use, or other activities, which result in unacceptable, potential exposures not evaluated as current exposures, and

(2) Evaluation of exposure concerns related to the movement of contamination such that potential exposures might arise which are not considered under current exposure assumptions, e.g., groundwater plume migration creating a potential for future contamination of existing wells or creating newly contaminated areas in which new well installation may result in unacceptable exposures.

c. Proposing an appropriate and acceptable response action or strategy to address the identified, unacceptable exposures or potential exposures.

d. Establishing the test criteria to be applied under rule 137.10(455H) for determining final compliance with the selected standard. In some cases this may consist of proving that standards are currently met; in other cases it may result in an assessment of whether the response action succeeds in bringing about compliance with a selected standard.

The risk evaluation/response action is intended only for application to the specific contaminants and situations for which the site is enrolled.

137.9(2) *Risk evaluation.* The risk evaluation/response action document shall identify all locations or areas, and associated exposure pathways, where exposure currently exceeds a statewide standard or where a statewide standard may be exceeded in the future, due to either a change in exposure-related usage or contaminant migration. Current and future exposure pathways shall be evaluated and presented separately. This evaluation shall not be limited to exposure pathways for which the department has formulated risk-based values in rule 137.5(455H) (the statewide standard) or 137.6(455H) (the site-specific standard) but should include any pathway related to the situation for which the site is enrolled, for which a no further action certificate is sought, or for which an unacceptable risk may now or in the future exist, e.g., high concentrations of volatile compounds in proximity to a confined space, high concentrations of solvents in proximity to a water distribution line, or environmental concerns unrelated to human health.

In a case where a background standard is to be applied and there is no violation of a statewide standard, it will be necessary to identify only locations or areas where the background standard is exceeded.

In some instances it is anticipated that the risk evaluation may be appropriately abbreviated from the preceding description, based on the specific details of the contamination and the proposed response

action. Participants are strongly urged to discuss the appropriate scope of their risk evaluation with the department.

137.9(3) *Establishing cleanup standards.* The risk evaluation/response action document shall identify the cleanup standards to be applied in accordance with rule 137.4(455H), 137.5(455H), or 137.6(455H) of this chapter, outlining respectively the background, statewide, or site-specific standards. These standards may be applied in any combination to address specific components of the contamination problem for which the site is enrolled. If cleanup standards other than those specifically formulated under the statewide standard (rule 137.5(455H)) are to be applied, then the rationale behind the determination of such standards shall be justified, in the document, to the department's satisfaction.

137.9(4) *The use of models.* The department recognizes that the use of numerical models will likely be necessary in order to evaluate potential future exposures or that models may be used to develop target levels.

a. Standard models. Standard models may be used to predict future contaminant concentrations at potential points of exposure to contaminants or at other locations used for determining compliance when such models are appropriate, as determined by the department. Applicable Tier 2 models approved for use in accordance with 567—Chapter 135 for underground storage tanks (USTs) and applicable Tier 2 models provided in American Society for Testing of Materials (ASTM) standards are acceptable standard models. Models which provide a two-dimensional representation of groundwater flow will not be considered to be appropriate when significant three-dimensional components to groundwater flow are anticipated. Default values for input parameters for ASTM and UST Tier 2 models, as provided in applicable ASTM standards and approved for use in accordance with 567—Chapter 135, may be utilized without approval by the department. The department will maintain a guidance document which includes a list of other chemical-specific default values for all chemicals having statewide standards. The use of other, site-specific input parameters is addressed under site-specific modeling in paragraph *"b"* below.

b. Site-specific models. Site-specific models may be used to predict future contaminant concentrations at potential points of exposure to contaminants or at other locations used for determining compliance when such models are appropriate, as determined by the department. Site-specific models may include standard models with site-specific input parameters or models utilizing more sophisticated analytical techniques. The department will utilize versions of A Modular Three-Dimension Finite-Difference Ground-Water Flow Model (MODFLOW) as developed by the United States Geological Survey in conjunction with A Modular Three-Dimensional Transport Model (MT3D) by S.S. Papadopulos & Associates, Inc. as a site-specific model for assessment of potential future exposures to contaminants in groundwater. MODFLOW and MT3D will be considered to be appropriate site-specific groundwater and contaminant transport models for any situation. Other site-specific groundwater and contaminant transport models may be utilized with the approval of the department. In general, a site-specific groundwater model shall have proven reliability and be able to simulate, as needed:

- A fixed contaminant source,
- Groundwater and contaminant flow in three dimensions,
- Groundwater and contaminant flow through as many distinct geologic layers as necessary for the site in question,
- Effects of pumping,
- Effects of groundwater recharge and discharge,
- Impacts of hydrologic boundaries,
- Contaminant advection, dispersion and chemical reactions, as appropriate for the site in question, and
- Other site-specific variables as appropriate.

Default values for input parameters approved for standard models will be approved for use in site-specific models. Otherwise, input parameters used in site-specific models are subject to the department's approval.

137.9(5) *Response action.* The risk evaluation/response action document shall include a proposal for a response action or strategy to achieve and maintain compliance with the selected standard(s). This may consist of activities designed to remove or treat contaminants, prevention of exposure to unacceptable

levels of contamination through technological/institutional controls or monitoring, or it may consist of a combination thereof. If the response action involves the use of a standard which is less stringent than the statewide standard, it will generally be necessary to implement institutional controls to prevent the type of exposure on which the statewide standard is based. It is the intent of the department to permit the participant to identify and carry out those options by which this may be accomplished, insofar as the department deems the selected options to be reasonable, protective of human health and the environment, and consistent with provisions of the rule.

137.9(6) *Free product and gross contamination.* The response action or strategy for an enrolled site shall take into account a stated policy of the Act to encourage environmental cleanup. To this end, the department requires that contaminants present as free product and gross contamination shall not be addressed through the implementation of institutional or technological controls. For purposes of this rule, gross contamination will be considered to be contamination present at concentrations in excess of a standard by an amount sufficient to reasonably expect that institutional or technological controls will not be adequately protective of human health or the environment.

The department recognizes that treatment or removal of free product or gross contamination may not, in some cases, be feasible. In such cases the department may grant a variance to this portion of the rule. It will be the responsibility of the participant to make a sufficient case that such a variance is warranted.

137.9(7) *Compliance verification strategy.* The risk evaluation/response action document shall outline a strategy for determining whether the relevant standards are met by the site and will continue to be met in the future. In some cases this may consist of sampling and statistical tests to verify that the standard has already been met, while in other cases the sampling and statistics may be used to demonstrate that a response action has achieved its stated goals and the site is now in compliance with standards. Some response strategies may also call for longer term monitoring. In this latter case, standard-based values shall be identified which, if exceeded, would indicate a failure of the response action and necessitate the development and implementation of a new response action. The terms under which monitoring may cease should also be proposed. The proposed strategy shall be consistent with rule 137.10(455H), dealing with demonstration of compliance, and shall indicate the standard to be applied and the point of compliance at which it is to be applied, consistent with rules 137.4(455H), 137.5(455H), and 137.6(455H) (the background, statewide, and site-specific standards, respectively).

137.9(8) *Risk evaluation/response action document submission.* A risk evaluation/response action document shall be submitted for review by the department. When considered in conjunction with the site assessment report, these documents shall present a complete picture of the site from its characterization, through the evaluation of risk, to the development of a strategy to address the situation. An effort shall be made to ensure that the reviewer, or other interested parties, can easily move back and forth through the documents to gain an understanding of the existing situation and proposed actions. The risk evaluation/response action document shall include a summary of findings regarding present risks and potential future risks; a pathway-specific identification of the standards to be applied, including the supporting rationale, if appropriate; a discussion of the proposed response actions, including remedial actions to be taken and institutional or technological controls to be implemented; and a discussion of the proposed verification strategy. Any modeling used for purposes of assessing future risk or establishing site-specific standards shall be presented in sufficient detail to permit evaluation of the results by the department. Any permits which will be necessary to implement the response action shall be identified to the department for inclusion in a consolidated standards permit.

137.9(9) *Department review and approval.* It is strongly recommended that the document be submitted for review and approval prior to proceeding with implementation of the response action. The final, department-approved document will be the basis for assessing subsequent activities at the site. Parties choosing to proceed with response actions without prior review and approval by the department proceed at their own risk and may not assume the response action implemented will result in a no further action certificate.

Parties choosing to implement a response action without prior review and approval by the department shall submit to the department a proposed risk evaluation/response action document accompanied by an

explanation of the reason(s) for proceeding without prior approval. Documentation shall also include a schedule for implementation, a description of construction or other activities to be undertaken, and date for submission of the final report demonstrating compliance, as described in rule 137.10(455H).

The department shall provide opportunity to comment on proposed response actions to any party that is potentially impacted by off-site migration of contaminants for which notification is required in accordance with subrule 137.8(6). The department shall consider reasonable comments from potentially impacted parties in determining whether to approve or disapprove a proposed response action or site closure.

567—137.10(455H) Demonstration of compliance.

137.10(1) *Purpose.* The purpose of the demonstration of compliance section is to provide a mechanism by which to verify that:

a. Appropriate and acceptable standards are complied with and that compliance can be reasonably expected to continue in the future;

b. Any and all remedial measures proposed under rule 137.9(455H) have achieved their purpose; and

c. Appropriate institutional and technological controls, or monitoring mechanisms, have been successfully put in place.

In some cases the demonstration of compliance may mark the final step, taken by the participant, prior to the issuance of a no further action certificate. In other cases it may mark the transition to the longer term closure activities associated with the site, such as monitoring, maintenance of technological controls, and continuing enforcement of institutional controls. In this latter case, demonstration of compliance activities may or may not result in the issuance of a no further action certificate, depending on the approach proposed in the response action. In some cases it may be necessary to successfully complete a monitoring program (or to fulfill other agreed-upon obligations) prior to the issuance of the no further action certificate.

In all cases, sampling of environmental media shall comply with QA/QC requirements addressed elsewhere in this rule.

137.10(2) *General requirements for demonstrating compliance with soil standards.*

a. For the standard being applied, the demonstration of compliance shall be at the point of compliance or point of exposure as set forth in rule 137.4(455H), 137.5(455H), or 137.6(455H) relating to background standards, statewide standards, and site-specific standards, and described in a site-specific context pursuant to subrule 137.9(7), relating to risk evaluation/response action.

b. Minimum sample numbers for the demonstration of compliance with the background standard for soils (paragraph 137.10(4)*"b"*) or with the statewide standard when applying subparagraph 137.10(5)*"a"*(1) shall be based on the volume of soil to which the selected standard is being applied as follows:

(1) For volumes less than or equal to 125 cubic yards, a minimum of 8 samples.

(2) For volumes greater than 125 cubic yards, but less than or equal to 3,000 cubic yards, a minimum of 12 samples.

(3) For each additional volume of less than or equal to 3,000 cubic yards, a minimum of 12 additional samples.

(4) Additional samples may be required based on site-specific conditions.

c. When applying the 95 percent upper confidence limit, according to EPA guidance, to demonstrate compliance with the statewide standard for soils (subparagraph 137.10(5)*"a"*(2)) or a site-specific standard for soils (subrule 137.10(6)), the minimum sample number shall be as specified in that guidance.

d. Sample locations for demonstration of compliance shall be selected in a systematic random fashion to be representative, both horizontally and vertically, of the volume of soil being evaluated for compliance.

e. Sampling for the purposes of demonstrating compliance shall be conducted after the completion of site assessment activities and after the implementation of applicable remedial measures.

137.10(3) *General requirements for demonstrating compliance with groundwater standards.*

a. For the standard being applied, the demonstration of compliance shall be at the point of compliance or point of exposure as set forth in rule 137.4(455H), 137.5(455H), or 137.6(455H), relating to background standards, statewide standards, and site-specific standards, and described in a site-specific context pursuant to subrule 137.9(7), relating to risk evaluation/response action.

b. Monitoring wells installed for the purpose of demonstrating compliance shall be of sufficient number and appropriate location to evaluate all hydrologic strata of concern, based on site-specific considerations, as identified pursuant to subrule 137.9(7), relating to risk evaluation/response action.

c. For statistical methods under subparagraph 137.10(5)*"b"*(1), compliance with the statewide groundwater standard shall be based on eight consecutive quarters of groundwater data.

As an alternative, the department may accept four consecutive quarterly sampling events or less with written approval from the department under the following conditions:

(1) There is adequate spatial monitoring of the plume upgradient which indicates a decreasing concentration trend toward the downgradient property boundary.

(2) Parameters affecting the fate and transport of regulated substances within the plume have been fully evaluated.

(3) Concentrations of regulated substances in the plume at the point of compliance monitoring wells along the downgradient property boundary are all less than or equal to the groundwater standard or the limit relating to the PQL, whichever is higher, in all samples collected during the quarters of monitoring.

(4) One of the following is met:

1. The age of the plume is sufficiently well known to permit a judgment to be made regarding its stability.

2. The remediation includes source removal or containment actions which would reduce chemical flux into the plume.

d. When applying the 95 percent upper confidence limit, according to EPA guidance, to demonstrate compliance with the statewide standard for groundwater (subparagraph 137.10(5)*"b"*(2)) or a site-specific standard for subrule groundwater (137.10(6)), the minimum sample number shall be as specified in that guidance.

e. Sampling for the purposes of demonstrating compliance shall be conducted after the completion of site assessment activities and after the implementation of applicable remedial measures.

137.10(4) *Demonstration of compliance with a background standard.*

a. To apply a background standard the participant shall demonstrate to the department, in writing, that the apparent background contamination at the site is due to widespread or naturally occurring contamination and shall obtain the department's approval to use this subrule. Data collected for the purpose of determining the applicable background standard is subject to department approval, interpretation, and manipulation, if necessary for the purpose of establishing a meaningful background standard.

b. For soil, the minimum sample number to determine the background standard shall be 10 (unless a lesser number is approved by the department) and the number of samples from the affected area shall be based on volume as described in 137.10(2)*"b."* No sample collected from the affected area may exceed the sum of the background arithmetic mean and three times the sample standard deviation, as calculated based on the background sampling.

c. For groundwater, a minimum of 12 locations shall be sampled in the background reference area (unless a lesser number is approved by the department) and an equal number shall be collected from the affected area. In areas involving more than one hydrologic strata, more samples may be required. Sampling shall be conducted concurrently in the background reference area and the affected area. No

sample collected from the affected area may exceed the sum of the background arithmetic mean and three times the sample standard deviation, as calculated based on the background sampling.

137.10(5) *Demonstration of compliance with the statewide standard.* The following requirements shall be met in order to demonstrate compliance with the statewide standard. Testing shall be performed individually for each contaminant being addressed and for which a no further action certificate is sought.

a. To demonstrate compliance with the statewide standard for soils in each affected area, in addition to (1) or (2) as follows, all other applicable requirements of this rule shall be met.

(1) Seventy-five percent of all soil samples, collected during a single event, shall be less than or equal to the statewide standard, with no individual sample exceeding 10 times the statewide standard.

(2) In accordance with EPA-approved methods, the 95 percent upper confidence limit of the arithmetic mean of soil sample values from the affected area shall be at or below the statewide standard.

b. To demonstrate compliance with the statewide standard for groundwater in each compliance monitoring well, in addition to (1) or (2) as follows, all other applicable requirements of this rule shall be met.

(1) Seventy-five percent of all samples collected in each compliance monitoring well over time shall be less than or equal to the statewide standard, with no individual sample exceeding 10 times the statewide standard.

(2) In accordance with EPA-approved methods, the 95 percent upper confidence limit of the arithmetic mean of samples collected from a compliance well over time shall be at or below the statewide standard.

137.10(6) *Demonstration of compliance with a site-specific standard.* To demonstrate compliance with a site-specific standard, the participant shall use the tests identified in 137.10(5)*"a"*(2) and 137.10(5)*"b"*(2), except that the 95 percent upper confidence limit of the arithmetic mean for samples from the medium of concern shall be at or below the site-specific standard.

137.10(7) *Compliance with cumulative risk.* In addition to or, for soil only, in lieu of compliance with standards for individual contaminants as prescribed above, cumulative risk criteria must be attained. Cumulative carcinogenic health risks shall not exceed 1 in 10,000. Noncarcinogenic health risks affecting the same target organ shall not exceed a cumulative hazard quotient of 1. Cumulative risk criteria are applicable to multiple contaminants in the same medium and multiple media in which exposure is likely to occur to the same individual. Cumulative risks shall be based on the same exposure assumptions that are used for determining the selected standard.

Risks associated with background levels of contaminants shall not be included in the cumulative risk determination. Background levels of contaminants shall be determined in accordance with subrule 137.10(4) or, if approved by the department, by the use of generally available information on background levels of contaminants.

In situations where the risk associated with exposure to a contaminant at a concentration equal to the selected standard is greater than the acceptable cumulative risk, the cumulative risk may be calculated assuming the risk associated with exposure to the contaminant at a concentration equal to the selected standard is equal to the acceptable cumulative risk criterion. The department will provide a guidance document for calculating cumulative risk and make it readily available to the public.

137.10(8) *Final report.* A final report shall be submitted which documents the accomplishment of all provisions set forth in the risk evaluation/response action document. This shall include, as applicable to the specific situation, discussions related to verification of compliance with selected standards; successful completion of approved remedial actions; implementation of necessary institutional or technological controls; and initiation of any required monitoring strategy. Sufficient details shall be included to permit the department to verify that the terms proposed in the response action have been met with regard to the statistical determination of compliance with standards.

137.10(9) *Department review and approval.* The final report is subject to review and approval by the department. Following review, the department will either approve the report or make a written response indicating the reason(s) why the report is unacceptable. Acceptance of the report may result in the issuance of a no further action certificate or it may mark a transition to the long-term closure activities associated with the site, as proposed in the response action. A decision that the report is unacceptable

may be based upon an insufficiency of the report or it may be based on a judgment that the terms of the response action have not been met.

In cases where a participant has elected to proceed through this program without department interaction and without submitting site assessment (pursuant to rule 137.8(455H)) or risk evaluation/response action documents (pursuant to rule 137.9(455H)), the final report shall contain the substantive information related to those rules in addition to information required under this rule. The intent is to create a document for departmental review and approval which clearly sets forth, in substance, the same process which would have been developed had the participant engaged in a stepwise approach including interaction with the department during the process.

567—137.11(455H) No further action classification.

137.11(1) *Eligibility.* An enrolled site shall be eligible to obtain a no further action classification, when the department determines the participant has met all compliance standards of this chapter applicable to the affected area and the hazardous substances actually identified and evaluated such that no further response action is required other than maintenance of institutional or technological controls or certain specified continuing site activities. Upon request of a participant or a protected party and compliance with applicable standards, the department will issue a no further action letter to each protected party requesting it.

A no further action classification may be conditioned upon the continued maintenance and effectiveness of any applicable institutional or technological control in accordance with rule 137.7(455H).

137.11(2) *No further action certificate.* A no further action letter shall be in a form recordable in the county real estate records as provided in Iowa Code chapter 558 and consistent with the model forms developed by the department. The no further action letter may be recorded as provided by law.

137.11(3) *No further action certificates conditioned on institutional and technological controls.* A no further action certificate conditioned upon the continuing effectiveness and maintenance of institutional and technological controls or other continuing requirements must be recorded with the consent of the fee titleholder for each parcel of affected property subject to the controls and for parcels of property for which prevention of exposure is dependent upon the continuing effectiveness and maintenance of the controls. If a participant is not able to record the no further action letter on a parcel within the affected area due to objections of the fee titleholder or other legal restraints, this alone shall not be a basis for denying or rescinding the no further action classification or the certificate or the legal protections attendant to the no further action classification. Any modification or termination of institutional and technological controls shall be noted in an amended no further action certificate and shall be recorded as to any property subject to an earlier recorded certificate or institutional control. If a no further action certificate is required to be recorded, the no further action classification is not effective until the document is recorded with the county recorder.

137.11(4) *Scope of liability protection.* Upon issuance of the no further action letter by the department, the liability protection provisions contained in Iowa Code Supplement chapter 455H, subchapter 3, apply. The scope of the no further action classification and the scope of liability protection extend only to that area of affected property as defined by actual and modeled contaminant data and the specific environmental condition for which a regulatory standard has been met and approved by a no further action classification. The scope of protection corresponds to the scope of the site assessment conducted by the participant, the exposure pathways actually evaluated by the assessment report and reviewed by the department, and the hazardous substances identified in that assessment for which compliance with a department-approved standard has been achieved. Liability protection does not apply to releases, sources of contamination, hazardous substances or other environmental conditions not expressly addressed in the participant's site assessment, response action or specifically referenced in the no further action certificate.

The no further action classification and certificate shall be void if the department demonstrates by clear, satisfactory, and convincing evidence that any approval under this chapter was obtained by fraud

or material misrepresentation, knowing failure to disclose material information, or false certification to the department.

137.11(5) *Reopener and reclassification conditions.*

a. The department shall have grounds to reopen and rescind a no further action classification and consider reclassification of the affected area if specified conditions of the no further action classification and certificate are not maintained, or if institutional or technological controls fail to meet their intended purpose or are determined to be ineffective and unenforceable. If the conditions upon which the no further action classification was issued cannot be corrected or reinstated, the department may rescind the classification. The effect of termination is to put all parties in the same position as if the no further action letter had not been issued.

b. If a no further action certificate is issued without conditions or technological and institutional controls and conditions should arise which might require further corrective action, the department may require further response action by a participant or protected party only as provided in Iowa Code Supplement section 455H.301. The department may require further response action against a statutorily responsible party who is not a participant or a protected party. If the participant was a person having control over a hazardous substance, as defined in Iowa Code section 455B.381, at the time of the release, a no further action certificate may provide or the department may require further response action to protect against an imminent and substantial threat to public health, safety, and welfare. A protected party who was a person having control over a hazardous substance, as defined above, may be required by the department to conduct a further response action, where appropriate, to protect against an imminent and substantial threat to public health, safety, and welfare.

These rules are intended to implement Iowa Code Supplement chapter 455H.

[Filed emergency 10/27/98 after Notice 8/12/98—published 11/18/98, effective 10/27/98]

[Filed 7/1/04, Notice 4/14/04—published 7/21/04, effective 8/25/04]

[Filed 6/28/06, Notice 3/15/06—published 7/19/06, effective 8/23/06]

[Filed ARC 4426C (Notice ARC 4277C, IAB 2/13/19), IAB 5/8/19, effective 6/12/19]

CHAPTERS 138 and 139
Reserved

TITLE X
HAZARDOUS WASTE

CHAPTER 140
SCOPE OF TITLE—DEFINITIONS—FORMS—RULES OF PRACTICE
[Prior to 12/3/86, Water, Air and Waste Management[900]]
Rescinded IAB 6/13/12, effective 7/18/12

CHAPTER 141
HAZARDOUS WASTE
[Prior to 7/1/83, DEQ Ch 45—Chapter 45 was previously adopted by the Solid Waste Disposal Commission on September 18, 1980, after full notice and public participation. The Environmental Quality Commission formally adopted Chapter 45, effective 1/20/81]
[Prior to 12/3/86, Water, Air and waste Management[900]]
Rescinded IAB 6/13/12, effective 7/18/12

CHAPTER 142
Reserved

CHAPTER 143
USE OF RECYCLED OILS FOR ROAD OILING, DUST CONTROL, AND WEED CONTROL
[Prior to 12/3/86, Water, Air and Waste Management[900]]
Rescinded IAB 8/18/93, effective 9/22/93

CHAPTER 144
HOUSEHOLD HAZARDOUS MATERIALS
Rescinded **ARC 3995C**, IAB 9/12/18, effective 10/17/18

CHAPTER 145
HOUSEHOLD BATTERIES

567—145.1(455B,455D) Scope. This chapter is intended to assist the implementation of the provisions of Iowa Code sections 455D.10A and 455D.10B. These sections limit the amount of mercury added to an alkaline manganese battery and prohibit the disposal of batteries specified in 455D.10A(3)*"a"*(1) as part of the mixed municipal solid waste stream. All consumers shall be informed of this prohibition on disposal. These sections further require the establishment of a system or systems that would require any or all of the following: elimination or reduction of heavy metals or other toxic components, establishment of a comprehensive recycling program, or collection, transport, and proper disposal of the specified batteries.

Household batteries in rechargeable consumer products shall be easily removable or contained in a battery pack. The rechargeable battery, the instruction manual, and the product package shall be labeled to notify the consumer of the need to recycle and of the type of electrode used in the battery.

These provisions will further ensure the protection of the state's groundwater resources while protecting the health and safety of the citizens of Iowa and the environment as a whole.

567—145.2(455B,455D) Definitions. As used in this chapter, in addition to the definitions set forth in Iowa Code section 455D.10A, the following definitions apply:

"Alkaline manganese battery" means a battery consisting of a manganese dioxide positive electrode, a zinc negative electrode and an alkaline electrolyte.

"Battery pack" means one or more batteries enclosed in a housing.

"Collection entity" is defined in 455D.10A(3)*"b"*(1).

"Collection system" means a system or systems in which household batteries, as specified in 455D.10A(3)*"a"*(1), are collected by several methods to be recycled or properly disposed. The methods include, but are not limited to: point of purchase return, mail-in return, a combination of both or a collection entity.

"Dealer" means any person who sells or otherwise offers household batteries to a consumer.

"Department" means the Iowa department of natural resources.

"Distributor" means any person who sells or otherwise offers household batteries to dealers.

"Institutional generator" is defined in 455D.10A(1)*"e."*

"Manufacturer" means any person who manufactures or offers household batteries for sale to distributors or dealers. The manufacturer's name that appears on the battery or rechargeable consumer product shall be presumed to be the manufacturer.

"Mercuric oxide battery" means a battery consisting of a mercuric oxide positive electrode and a zinc negative electrode.

"Nickel-cadmium battery" means a battery consisting of a nickel positive electrode and a cadmium negative electrode.

"Participants in the stream of commerce" means any dealer, distributor or manufacturer who is involved in the manufacturing, distribution, or sale of household batteries specified in 455D.10A(3)*"a"*(1).

"Sealed lead-acid battery" means a battery consisting of positive and negative electrode materials which are leads or compounds thereof, used in nonvehicular applications and weighing less than 25 pounds.

"Unreasonable hazard to public health, safety, or the environment" means a situation caused by the improper disposal of an item that is flammable, corrosive, toxic, or reactive, as defined by EPA regulations, that may result in harm to the public health, safety, or the environment. The harm created from improper disposal may be evident immediately or after a period of time. This definition relates to 455D.10B(2)*"c."*

567—145.3(455B,455D) Household batteries. Any and all batteries specified in 455D.10A and 455D.10B that are used for any and all purposes are covered by these rules, except those batteries

subject to regulation under the federal Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.

145.3(1) Only button cell batteries containing mercuric oxide are included in this collection program for recycling or proper disposal. Mercuric oxide button cell batteries shall bear an appropriate identification mark. (Non-mercuric oxide button cell batteries are not included in this collection program for recycling or proper disposal.)

145.3(2) Only rechargeable dry cell batteries containing nickel-cadmium (i.e., rechargeable kitchen appliances, rechargeable power tools and other household applications) are included in this collection program for recycling or proper disposal. (This collection or proper disposal program would not include nonrechargeable batteries used in radios, flashlights and other household applications.)

145.3(3) Only sealed lead-acid batteries used in nonvehicular rechargeable (i.e., camcorders, computers, cellular phones and other household applications) products weighing less than 25 pounds are included in this collection program for recycling or proper disposal.

567—145.4(455B,455D) Recycling/disposal requirements for household batteries.

145.4(1) It is the responsibility of all participants in the stream of commerce, either individually or collectively, to establish and maintain a system or systems for the proper collection, transportation and recycling or disposal of waste batteries, specified in 455D.10A(3)*"a,"* for consumers and institutional generators in Iowa, beginning July 1, 1996.

145.4(2) The manufacturers shall provide a plan to the department, by May 1, 1996, that specifically identifies a system or systems for the proper collection, transportation and recycling or disposal of the specified waste household batteries. This information shall identify, to the extent possible, transporters and recycling or disposal destinations.

145.4(3) A consumer that is not an institutional generator shall not be required to pay for any collection, disposition and recycling activities after the original purchase of the battery. However, these charges may be built into the original cost of the product. An institutional generator shall provide for the on-site source separation and collection of used mercuric oxide batteries, nickel-cadmium rechargeable batteries, and sealed lead-acid rechargeable batteries.

145.4(4) As part of the requirement of informing each consumer of the safe and convenient return process available for recycling or proper disposal of waste batteries, pursuant to Iowa Code section 455D.10A(3)*"b"*(2), a manufacturer shall provide a telephone number to each consumer of the specified batteries that provides information on returning these batteries for recycling or proper disposal. This telephone number shall also be provided to the department.

567—145.5(455B,455D) Exemptions for batteries used in rechargeable consumer products. A rechargeable consumer product manufacturer may apply to the department for exemption from the requirements of 455D.10B(1). An application for exemption from these requirements shall be submitted on 8½- x 11-inch paper and contain:

1. The name, address, and telephone number of the applicant and the applicant's contact;
2. A statement setting forth the specific basis upon which the exemption is sought.

The information required pursuant to this rule shall be furnished to the department for each specified rechargeable consumer product for which an exemption is sought. The department shall approve or deny an exemption upon receipt of an application therefor. Allowable exemptions are specified in 455D.10B(2)*"a"* through *"d."*

These rules are intended to implement Iowa Code sections 455B.301 to 455B.316, 455D.10A and 455D.10B.

[Filed 7/28/95, Notice 12/21/94—published 8/16/95, effective 9/20/95]

CHAPTERS 146 and 147
Reserved

CHAPTER 148
REGISTRY OF HAZARDOUS WASTE OR HAZARDOUS SUBSTANCE DISPOSAL SITES
Rescinded IAB 6/13/12, effective 7/18/12

CHAPTER 149
FEES FOR TRANSPORTATION, TREATMENT AND DISPOSAL OF HAZARDOUS WASTE

[Prior to 12/3/86, Water, Air and Waste Management[900]]

567—149.1(455B) Authority, purpose and applicability.

149.1(1) *Authority.* Pursuant to Iowa Code section 455B.424, the department has authority to collect fees for the transportation, treatment, and disposal of a hazardous waste. Moneys collected or received by the department shall be transmitted to the treasurer of the state for deposit in the hazardous waste remedial fund.

149.1(2) *Purpose.* The purpose of these rules is to provide an orderly and efficient process for the assessment and collection of fees for certain activities involving hazardous wastes. These rules clarify the applicability of the fees and set forth a fee schedule, means of filing, and record-keeping requirements.

149.1(3) *Applicability.* Unless subject to the criteria in rules 149.3(455B) and 149.9(455B) of this chapter, fees shall apply to the following persons:

a. Any person who generates a hazardous waste and transports hazardous wastes off the site of generation as is defined by Iowa Code section 455B.412(2) and 567—Chapter 144.

b. Any person who owns or operates a facility within Iowa which provides treatment or disposal of hazardous waste.

567—149.2 Reserved.

567—149.3(455B) Exclusions and effect on other fees.

149.3(1) *Exclusions.* A person shall be exempt from the payment of fees specified in rule 149.4(455B) if any one of the following criteria is met:

a. The person is a duly authorized agent of the state of Iowa or a political subdivision of the state.

b. The hazardous waste is reclaimed or reused for energy or materials.

c. The hazardous waste is transformed into new products which are not regulated as wastes.

d. The hazardous waste is created as a result of remedial actions at an abandoned or uncontrolled hazardous waste site.

e. The waste is the influent to a facility which is subject to regulation under rules in 567—Chapter 62, "Effluent and Pretreatment Standards: Other Effluent Limitations or Prohibitions" or 567—Chapter 64, "Wastewater Construction and Operation Permits." However, any hazardous waste created by such a treatment process is subject to the fees specified in this chapter.

f. The hazardous waste which due to its physical, chemical or biological properties decomposes spontaneously within 24 hours of generation to yield a resultant waste which is no longer hazardous in accordance with 40 CFR Part 261 as adopted by reference by rule 567—141.2(455B).

g. Hazardous waste which is generated outside the state of Iowa and transported through the state.

149.3(2) *Other fees.* A person exempt from payment of fees specified in rule 149.4(455B) is exempt only for the purpose of Iowa Code section 455B.424. Fees other than those specified in this chapter may still be assessed.

567—149.4(455B) Fee schedule.

149.4(1) *Effective date.* On and after July 1, 1985, fees shall begin to accrue for the transportation, treatment or disposal of hazardous waste within Iowa.

149.4(2) *Hazardous wastes generated within Iowa.* For hazardous waste generated within the state of Iowa, the generator shall be responsible for the following fees:

a. A fee of $2 is assessed for each ton of hazardous waste destroyed or treated in Iowa to render the hazardous waste nonhazardous. However, hazardous residues resulting from such treatment are subject to all applicable fees.

b. A fee of $10 for each ton of hazardous waste transported offsite of generation.

The water content weight of any waste that is transported to another facility under the ownership of the generator for the purpose of waste treatment or recycling shall not be considered when computing the weight of the waste.

c. A fee of $40 is assessed for each ton of hazardous waste placed, deposited, dumped, or disposed of onto or into the land at a disposal facility in Iowa.

d. An Iowa facility which treats or disposes of hazardous waste is considered a generator for the purposes of paragraph 149.4(2)*"b"* if the wastes are subsequently transported off of the treatment or disposal facility site.

149.4(3) *Waste generated outside of Iowa.* For hazardous waste generated outside of the state of Iowa and imported into the state for treatment or disposal, the following fees shall be paid by the treatment or disposal facilities owner or operator:

a. A fee of $2 is assessed for hazardous waste destroyed or treated at the disposal facility to render the hazardous waste nonhazardous. However, hazardous residues resulting from such treatment are subject to all applicable fees.

b. A fee of $40 is assessed for each ton of hazardous waste placed, deposited, dumped, or disposed of onto or into the land at a disposal facility in Iowa.

c. An Iowa facility which treats or disposes of hazardous waste is considered a generator for the purposes of paragraph 149.4(2)*"b"* if the wastes are subsequently transported off of the treatment or disposal facility site.

149.4(4) A person who is subject to the fee schedule set out in rule 149.4(455B) who generates, transports, treats or disposes of a fraction of a ton of hazardous waste shall pay a proportionate fee equal to the fraction of a ton.

567—149.5(455B) Form, manner, time and place of filing.

149.5(1) *Form.* Any person to whom this chapter applies must file a completed Form 179 "Hazardous Waste Program—Transportation, Treatment and Disposal Fees" which is provided by the department as specified in rule 567—140.6(455B).

149.5(2) *Manner, time and place.* Fees are due on April 15 for the previous calendar year. The person shall present or mail the completed form with the appropriate fees to: Accounting, Department of Natural Resources, Henry A. Wallace Building, 900 East Grand Avenue, Des Moines, Iowa 50319.

567—149.6(455B) Identification, sampling and analytical requirements.

149.6(1) The hazardous wastes to which the fee schedule listed in rule 149.4(455B) applies are those identified in 40 CFR Part 261 through October 23, 1985, as adopted by reference by rule 567—141.2(455B).

149.6(2) For the purposes of Iowa Code subsection 455B.424(1), the weight of the waste less its water content is determined using the total solids method 209A (for liquids) or 209F (for sludges or semisolids), 16th Edition of Standard Methods for the Examination of Water and Wastewater, 1985.

149.6(3) Petitions for equivalent testing or analytical methods are addressed in 40 CFR 260.21 as adopted by reference by 567—subrule 141.1(1).

567—149.7(455B) Reporting and record keeping.

149.7(1) Manifests. Those persons subject to the manifesting requirements of 40 CFR Part 262 as amended through July 15, 1985, as adopted by reference by 567—141.3(455B), shall maintain the manifests for the purpose of determining the amount of fees to be addressed as set out in rule 149.5(455B).

149.7(2) Operating records. Those persons who generate hazardous waste who are not subject to the manifesting requirements shall maintain operating records in accordance with rules 567—141.5(455B) and 567—141.6(455B).

149.7(3) A copy of completed Form 179 must be kept for a period of at least three years from the due date of the form.

149.7(4) All records required under this chapter must be furnished upon request, and made available at all reasonable times for inspection, by any officer, employee, or representative of the department who is duly designated by the director.

567—149.8(455B) Failure to pay fees. If the director finds that a person has failed to pay the fees assessed by this chapter, the director shall enforce the collection of the delinquent fees. A penalty of 15 percent of the fee due in addition to the fee due shall be collected.

567—149.9(455B) Suspension of fees. If after collection of all fees due in a given year the hazardous waste remedial fund has a balance in excess of $6 million by July 1 of a calendar year, the department shall suspend the collection of fees. If the balance falls below $3 million, the fee collection shall be reimposed commencing the beginning of the next calendar quarter. Notices of suspension of fees and reinstatement of fees shall be provided by the department.

These rules are intended to implement Iowa Code section 455B.424.

[Filed 11/27/85, Notices 7/31/85, 10/9/85—published 12/18/85, effective 1/22/86]

[Filed emergency 11/14/86—published 12/3/86, effective 12/3/86]

[Prior to 12/3/86, Water, Air and Waste Management[900]]

CHAPTER 151
CRITERIA FOR SITING HAZARDOUS WASTE MANAGEMENT FACILITIES
Rescinded IAB 6/13/12, effective 7/18/12

CHAPTER 152
CRITERIA FOR SITING LOW-LEVEL RADIOACTIVE WASTE DISPOSAL FACILITIES

567—152.1(455B) Authority, purpose and scope.

152.1(1) *Authority.* This chapter is authorized in Iowa Code section 455B.486, which relates to the siting of low-level radioactive waste disposal facilities.

152.1(2) *Purpose.* These rules establish criteria for identifying sites which are suitable for operation of low-level radioactive waste disposal facilities. The waste management authority will apply these criteria to identify and recommend to the commission sites suitable for locating these facilities.

152.1(3) *Scope.* These rules apply only to facilities which are owned or operated by the state of Iowa and privately owned or operated facilities which are located upon land owned by the state of Iowa which are used for low-level radioactive waste disposal pursuant to Iowa Code section 455B.486.

567—152.2(455B) Definitions. In addition to the definitions in Iowa Code section 455B.482, the following definitions apply to this chapter:

"Aquifers" means water-bearing geological formations, group of formations, or part of a formation capable of yielding significant amounts of groundwater for beneficial use.

"Conservation area" means any park, recreation area, wildlife area, forest, prairie, preserve, natural area, scenic area owned, managed, or under control of any government agency or organized conservation group on or before the effective date of these rules.

"Criterion" means a test, rule, measure, or model by which judgment will be made.

"Critical wildlife habitat" means any areas known to be inhabited on a seasonal or permanent basis by, or to be critical at any stage of the life cycle of, any wildlife or vegetation identified as "rare," "threatened," or "endangered" by official federal or state lists of species, or is under active consideration for listing.

"Cultural area" means any known property of recognized archaeological, architectural, cultural or historical significance as listed in or eligible for the National Register of Historic Places, the significant state site records of the Office of Historic Preservation, the office of the state archaeologist, or is under active consideration for listing. Archaeological property shall include, but is not limited to, ancient mortuary sites.

"Dam hazard area" means any area identified as an area of dynamic flooding below a dam (the inundation zone) or area of static flooding above a dam (flood pool). The inundation zone includes the area that would be flooded by a flood wave generated by dam failure during a 100-year flood. The static flooding zone is equal to the pool level reached during a 100-year inflow flood, or the top of the dam, whichever is greater.

"Drinking water source" means the groundwater or surface water intake of drinking water used for human consumption.

"Facility" means any hazardous waste management facility including land and structures, appurtenances, improvement and equipment for handling, treatment, storage or disposal of hazardous wastes.

"Floodplain" means the land adjacent to a stream which has been or may be inundated by a flood having the magnitude of the regional 100-year flood.

"Geological hazard structures" means any faults, fracture zones, or other structures that may provide pathways to groundwater.

"Karst areas" means a type of topography or surface area covered by alluvial or colluvial sediments that may form over limestone, dolomite, or gypsum formations by dissolving or solutions, and that are characterized by closed depressions or sinkholes, caves, and underground drainage.

"Mineral and energy resources" means minerals, construction materials, metals, coal, gas, and oil.

"Mining activity" means any area of past or present underground or surface mining, mineral extraction, or major exploration or production drilling for oil, gas, or mineral resources, and any area likely to be influenced by mining activity through subsidence or surface deformation.

"Nonattainment area" means any area not attaining the National Ambient Air Quality Standards as defined in Part D of the Clean Air Act.

"Population area" means any commercial, school, church, social, medical facility, elderly housing, correctional facility, mobile home park, or incorporated residential area.

"Prevention of significant deterioration" is defined in Part C of the Clean Air Act.

"Prime farmland" means any area identified as such by the United States Department of Agriculture, Soil Conservation Service.

"Protected basins" means any portion of the drainage basin of protected water areas within two miles of the water area. Protected water areas are those classified as such pursuant to Iowa Code chapter 462B, or high-quality waters, high-quality resource waters or Class "C" waters designated in 567—Chapter 61.

"Proximity to major generators" means within 50 miles of the central point of generation based on the latest available RCRA biennial report on hazardous waste generation in Iowa.

"Seismic risk" means the relative geologic stability of the site based on the likelihood of structural damage due to seismic events. Seismic risk categories, as developed by the National Oceanographic and Atmospheric Administration, will be used to rate relative stability.

"Site" means the land area upon which a facility is, or is proposed to be, physically located, including but not limited to adjacent land use for utility systems such as repair, storage, processing, or other areas incident to the facility or operation.

"Siting authority" means the party with the specific authority to select sites for facilities.

"Transportation routes" means any public all-weather hard-surfaced road with adequate capacity to carry the type and volume of commercial vehicular traffic serving the facility for the entire year with no embargoes, special permits or other restrictions on roads, overpasses or bridges that would prevent transportation to the facility.

"Utilities and services" means electricity, gas, water and sewer utilities, and police, fire protection, and emergency medical services.

"Wetlands" means any area inundated by surface or groundwater with a frequency sufficient to support, under normal circumstances, a prevalence of vegetation or wildlife requiring saturated or seasonally saturated soil conditions for growth or reproduction. These areas include swamps, marshes, bogs, sloughs, wet meadows, mudflats, sandflats, ponds, lakes, and similar areas.

567—152.3(455B) Siting criteria. The siting authority shall use the following criteria in selecting sites for facilities.

152.3(1) *Exclusionary criteria.* No facility shall be sited within:

a. An area of seismic risk category of "4" or greater;

b. A 100-year floodplain;

c. A dam hazard area;

d. An area with less than 100 feet of aquitard between the base of operation and the subjacent aquifer;

e. One mile of a geologic hazard structure;

f. One mile of a karst area;

g. One mile of an area of past or present surface or underground mining activity;

h. One mile of wetland;

i. Any protected basin; or

j. Ten miles of any nuclear power plant.

152.3(2) *Quantitative criteria.* The quantitative criteria and corresponding values which are to be applied are in Table 1 as follows:

Table 1

	Value Assigned		
	5 points	2 points	Excluded
Mineral and Energy Resources	No significance present within one mile	Significant presence with perpetual ban on recovery	—
Drinking Water Sources	No sources within one mile	Source permanently closed and alternative water source provided	—
Critical Wildlife Habitats	No habitat within one mile	Permanent buffer and no interference	Interference
Conservation Areas	No area within one mile	Permanent buffer and no interference	Interference
Cultural Areas	No area within one mile	Permanent buffer and no interference	Interference
Population Areas	No area within one mile	Permanent buffer and no interference	Interference
Prime Farmland	Less than 25% prime farmland	More than 25% prime farmland	—
Nonattainment With NAAQS	No significant impact predicted	Little significant impact predicted	—
Prevention of Significant Deterioration	Good data available and sufficient increments	Little data available but increment available	—
Transportation Routes	Within 5 miles of major highway, 10 miles of a rail line, and 50 miles of interstate highway	Beyond 5 miles from major highway, 10 miles of a rail line, or 50 miles from interstate highway	—
Proximity to Major Generators	Within 50 miles of major generators	Beyond 50 miles from generators	—
Utilities and Services	Accessible services available	Sites needing services extended	—

152.3(3) *Methodology.* The methodology to be used by the siting authority in applying these criteria is contained in the report "Hazardous Waste Management Facility Siting Criteria and Methodology, August 1987" which is adopted by reference. The criteria listed in this rule shall be applied in three steps as follows:

a. Step 1. The exclusionary criteria shall be applied to the entire state. Step 2 shall be applied to those areas remaining.

b. Step 2. The quantitative criteria shall be applied to the nonexcluded areas identified in Step 1. The values in Table 1 shall be applied and the potential sites ranked in order of priority.

c. Step 3. The top rated potential sites shall be subject to detailed evaluation. The best site for the facility shall be selected.

[Filed 11/25/87, Notice 9/9/87—published 12/16/87, effective 1/20/88]

CHAPTERS 153 to 208
Reserved

CHAPTER 209
LANDFILL ALTERNATIVES FINANCIAL ASSISTANCE PROGRAMS

567—209.1(455B,455E) Goal. The goal of landfill alternatives financial assistance programs is to reduce through implementation of solid waste management projects the amount of solid waste being generated and the amount of solid waste being landfilled.
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.2(455B,455E) Purpose. The purpose of these programs is to provide financial assistance to applicants implementing projects and programs leading to the diversion of solid waste from sanitary landfills.
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.3(455B,455E) Definitions.

"Abandoned" means that the building has been unoccupied for a minimum of six continuous months.

"Asbestos-containing material" or *"ACM"* means any material that contains more than 1 percent of asbestos.

"Building renovation" means repairs that stabilize or improve the structural integrity of the building, including but not limited to roof repair or replacement, building stabilization, and the tuck-pointing of exterior walls.

"Cost share" means the applicant's share of the eligible costs of the proposed project.

"Deconstruction" means the selective dismantlement of a building for the purpose of maximizing reuse and recycling opportunities through source separation while minimizing disposal costs.

"Demonstration project" means a project that is innovative or new to the state of Iowa.

"Department" means the Iowa department of natural resources.

"Derelict building grant eligibility" means any county or municipal government with a population of 5,000 or fewer is eligible to apply for a derelict building grant. An applicant may partner with a local nonprofit organization on a project.

"Eligible costs" means costs directly related to the project and for which financial assistance moneys may be used.

"Financial assistance" means monetary assistance in the form of grants, loans, or forgivable loans that is awarded under these rules to an applicant.

"Forgivable loan" means financial assistance that does not require repayment to the department.

"Indirect costs" means costs not directly arising from a specific product, function, or activity.

"Landfill diversion rate" means the weight of materials diverted from a sanitary landfill, divided by the total weight of the building and its contents, expressed as a percentage. Materials diverted from a sanitary landfill do not include material combusted without energy recovery or material dumped or discarded in violation of Iowa Code sections 455B.307 and 455B.307A.

"Loan" means an award of financial assistance with the requirement that the award be repaid including interest as applicable.

"Overhead costs" means expenses not chargeable to a particular part of the work or product, including but not limited to utilities, insurance, and rent.

"Phase I environmental assessment" means review of known environmental records and land use information about the site and vicinity.

"Phase II environmental assessment" means actual soil, groundwater and structural material sampling and testing to confirm or deny the presence of contamination.

"Recipient" means any applicant selected to receive financial assistance under these rules.

"Sanitary landfill" means a permitted disposal site where solid waste is buried between layers of earth.

"Solid waste alternatives program eligibility" means any unit of local government, public or private group, individual or business that has an interest in or has responsibility for solid waste management in Iowa and is currently in compliance with all applicable state statutes and regulations is eligible to apply for the solid waste alternatives program (SWAP).

"Waste reduction" means practices which reduce, avoid, or eliminate the generation of solid waste at the source. Waste reduction is not merely the shifting of a waste stream from one medium to another medium.
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.4(455B,455E) Role of the department. The department is responsible for the administration of funds for projects receiving financial assistance under these rules. The department will ensure that funds disbursed meet guidelines established by Iowa Code sections 455E.11(2)*"a"*(1)(e) and 455E.11(2)*"a"*(1)(f).
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.5(455B,455E) Funding sources. The department will use moneys that are appropriated by the legislature and that may be obtained from other sources for the purpose of achieving the goals outlined in these rules. The department will ensure that moneys appropriated meet both federal and state guidelines pertaining to their use.
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.6(455B,455E) Reduced award. The department reserves the right to offer financial assistance in an amount less than that requested by the applicant. In the event that financial assistance offered is less than the amount requested by an applicant, the applicant may be asked to document the impact on the proposed project. Reduced awards shall be offered when the department determines that:

1. Program resources are insufficient to provide the level of financial assistance requested to all applicants to which the department intends to offer financial assistance.
2. The applicant could implement the project at a reduced level of financial assistance and achieve the project objectives and the goals of the program.

[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.7(455B,455E) Fund disbursement limitations. No funds shall be disbursed until the department has:

1. Determined the total estimated cost of the project;
2. Determined that financing for the cost-share amount is ensured by the recipient;
3. Received final design plans from the recipient, if applicable;
4. Received confirmation that all permits or permit amendments have been obtained by the recipient;
5. Received commitments from the recipient to implement the project;
6. Executed a written agreement with the recipient; and
7. Determined that the recipient is currently in compliance with all applicable state statutes and regulations.

[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.8(455B,455E) Minimum cost share. An applicant shall provide a minimum cash match for the purchase of each good and service for which department-awarded financial assistance will be used. The applicant's minimum cost share shall be in accordance with subrule 209.16(3) for the derelict building grant program.
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.9(455B,455E) Denial of financial assistance. An applicant may be denied financial assistance for any of the following reasons:

1. Funds are insufficient to award financial assistance to all qualified applicants.
2. An applicant does not meet eligibility requirements pursuant to provisions of subrule 209.15(1) for the solid waste alternatives program or subrule 209.16(1) for the derelict building grant program.
3. An applicant does not provide sufficient requested information on forms provided by the department pursuant to rule 567—209.12(455B,455E).

4. An applicant has previously received financial assistance under these rules and is determined by the department to be delinquent in repaying the loan or delinquent in submitting required documentation.

5. The goals or scope of the project is not consistent with rules 567—209.1(455B,455E) and 567—209.2(455B,455E).

6. The project does not meet the criteria of an eligible project in subrule 209.15(2) for the solid waste alternatives program or subrule 209.16(2) for the derelict building grant program.

[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.10(455B,455E) Eligible costs. Applicants may request, for the implementation and operation of a project, financial assistance which includes, but is not limited to, funds for the purpose of:

1. Purchase and installation of waste reduction equipment;
2. Purchase and installation of collection, processing, or hauling equipment;
3. Development, printing and distribution of educational materials;
4. Planning and implementation of educational forums, including but not limited to workshops;
5. Materials and labor for construction, deconstruction, or renovation of buildings;
6. Salaries directly related to implementation and operation of the project;
7. Laboratory analysis costs; and
8. Engineering or consulting fees.

[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.11(455B,455E) Ineligible costs. Financial assistance shall not be provided or used for costs including, but not limited to, the following:

1. Taxes;
2. Vehicle registration;
3. Overhead expenses;
4. Indirect costs;
5. Legal costs;
6. Contingency funds;
7. Proposal preparation;
8. Contractual project administration;
9. Land acquisition;
10. Office furniture, office computers, fax machines and other office furnishings and equipment;
11. Costs for which payment has been or will be received under another federal, state or private financial assistance program;
12. Costs incurred before a written agreement has been executed between the applicant and the department; and
13. Insurance premiums or other costs associated with insuring items purchased using program funds.

[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.12(455B,455E) Applications. Applicants shall submit applications on forms provided by the department. Applications are considered part of the public record. Unless otherwise designated in the solid waste alternatives program application forms or the derelict building grant program application guideline forms, applications will be accepted by the department during normal business hours throughout the year.

[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.13(455B,455E) Selection.

209.13(1) To receive consideration under these rules, applications for financial assistance submitted to the department must be provided to the agency responsible for submitting an approved solid waste comprehensive plan or a subsequent solid waste comprehensive plan or by solid waste agencies participating in the environmental management system for agency review and comment. Applications

shall be provided to the agency in the area in which the proposed project is located or the area or areas in which the proposed project will be implemented.

209.13(2) The department shall coordinate evaluation of applications, and applicants will be awarded financial assistance based on review committee recommendations.
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.14(455B,455E) Written agreement. Recipients shall enter into a contract with the department for the purposes of implementing the project for which financial assistance has been awarded. The agreement shall be signed by the appropriate department signatory and the recipient's authorized signatory. Conditions to successfully implement and manage agreements shall be expressed in the signed agreement. The department may terminate agreements and seek the return of funds released under the agreement for failure by the recipient to perform under the terms and conditions of the agreement. Amendments to agreements may be adopted by mutual written consent of the department and the recipient.
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.15(455B,455E) Solid waste alternatives program. Financial assistance awarded under the solid waste alternatives program shall be used to implement activities that support the practical and beneficial use of solid waste materials and for activities leading to a reduction in the reliance on sanitary landfills for disposal of solid waste.

209.15(1) *Eligible applicants.* Any unit of local government, public or private group, individual or business that has an interest in or has responsibility for solid waste management in Iowa and is currently in compliance with all applicable state statutes and regulations is eligible to apply for the solid waste alternatives program.

209.15(2) *Eligible projects.* The department may provide financial assistance to applicants for the following types of projects that are consistent with the goal and purpose of this program:

a. Best practices — practices and programs that will move Iowa toward long-term pollution prevention, waste reduction and recycling sustainability;

b. Education — practices and programs that are consistent with a coordinated statewide message on pollution prevention, waste reduction, and recycling to ensure ongoing support of these integrated solid waste management activities; and

c. Market development — practices and programs that develop a demand for value-added recyclables sufficient to provide increased and stable commodity markets.

209.15(3) *Type of financial assistance.* The type of financial assistance (forgivable loan, zero interest loan, low-interest loan) offered to an applicant is dependent upon factors such as, but not limited to, the amount of program funds awarded, level of new landfill diversion, profit generation and project uniqueness. The department reserves the right to offer any combination of types of financial assistance to any selected project.

209.15(4) *Loans.* The term of all loans executed under these rules shall be determined on a case-by-case basis and shall be based on the specific capital costs financed, as well as the terms of other financing provided for the project. The written agreement between the department and the recipient will establish other conditions or terms needed to manage or implement the project.
[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

567—209.16(455B,455E) Derelict building grant program. Financial assistance awarded under the derelict building grant program is available to communities of 5,000 or fewer to help improve the attractiveness and appearance of their jurisdictions by providing financial assistance for eligible projects. Each project must have a landfill diversion component.

209.16(1) *Eligible applicants.* Any county or municipal government with a population of 5,000 or fewer is eligible to apply for a derelict building grant. An applicant may partner with a local nonprofit organization on a project.

209.16(2) *Eligible projects.* A community's building is eligible for the program if the building meets the following criteria:

a. The building is an abandoned commercial or public building of which a local government has ownership or an intent to own.

b. The building is not on the National Register of Historic Places.

209.16(3) *Eligible activities and amount of financial assistance.* The eligible activities and amount of financial assistance for each are:

a. Asbestos-containing material inspections: 100 percent reimbursement for inspection costs conducted by a state of Iowa-licensed asbestos contractor.

b. Abatement of asbestos-containing material: 100 percent reimbursement, not to exceed $10,000, for abatement of ACM performed by a state of Iowa-licensed asbestos contractor. A 50 percent cost share is required for those costs exceeding $10,000.

c. Structural engineering analysis: 100 percent reimbursement not to exceed $1,500 for a structural engineering analysis conducted by a licensed structural engineer or architectural historian to determine the ability to renovate the building. The recipient is responsible for all costs exceeding $1,500.

d. Phase I environmental assessment: 100 percent reimbursement not to exceed $3,000 for conducting a Phase I environmental assessment. The recipient is responsible for all costs exceeding $3,000.

e. Phase II environmental assessment: 50 percent reimbursement not to exceed $2,500 for conducting a Phase II environmental assessment. The recipient is responsible for all costs exceeding $5,000. The need for this assessment is determined by the results of the Phase I environmental assessment and involves the sampling of structure components, soil, and groundwater to confirm or deny the presence of contamination.

f. Building renovation: 50 percent reimbursement not to exceed $50,000 for renovation costs, including but not limited to:

(1) Restoration or removal of materials for reuse, either at the site or off site, or for recycling.

(2) Roof repair or replacement.

(3) Building stabilization.

(4) Tuck-pointing of exterior walls.

g. Deconstruction: 50 percent reimbursement not to exceed $50,000 for costs related to deconstruction. All deconstruction projects must achieve a minimum landfill diversion rate of 30 percent of the structure by weight to receive reimbursement for deconstruction costs.

209.16(4) *Deconstruction cost-share incentive.* For every additional 10 percent above 30 percent of landfill diversion by weight that is documented upon completion of the project, the applicant's cost share is reduced by 5 percent and the grant award amount will increase by 5 percent. The maximum grant award for deconstruction projects shall not exceed $75,000.

[**ARC 2314C**, IAB 12/23/15, effective 1/27/16]

These rules are intended to implement Iowa Code sections 455B.301A and 455E.11.

[Filed emergency 2/18/88 after Notice 12/30/87—published 3/9/88, effective 2/19/88]

[Filed 12/23/88, Notice 10/19/88—published 1/11/89, effective 2/15/89]

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[Filed 3/25/94, Notice 1/19/94—published 4/13/94, effective 5/18/94]

[Filed 3/19/99, Notice 1/13/99—published 4/7/99, effective 5/12/99]

[Filed ARC 2314C (Notice ARC 2140C, IAB 9/16/15), IAB 12/23/15, effective 1/27/16]

CHAPTER 210
BEAUTIFICATION GRANT PROGRAM

Rescinded **ARC 1956C**, IAB 4/15/15, effective 5/20/15

CHAPTER 211
FINANCIAL ASSISTANCE FOR THE MANAGEMENT OF HOUSEHOLD HAZARDOUS MATERIALS AND HAZARDOUS WASTE FROM VERY SMALL QUANTITY GENERATORS

567—211.1(455E,455F) Purpose. The purpose of this program is to reduce the amount of hazardous materials disposed of in Iowa's sanitary landfills, thereby protecting groundwater resources, the health and safety of Iowa citizens, and the environment.

The costs and accessibility of hazardous materials management can be improved by the establishment and maintenance of a system of regional collection centers (RCCs) and satellite facilities for the safe and proper management of household hazardous materials and hazardous materials from very small quantity generators (VSQGs). Therefore, the department may provide financial assistance for costs associated with establishing or improving RCCs and satellite facilities, when such funding is available. The department may also provide financial assistance for ongoing collection and disposal activities which result in eligible pounds, when such funding is available.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—211.2(455E,455F) Definitions. For the purposes of this chapter, these terms shall have the following meanings:

"Applicant for RCC or satellite facility financial assistance" means an RCC or satellite facility operated by a private agency, a local government or a public agency representing local governments pursuant to Iowa Code chapter 28E.

"Department" means the Iowa department of natural resources.

"Eligible pounds" means household hazardous waste or hazardous waste from VSQGs which is disposed of or recycled by a licensed hazardous waste contractor. VSQG hazardous waste for which an RCC is required to charge a fee under Iowa Code section 455F.8A is considered eligible pounds if there is a corresponding disposal charge from a hazardous waste contractor. "Eligible pounds" means net weight as shown on the final disposition documents. A manifest shows an estimated weight and cannot be used to determine eligible pounds. VSQG hazardous waste or household hazardous waste which has no disposal cost, or for which RCCs receive compensation or charge a fee, is not eligible pounds. Materials such as cathode ray tubes, electronics, and used oil which are not destined for final disposal, but are instead recycled for reuse of components, are not eligible pounds.

"Financial assistance" means monetary assistance including grants, cash payments, or support by other financial means.

"Hazardous waste" or *"HW"* means the same as defined in Iowa Code section 455B.411.

"Hazardous waste contractor" means a private company that provides management (e.g., recycling, disposal) of household hazardous waste or VSQG hazardous waste in compliance with federal regulations. "Hazardous waste contractor" does not include regional collection centers.

"Household hazardous materials" or *"HHM"* means the same as defined in Iowa Code section 455F.1.

"Household hazardous waste" or *"HHW"* means an HHM as defined in Iowa Code section 455F.1 which has served its intended use and is designated for disposal.

"Indirect costs" means costs that are not identifiable with a specific product, function or activity.

"Overhead costs" means expenses not chargeable to a particular part of the work or product including, but not limited to, utilities and insurance.

"RCC mobile unit" means a truck or trailer owned and operated under the direction of a regional collection center that can be moved to different sites within a region. A mobile unit is used to perform collection events and to transport collected materials to the RCC for sorting and consolidation.

"Regional collection center" or *"RCC"* means the same as defined in Iowa Code section 455F.1.

"Satellite facility" means the same as defined in Iowa Code section 455F.1.

"Very small quantity generator" or *"VSQG"* means a generator that generates less than or equal to the following amounts in a calendar month:

1. 100 kilograms (220 lbs) of non-acute hazardous waste;

2. 1 kilogram (2.2 lbs) of acute hazardous waste listed in 40 CFR 261.31 or 40 CFR 261.33(e);

3. 100 kilograms (220 lbs) of any residue or contaminated soil, water or other debris resulting from the cleanup of a spill, into or on any land or water, of any acute hazardous waste listed in 40 CFR 261.31 or 40 CFR 261.33(e).

[**ARC 8518B**, IAB 2/10/10, effective 3/17/10; **ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—211.3(455E,455F) Role of the department. The department is responsible for the administration of financial assistance sponsored under this chapter. The department shall ensure that funds disbursed meet guidelines established in Iowa Code chapters 455E and 455F. An applicant for financial assistance under this chapter may submit any eligible project as defined in the application provided by the department. The department shall determine which projects, if any, will receive funding after review of all applications, subject to available funding.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—211.4(455E,455F) Funding sources. The department will use funds appropriated by Iowa Code sections 455E.11(2)*"a"*(2)(d) and 455E.11(2)*"c"* to achieve the purpose of this chapter. The department shall ensure that moneys appropriated meet both federal and state guidelines pertaining to the use of the moneys.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—211.5(455E,455F) Eligible costs. Applicants may request financial assistance for eligible expenses including, but not limited to, the following:

211.5(1) Materials and labor for construction and the purchase cost of structures or RCC mobile units to be used in the operation of an RCC or satellite facility, including but not limited to site excavation for the structure and modifications to control runoff.

211.5(2) Education programs for households and VSQGs within the RCC service area. Eligible education expenses may include but are not limited to:

a. Public education and awareness materials and supplies.

b. Fees for public service announcements.

211.5(3) Equipment relating directly to the RCC or satellite facility operation.

[**ARC 8518B**, IAB 2/10/10, effective 3/17/10; **ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—211.6(455E,455F) Ineligible costs. Applicants for RCC financial assistance cannot request monetary assistance for the following costs:

1. Taxes.
2. Vehicle registration.
3. Indirect or overhead costs.
4. Legal costs.
5. Contingency funds.
6. Land acquisition.
7. Disposal of hazardous materials.
8. Office equipment.
9. Staffing costs.
10. Site and building design fees.

[**ARC 8518B**, IAB 2/10/10, effective 3/17/10; **ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—211.7(455E,455F) RCC and satellite facility financial assistance.

211.7(1) An applicant for RCC and satellite financial assistance shall submit to the department a completed application on a form provided by the department.

211.7(2) The department shall coordinate the evaluation of proposals. Applications will be evaluated based on selection criteria contained in the application form. Prior to receiving financial assistance from the department, an RCC must obtain a regional collection center license. A satellite facility shall provide documentation of a contractual arrangement with a licensed RCC for removal of the waste to be collected.

211.7(3) The applicant must be in compliance with applicable federal and state statutes and regulations.
[**ARC 8518B**, IAB 2/10/10, effective 3/17/10; **ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—211.8(455E,455F) Grant denial. An application may be denied for the following reasons, including but not limited to:

1. The applicant does not meet eligibility requirements pursuant to the provisions of this chapter.
2. The applicant does not provide sufficient information requested in the application proposal pursuant to this chapter.
3. The project goals or scope is not consistent with this chapter.
4. Funds are insufficient to award financial assistance to all qualified applicants.
5. The applicant has not met contractual obligations of previous grant awards.
6. The department received the application after the deadline stated in the application and guidelines.
7. The applicant is found to be out of compliance with applicable federal or state statutes or regulations.

[**ARC 3995C**, IAB 9/12/18, effective 10/17/18]

567—211.9(455E,455F) RCC collection and disposal support funding.

211.9(1) All RCCs are eligible to receive funding support, when available, from the department to properly manage eligible pounds of VSQG hazardous waste and household hazardous waste. To receive funding, an RCC must be in compliance with applicable federal and state statutes and regulations. The source for this funding is described in Iowa Code section 455E.11(2)*"a"*(2)(d) and (e).

211.9(2) To be eligible to receive support and disposal-funding assistance, an RCC must:

a. Have household hazardous waste and VSQG hazardous waste removed by a licensed hazardous waste contractor.

b. Correctly complete the hazardous materials collection semiannual report on a form supplied by the department.

c. Attach the following documentation:

(1) Hazardous waste contractor invoices depicting cost and hazardous waste types.

(2) The net weight calculations of household hazardous waste and VSQG hazardous waste obtained by subtracting container weight from final disposal weight, not the manifest weight.

(3) Documentation that all household hazardous waste and VSQG hazardous waste was disposed of by a licensed hazardous waste contractor.

(4) Documentation of materials shipped using final disposal receipts.

d. Submit regional collection center semiannual reports by September 15 for the portion of the current calendar year January 1 through June 30, and by March 15 for the portion of the previous calendar year July 1 through December 31. Reports submitted after the due date without prior approval by the department are not eligible for funding.

211.9(3) Fall collection and disposal funding will be based on the regional collection center semiannual report due September 15 and on available funding. An RCC will receive a percentage of the available funding in an amount proportional to the amount of eligible pounds the RCC recycled or disposed of through a hazardous waste contractor, as reported on the regional collection center semiannual report form, compared to the total amount of eligible pounds recycled or disposed of by all RCCs as reported on the regional collection center semiannual report form.

Spring collection and disposal funding will be based on the total eligible pounds reported for the calendar year and on available funding. An RCC will receive a percentage of the available funding for the calendar year minus the amount received for the fall payment, in an amount proportional to the amount of eligible pounds the RCC recycled or disposed of through a hazardous waste contractor, as reported on the regional collection center semiannual report form for the calendar year, compared to the

total amount of eligible pounds recycled or disposed of by all RCCs as reported on the regional collection center semiannual report form.

[**ARC 8518B**, IAB 2/10/10, effective 3/17/10; **ARC 3995C**, IAB 9/12/18, effective 10/17/18]

These rules are intended to implement Iowa Code sections 455F.8A and 455F.8B.

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[Filed ARC 3995C (Notice ARC 3826C, IAB 6/6/18), IAB 9/12/18, effective 10/17/18]

CHAPTER 212
LOANS FOR WASTE REDUCTION AND RECYCLING PROJECTS

Rescinded IAB 2/20/02, effective 3/27/02

CHAPTER 213
PACKAGING—HEAVY METAL CONTENT

567—213.1(455D) Purpose. The purpose of this chapter is to implement the provisions of Iowa Code section 455D.19, which seeks to reduce toxicity of packaging waste by eliminating the addition of heavy metals such as lead, mercury, cadmium, and hexavalent chromium in packaging and packaging components.

567—213.2(455D) Applicability. This chapter applies to manufacturers and distributors of packaging and packaging materials offered for sale or for promotional purposes in the state.

567—213.3(455D) Definitions. The following terms, as used in this chapter, shall have the following meanings:

"Department" means the department of natural resources as created under Iowa Code section 455A.2.

"Distributor" means a person who takes title to one or more packages or packaging components purchased for promotional purposes or resale. A person involved solely in delivering or storing packages or packaging components on behalf of third parties is not a distributor.

"Incidental presence" means that these elements were not intentionally introduced during manufacturing or distribution and are below the concentration levels established by the department in subrule 213.4(3).

"Intentional introduction" means an act of deliberately utilizing a regulated metal in the formulation of a package or packaging component where its continued presence is desired in the final package or packaging component to provide a specific characteristic, appearance, or quality. Intentional introduction does not include the use of a regulated metal as a processing agent or intermediate to impart certain chemical or physical changes during manufacturing, if the incidental presence of a residue of the metal in the final package or packaging component is neither desired nor deliberate and if the final package or packaging component is in compliance with Iowa Code section 455D.19(4), paragraph *"c."* Intentional introduction also does not include the use of recycled materials as feedstock for the manufacture of new packaging materials, if the recycled materials contain amounts of a regulated metal and if the new package or packaging component is in compliance with Iowa Code section 455D.19(4), paragraph *"c."*

"Manufacturer" means a person who produces one or more packages or packaging components.

"Manufacturing" means physical or chemical modification of one or more materials to produce packaging or packaging components.

"Offer for promotional purposes" means any transfer of title or possession, or both, of packaging or products in packaging without consideration.

"Offer for sale" means any transfer of title or possession, or both, exchange, barter, lease, rental, conditional or otherwise, of packaging or products in packaging for a consideration in any manner or any means whatsoever.

"Package" means a container which provides a means of marketing, protecting, or handling a product, including a unit package, an intermediate package, or a shipping container. Package also includes, but is not limited to, unsealed receptacles, such as carrying cases, crates, cups, pails, rigid foil and other trays, wrappers and wrapping films, bags, and tubs.

"Packaging component" means any individual assembled part of a package, including, but not limited to, interior and exterior blocking, bracing, cushioning, weatherproofing, exterior strapping, coatings, closures, inks, labels, and tin-plated steel.

"Regulated metal" means any metal regulated under this chapter.

"Reusable entities" means packaging or packaging components having a controlled distribution and reuse subject to the exemption provided in Iowa Code section 455D.19(5), paragraph *"e."*

"Tin-plated steel" means a material that meets the American Society for Testing and Materials (ASTM) specification A-623 and shall be considered as a single package component. Electrogalvanized coated steel and hot-dipped coated galvanized steel that meets the American Society for Testing and

Materials (ASTM) specifications A-879 and A-529 shall be treated in the same manner as tin-plated steel.

567—213.4(455D) Prohibition—schedule for removal of incidental amounts.

213.4(1) *Prohibition of packaging.* A manufacturer or distributor shall not offer for sale or sell, or offer for promotional purposes, a package or packaging component in this state, which includes in the package itself or in any packaging component inks, dyes, pigments, adhesives, stabilizers or any other additives, any lead, cadmium, mercury, or hexavalent chromium which has been intentionally introduced as an element during manufacturing or distribution. This prohibition does not apply to the incidental presence of any of these elements. In addition, this prohibition does not apply to any refillable glass and ceramic package or packaging component that is managed under a comprehensive system resulting in reuse and where the lead and cadmium from the component do not exceed the Toxicity Characteristic Leachability Procedures (TCLP) of leachability of lead and cadmium as set forth by the United States Environmental Protection Agency.

213.4(2) *Prohibition of sale of product in packaging.* Rescinded IAB 10/8/97, effective 11/12/97.

213.4(3) *Concentration levels.* The sum of the concentration levels of lead, cadmium, mercury, and hexavalent chromium present in a package or packaging component shall not exceed 100 parts per million by weight, or 0.01 percent. Concentration levels of lead, cadmium, mercury, and hexavalent chromium shall be determined using American Standard of Testing Materials test methods, as revised, or U.S. Environmental Protection Agency test methods for evaluating solid waste, S-W 846, as revised.

213.4(4) *Substitute materials.* No material used to replace lead, cadmium, mercury, or hexavalent chromium in a package or packaging component may be used in a quantity or manner that creates a hazard as great or greater than the hazard created by the lead, cadmium, mercury, or hexavalent chromium. The Certificate of Compliance will require an assurance to this effect.

567—213.5(455D) Certification of compliance. A manufacturer or distributor of packaging or packaging components shall make available to purchasers, to the department, and to the general public upon request, certificates of compliance conforming to the requirements of this rule. Certificates provided shall substantially conform with either or both, as applicable, of the following forms:

REDUCTION OF TOXICS IN PACKAGING LAW
CERTIFICATE OF COMPLIANCE

We certify that all packaging and packaging components sold to _____
(Company Name)
or its subsidiaries in the State of Iowa comply with the requirements of this law, namely that the sum of the incidental concentration levels of lead, mercury, cadmium, and hexavalent chromium present in any package or package component shall not exceed the following:

600 Parts Per Million by weight
(Effective July 1, 1992)
250 Parts Per Million by weight
(Effective July 1, 1993)
100 Parts Per Million by weight
(Effective July 1, 1994)

We further certify that in cases where the regulated metals are present at levels less than the schedule stated above, the regulated metals were not intentionally added during the manufacturing process.

We further certify that no material used to replace the regulated metals are present in a quantity or manner that creates a hazard as great or greater than the hazard created by the regulated materials.

We will maintain adequate documentation of this certification for inspection upon request.

Company Name _____
Address _____
_____

Certified by:

_____ _____
(Name) (Signature)

_____
(Title)

Date: _____

REDUCTION OF TOXICS IN PACKAGING LAW
CERTIFICATE OF COMPLIANCE—EXEMPTION STATUS

We certify that all packaging and packaging components sold to _____
(Company Name)
or its subsidiaries in the State of Iowa are in compliance with the law. However, certain packages or packaging components produced by _____
(Company Name)
are exempt from this law for one or more of the following reasons:

Package or packaging components were made or delivered before the law was signed into effect:
(List package or packaging component) _____

Package or packaging component contains heavy metals in order to comply with state or federal health and safety requirements or there is no feasible alternative (i.e., the regulated substance is essential to the production, safe handling, or function of the package's contents):
(List package or packaging component) _____

Package or packaging component is made from postconsumer material:
(List package or packaging component) _____

Alcoholic beverage bottled prior to effective date:
(List package or packaging component) _____

We will maintain adequate documentation of this certification for inspection upon request.
Company Name _____
Address _____
_____
Certified by:

_____ _____
(Name) (Signature)

_____
(Title)

Date: _____

If the manufacturer or distributor of the package or packaging component reformulates or creates a new package or packaging component, the manufacturer or distributor shall provide an amended or new Certificate of Compliance for the reformulated or new package or packaging component.

567—213.6(455D) Exemptions. The following packaging and packaging components are exempt from the requirements of Iowa Code section 455D.19:

1. Packaging or packaging components with a code indicating a date of manufacture prior to July 1, 1990, and packaging or packaging components used by the alcoholic beverage industry or the wine industry prior to July 1, 1992.

2. Packages or packaging components to which lead, cadmium, mercury, or hexavalent chromium have been added in the manufacturing, forming, printing, or distribution process in order to comply with health or safety requirements of federal law or for which there is no feasible alternative if the manufacturer of a packaging or packaging component petitions the department for an exemption from the provisions of this paragraph for a particular packaging or packaging component. The department may grant a two-year exemption, if warranted by the circumstances, and an exemption may, upon meeting either criterion of this paragraph, be renewed for two years. For purposes of this paragraph, a use for which there is no feasible alternative is one in which the regulated substance is essential to the protection, safe handling, or function of the package's contents.

3. Packages or packaging components that would not exceed the maximum contaminant levels established but for the addition of recycled materials.

4. Packages or packaging components that are reused, but exceed contaminant levels set forth in Iowa Code section 455D.19(4), paragraph *"c,"* if all of the following criteria are met:

- The product being conveyed by the package, including any packaging component, is regulated under federal or state health or safety requirements.
- Transportation of the packaged product is regulated under federal or state transportation requirements.
- The disposal of the packages or packaging components is performed according to federal or state radioactive or hazardous waste disposal requirements.

The department may grant a two-year exemption if warranted by the circumstances and an exemption may, upon meeting the criteria of this paragraph, be renewed for additional two-year periods.

5. Packages or packaging components which qualify as reusable entities that exceed the contaminant levels set forth in Iowa Code section 455D.19(4), paragraph *"c,"* if the manufacturers or distributors of such packages or packaging components petition the department for an exemption and receive approval from the department according to the following standards based upon a satisfactory demonstration that the environmental benefit of the controlled distribution and reuse is significantly greater than if the same package is manufactured in compliance with the contaminant levels set forth in Iowa Code section 455D.19(4), paragraph *"c."* The department may grant a two-year exemption, if warranted by the circumstances, and an exemption may, upon meeting the four criteria listed in paragraphs "1" to "4" of this rule, be renewed for additional two-year periods.

In order to receive an exemption, the application must ensure that reusable entities are used, transported, and disposed of in a manner consistent with the following criteria:

- A means of identifying in a permanent and visible manner those reusable entities containing regulated metals for which an exemption is sought.
- A method or regulatory and financial accountability so that a specified percentage of the reusable entities manufactured and distributed to another person are not discarded by the person after use, but are returned to the manufacturer or the manufacturer's designee.
- A system of inventory and record maintenance to account for the reusable entities placed in, and removed from, service.
- A means of transforming returned entities that are no longer reusable into recycled materials for manufacturing or into manufacturing wastes which are subject to existing federal or state laws or regulations governing manufacturing wastes to ensure that these wastes do not enter the commercial or municipal waste stream.

The application for an exemption must document the measures to be taken by the applicant as set out in Iowa Code section 455D.19(5), paragraph *"e,"* subparagraphs (1) to (4).

567—213.7(455D) Inspection and penalties.

213.7(1) *Inspection.* The department may inspect, with the consent of the owner or agent, any property or building to determine compliance with the requirements of this chapter.

213.7(2) *Violation.*

a. Violations of this chapter are subject to the provisions of Iowa Code Supplement sections 455D.22 to 455D.25.

b. Each package or packaging component in violation constitutes the basis of a separate offense for purposes of the calculation of penalties pursuant to Iowa Code Supplement section 455D.25(2).

These rules are intended to implement Iowa Code Supplement section 455D.19.

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CHAPTER 214
HOUSEHOLD HAZARDOUS MATERIALS PROGRAM

Rescinded **ARC 3995C**, IAB 9/12/18, effective 10/17/18

CHAPTER 215
MERCURY-ADDED SWITCH RECOVERY FROM END-OF-LIFE VEHICLES

567—215.1(455B) Purpose. The purpose of this chapter is to implement 2006 Iowa Acts, House File 2362, to reduce the quantity of mercury in the environment by removing mercury-added switches from end-of-life vehicles in Iowa and by creating a collection, recovery, and incentive program for mercury-added switches removed from vehicles in Iowa.

567—215.2(455B) Compliance. Except as expressly provided in this chapter, compliance with this chapter shall not exempt a person from compliance with any other law.

567—215.3(455B) Definitions. As used in this chapter:

"Capture rate" means the amount of mercury removed, collected, and recovered from end-of-life vehicles, expressed as a percentage of the mercury available from mercury-added switches in end-of-life vehicles annually.

"End-of-life vehicle" means any vehicle which is sold, given, or otherwise conveyed to a vehicle recycler or scrap recycling facility for the purpose of recycling and that does not exceed 10,000 pounds gross vehicle weight.

"Manufacturer" means any person that is the last person to produce or assemble a new vehicle that utilizes mercury-added switches, or in the case of an imported vehicle, the importer or domestic distributor of such vehicle. "Manufacturer" does not include a person that has never utilized a mercury-added switch in the production or assembly of a new vehicle.

"Mercury-added switch" means a light switch that contains mercury which was installed in a motor vehicle by a manufacturer.

"Scrap recycling facility" means a fixed location where machinery and equipment are utilized for processing and manufacturing scrap metal into prepared grades and whose principal product is scrap iron, scrap steel, or nonferrous metallic scrap for sale for remelting purposes.

"Vehicle recycler" means any person engaged in the business of acquiring, dismantling, or destroying six or more vehicles in a calendar year for the primary purpose of resale of the vehicles' parts.

567—215.4(455B) Plans for removal, collection, and recovery of mercury-added vehicle switches.

215.4(1) By September 30, 2006, each manufacturer of vehicles sold in this state shall, individually or as part of a group, develop and publish a plan for a system to remove, collect, and recover mercury-added switches from end-of-life vehicles that were manufactured by the manufacturer. Publication shall be in accordance with 2006 Iowa Acts, House File 2362, section 8(2), and subrule 215.6(2).

215.4(2) The manufacturer shall implement a system to remove, collect, and recover mercury-added switches from end-of-life vehicles within 90 days of publication of the plan. The system developed and implemented pursuant to this rule shall provide, at a minimum, all of the following:

a. Educational materials to inform the public and other stakeholders about the purpose of the collection program and how to participate in the program.

b. A method for implementing, operating, maintaining, and monitoring the system, in accordance with subrule 215.4(6). This may include the use of third-party contractors that are qualified and fully insured to perform these tasks.

c. Information about mercury-added switches identifying all of the following:

(1) The make, model, and year of vehicles potentially containing mercury-added switches.

(2) A description of the mercury-added switches.

(3) The location of the mercury-added switches.

(4) Safe, cost-effective, and environmentally sound methods for the removal of mercury-added switches from end-of-life vehicles.

d. A method to arrange and pay for the transportation of the collected mercury-added switches to permitted facilities.

e. A method to arrange and pay for the recycling of the mercury-added switches.

f. A method to track participation and publish the progress of the mercury-added switch collection in accordance with subrule 215.6(2).

g. A database of participating vehicle recyclers, including all of the following:

(1) Documentation that the vehicle recycler joined the program.

(2) Records of all submissions by a vehicle recycler of any information required pursuant to 215.4(2)*"f."*

(3) Confirmation that the vehicle recycler has submitted mercury-added switches at least every 12 months since joining the program.

h. A target mercury-added switch capture rate for vehicles manufactured by the manufacturer of 90 percent. A description of additional or alternative actions that shall be implemented by the manufacturer to improve the system and its operation in the event that the target capture rate is not met shall be published with the required tracking information no less than annually.

i. The system shall not include inaccessible mercury-added switches from end-of-life vehicles with significant damage to the vehicle in the area surrounding the mercury-added switch location. All accessible mercury-added switches are expected to be collected under the provisions of this division.

215.4(3) In developing a removal, collection, and recovery system for end-of-life vehicles, a manufacturer shall, to the extent practicable, utilize the existing end-of-life vehicle recycling infrastructure.

215.4(4) If the commission determines that the manufacturer's plan for a system to remove, collect, and recover mercury-added switches from end-of-life vehicles does not comply with this chapter, the commission may require the manufacturer to make any necessary modification to the plan.

215.4(5) On July 1, 2020, the commission shall cease enforcement of the removal, collection, and recovery plans under this chapter. On or before July 1, 2020, the commission shall review the mercury-added switch removal, collection, and recovery provisions and submit a recommendation to the general assembly regarding the necessity of continuing the enforcement of the removal, collection, and recovery plans.

215.4(6) The total cost of the removal, collection, and recovery system for mercury-added switches shall be paid by the manufacturer. Costs shall include but not be limited to all of the following:

a. Labor to remove mercury-added switches. Labor shall be reimbursed at a minimum rate of $4 per mercury-added switch removed or, if the vehicle identification number of the source vehicle is required for reimbursement, at a minimum rate of $5.

b. Training.

c. Packaging in which to transport mercury-added switches to recycling, storage, or disposal facilities.

d. Shipping of mercury-added switches to recycling, storage, or disposal facilities.

e. Recycling, storage, or disposal of mercury-added switches.

f. Public education materials and presentations.

g. Maintenance of all appropriate systems and procedures to protect the environment from mercury contamination from collected mercury-added switches.

215.4(7) A vehicle recycler that performs as required under a removal, collection, and recovery plan shall be afforded the protections provided in Iowa Code section 613.18.

567—215.5(455B) Proper management of mercury-added vehicle switches.

215.5(1) Prior to delivery to a scrap recycling facility, a person who sells, gives, or otherwise conveys ownership of an end-of-life vehicle to the scrap recycling facility for recycling shall remove all mercury-added switches from such end-of-life vehicle unless the mercury-added switch is inaccessible due to significant damage to the end-of-life vehicle in the area where the mercury-added switch is located.

215.5(2) A person shall not represent that mercury-added switches have been removed from a vehicle or vehicle hulk being sold, given, or otherwise conveyed for recycling if that person has not removed such mercury-added switches or arranged with another person to remove such switches.

567—215.6(455B) Public notification.

215.6(1) The department shall make available to the general public in an electronic format the plan of a manufacturer for a system to remove, collect, and recover mercury-added switches from end-of-life vehicles and any report required under 567—215.7(455B).

215.6(2) Publication of all required plans, information, reports, and educational materials under this chapter shall be through no less than two types of media available to the general public. One medium must be available 24 hours per day, seven days per week, and must be maintained with current information. Acceptable types of media include but are not limited to Internet Web sites, periodicals, journals, and other publicly available media in the state.

567—215.7(455B) Reporting. One year after the implementation of a removal, collection, and recovery system, and annually thereafter, a manufacturer subject to rule 567—215.4(455B) shall report to the department concerning the manufacturer's performance under the manufacturer's plan. The report shall include statistical information received under rule 567—215.4(455B). The report shall also include but not be limited to all of the following:

1. The number of mercury-added switches collected.
2. An estimate of the amount of mercury contained in the collected switches.
3. The capture rate as defined in rule 567—215.3(455B).
4. The estimated number of vehicles manufactured by the manufacturer that contain mercury-added switches.
5. The estimated number of vehicles manufactured by the manufacturer that have been processed for recycling by vehicle recyclers.

567—215.8(455B) State procurement. Notwithstanding other policies and guidelines for the procurement of vehicles, the state shall, by July 1, 2007, revise its policies, rules, and procedures to give priority and preference to the purchase of vehicles free of mercury-added components, taking into consideration competition, price, availability, and performance.

567—215.9(455B) Future repeal of mercury-free recycling Act—implementation of national program.

215.9(1) If a national mercury-added switch recovery program is developed and implemented with the cooperation and approval of the United States Environmental Protection Agency, the provisions of these rules shall be superseded by the provisions of the national program, and this chapter shall be rescinded, provided the following conditions are met:

a. The national program includes a target mercury-added switch capture rate for this state that meets or exceeds the target capture rate established in paragraph 215.4(2)*"h."*

b. The national program includes a funding mechanism that provides for the total costs of the national mercury-added switch recovery program implemented in this state to be paid for by program participants or with federal moneys.

215.9(2) The director of the department of natural resources shall notify the Iowa Code editor of the date when the national mercury-added switch recovery program is implemented.

These rules are intended to implement 2006 Iowa Acts, House File 2362.

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CHAPTER 216
REGENTS TIRE-DERIVED FUEL PROGRAM
Rescinded IAB 8/18/04, effective 9/22/04

CHAPTER 217
WASTE TIRE END-USER INCENTIVE PROGRAM
Rescinded IAB 8/18/04, effective 9/22/04

CHAPTER 218
WASTE TIRE STOCKPILE ABATEMENT PROGRAM
Rescinded **ARC 1956C**, IAB 4/15/15, effective 5/20/15

CHAPTER 219
BENEFICIAL USES OF WASTE TIRES
Rescinded IAB 5/15/02, effective 6/19/02