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. In addition to the definitions in Iowa Code sections 455B.101 and 455B.171 and Iowa Code section 459.102, the following definitions shall apply to Division I of this chapter:

"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 flood plains along stream valleys and includes alluvial deposits associated with stream terraces and benches, contiguous wind-blown 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 a species classified as cattle, swine, horses, sheep, chickens or turkeys.

"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 animal 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 federal Water Pollution Control Act, 33 U.S.C. Chapter 26, 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 459.301 as amended by 2009 Iowa Acts, House File 735, section 6, 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 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 federal Clean Water Act. The Code of Federal Regulations at 40 CFR §122.23 (2008) 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. 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

"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 section 459.201 and section 459.301 as amended by 2009 Iowa Acts, House File 735, section 6. 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 1800 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 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 a person 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 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.

"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(455B,459,459A).

"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 refuges listed in 571—subrule 52.1(2);
- 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 listed in "Outdoor Adventure Guide," May 2002, Iowa Association of County Conservation Boards, which is incorporated by reference and is on file in the state law library;
- National wildlife refuges listed on the "Iowa Map Page," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://midwest.fws.gov/maps/iowa.htm;
- National monuments and national historic sites listed on the "National Park Service Guide for Iowa," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://165.83.219.77/parksearch/state/state.cfm? statevar=ia;
- Parks in Iowa that are under the jurisdiction of the U.S. Army Corps of Engineers and listed in "Lakeside Recreation for the Upper Mississippi Basin States," June 24, 2002, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://www.usace.army.mil/inet/functions/cw/cecwo/uppermis.htm.

"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 of natural resources, 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 of natural resources. 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 "Designated Wetlands in Iowa," effective August 23, 2006, which is incorporated by reference; this document is on file at the state law library where it is also available via the Internet at http://www.iowadnr.gov/afo/files/deswetlands.pdf.

"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 as amended by 2009 Iowa Acts, Senate File 432, section 2, 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 567—Chapter 65 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.

"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.

"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(455B).

"One hundred year flood plain" means the land adjacent to a major water source, if there is at least 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, shelter houses, playground equipment, lakes as listed in Table 2 at the end of this chapter, 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.

"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;
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 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 USDA Natural Resources Conservation Service (NRCS). A confinement feeding operation that utilizes a formed manure storage structure meets threshold requirements for an engineer if any of the following applies:

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.

[**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]

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 federal Water Pollution Control Act, 33 U.S.C. Ch. 26, and 40 CFR Pts. 122 and 412.

(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 at (515)281-8694. 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]

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) as amended through July 30, 2012.

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 federal Water Pollution Control Act, 33 U.S.C. Chapter 26, and 40 CFR Parts 122 and 412, 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 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 the winters of 2010-2011 through 2014-2015 only, 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]

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 as amended through July 30, 2012, 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]

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).

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 flood plain. Placing fill material on flood plain 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 flood plain 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, Natural Resources Conservation Service 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 issued prior to June 15, 2005, shall expire if construction, as defined in rule 567—65.8(459,459B), is not begun within one year of the date of issuance and shall expire on June 15, 2012, if construction is not completed by June 14, 2012. A construction permit issued on or after June 15, 2005, 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.

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. 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 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 flood plain.

b. A person shall not construct a confinement feeding operation structure on a flood plain as provided in rule 567—71.13(455B) until the department issues a flood plain 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 flood plain 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 flood plain. 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 flood plain; (2) if a flood plain development permit for the operation is required; and (3) if a flood plain 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 flood plain 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 flood plain. If the proposed location of the confinement feeding operation structure is on the one hundred year flood plain, 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 flood plain, the department may require a flood plain 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 flood plain. If the proposed location of the confinement feeding operation structure is on the one hundred year flood plain, 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 flood plain, the department may require a flood plain 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]

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, or excavation for footings 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 or compacting 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 flood plain. Placing fill material on flood plain 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 flood plain for the purpose of this paragraph. In addition, a person shall not construct a confinement feeding operation structure on a flood plain as provided in 567—71.13(455B) until the department issues a flood plain 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 Natural Resources Conservation Service of the United States Department of Agriculture, and determined according to subrule 65.9(4), unless the person has received a declaratory order or a determination from the department of natural resources that the proposed location of the structure is not on the one hundred year flood plain, 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]

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 and should be submitted to the department at least 120 days prior to the date the proposed construction is scheduled to begin. 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 a USDA Natural Resources Conservation Service (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 flood plain, and a flood plain 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 flood plain pursuant to paragraph 65.8(3)*"e"* and a copy of the department's flood plain 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) *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 using the AFO Siting Atlas located at the department's official Web site or by consulting a qualified department staff person, a soils professional normally engaged in the practice of soil investigation, or NRCS qualified staff. The alluvial soils determination shall be submitted to the department according to the following:

a. If the proposed location is not in alluvial soils, 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 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 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 flood plain and a copy of the department's flood plain 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 flood plain and a copy of the department's flood plain 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 using the AFO Siting Atlas located at the department's official Web site or by consulting a qualified department staff person, a soils professional normally engaged in the practice of soil investigation or NRCS qualified staff. 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 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 semi-liquid 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.

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]

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 the permit application. 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 as amended by 2009 Iowa Acts, Senate File 432, section 2.

(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 the 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 an 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 chapter 455B. 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 chapter 455B. The department shall preliminarily disapprove an application that does not satisfy the requirements of this chapter and Iowa Code chapter 455B 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 chapter 455B.

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 chapter 455B. The department shall preliminarily disapprove an application that does not satisfy the requirements of this chapter and Iowa Code chapter 455B regardless of any result produced by using the master matrix. If the application meets the requirements of this chapter and Iowa Code chapter 455B, 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 chapter 455B. 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 chapter 455B.

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 chief of the department's water quality bureau by facsimile transmission to (515)281-8895 that the board intends to file a demand for hearing. The demand for hearing shall be sent to Director, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319, 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 chief of the department's water quality bureau by facsimile transmission to (515)281-8895 that the applicant intends to file a demand for hearing. The demand for hearing shall be sent to Director, Department of Natural Resources, Henry A. Wallace Building, 502 East Ninth Street, Des Moines, Iowa 50319, 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 Web site 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 Web site 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 chapter 455B 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 chapter 455B 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]

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 *"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 USDA Natural Resources Conservation Service (NRCS) qualified staff in cases where the department cannot confirm a separation distance.

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]

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 flood plain.

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 as amended by 2009 Iowa Acts, House File 735, section 4, the separation distances required from residences, businesses, churches, schools and public use areas specified in Iowa Code section 459.202 and section 459.204B as amended by 2009 Iowa Acts, House File 735, section 3, 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 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 as amended by 2009 Iowa Acts, House File 735, section 4, 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 as amended by 2009 Iowa Acts, House File 735, section 4, 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 flood plain 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 flood plain 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 as amended by 2009 Iowa Acts, House File 735, section 7, 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 as amended by 2009 Iowa Acts, House File 735, section 7, 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]

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. 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. 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 by March 20, 1997, 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 have an inspection conducted by July 1, 2000, for drainage tiles as provided in this subrule, and all applicable records of known drainage tiles shall be examined.

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 *"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 to confirm the adequacy of the proposed permanent system to provide the required drainage without materially increasing the seepage potential of the site. Drainage tiles shall not be located closer than 6 feet horizontally from the structure's liquid surface at maximum operating

depth. (See 65.15(1)*"b"* for monitoring and shutoff requirements for drainage tile lines installed to lower the groundwater table.)

(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(1)*"b"* 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 Natural Resources Conservation Service (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. Each of the three temporary monitoring wells shall be developed according to 567—subrule 110.11(8). 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. 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 flood plain.

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 is as low as practically possible. The percolation rate 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 USDA Natural Resources Conservation Service (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.

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 have been installed. 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 or two test pits, equally spaced within each 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 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 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.

(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 *"d"* or *"e."* If the containment barrier does not surround the manure storage structure, upland drainage must be diverted.

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.

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]

567—65.16(459,459B) Manure management plan requirements.

65.16(1) In accordance with Iowa Code section 459.312 as amended by 2009 Iowa Acts, Senate File 432, section 2, 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.

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 plan must reflect all amendments made during the period of time since the previous manure management plan submission. 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. 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]

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 as amended by 2009 Iowa Acts, Senate File 432, section 2, 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.

c. Nitrogen in addition to that allowed in the manure management plan may be applied up to the amounts, indicated by soil or crop nitrogen test results, necessary to obtain the optimum crop yield.

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 the Natural Resources Conservation Service 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. This recorded information shall be maintained for three years following the year of application or for the length of the crop rotation, whichever is greater. 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 at least once every four years. 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 the USDA Natural Resources Conservation Service (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. Effective September 15, 2010, in all original and complete 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.

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.* Effective May 14, 2013, the owner of a confinement feeding operation that is required to submit a manure management plan shall not apply liquid manure 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. Not later than November 14, 2012, the commission shall review the available scientific evidence and determine whether any further or alternative action is necessary. The prohibition on applying liquid manure shall not become effective unless the commission publishes a notice in the Iowa Administrative Bulletin confirming that it has reviewed the available scientific evidence and that the prohibition shall take effect on May 14, 2013.

[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 8998B**, IAB 8/11/10, effective 9/15/10]

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. After June 30, 2001, 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]

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 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. 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]

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(455B,459,459A) Definitions. 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:

"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 1250 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(455B,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 a species classified as cattle, swine, horses, sheep, chickens or turkeys.

"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 federal Water Pollution Control Act, 33 U.S.C. Chapter 26, as amended, 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

"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 operating 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 a person of the management of the day-today 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 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.

"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. Assistance in identifying karst terrain or potential karst terrain may be obtained by referring to: http://csbweb.igsb.uiowa.edu/imsgate/maps/afo_siting_atlas.asp.

"Large concentrated animal feeding operation" or *"large CAFO."* An AFO is defined as a large CAFO if it stables or confines as many as or more than the numbers of animals specified in any of the following categories:

1. 700 mature dairy cows, whether milked or dry;
2. 1,000 cattle, including but not limited to heifers, steers, bulls, veal calves and cow/calf pairs;
3. 2,500 swine each weighing 55 pounds or more;
4. 10,000 swine each weighing less than 55 pounds;

5. 500 horses;
6. 10,000 sheep or lambs;
7. 55,000 turkeys;
8. 30,000 laying hens or broilers, if the AFO uses a liquid manure handling system;
9. 125,000 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;
10. 82,000 laying hens, if the AFO uses other than a liquid manure handling system;
11. 1,000 animal units, where more than one category of animals is maintained using the same type of operation.

"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.

"Medium concentrated animal feeding operation" or *"medium CAFO."* The term medium CAFO includes any AFO with the type and number of animals that fall within any of the ranges listed in paragraph *"a"* of this definition and which has been defined or designated as a CAFO. An AFO is defined as a medium CAFO if:

a. The type and number of animals that it stables or confines fall within any of the following ranges:

(1) 200 to 699 mature dairy cows, whether milked or dry;

(2) 300 to 999 cattle, including but not limited to heifers, steers, bulls, veal calves and cow/calf pairs;

(3) 750 to 2,499 swine each weighing 55 pounds or more;

(4) 3,000 to 9,999 swine each weighing less than 55 pounds;

(5) 150 to 499 horses;

(6) 3,000 to 9,999 sheep or lambs;

(7) 16,500 to 54,999 turkeys;

(8) 9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system;

(9) 37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;

(10) 25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system;

(11) 300 to 999 animal units, where more than one category of animals is maintained using the same type of operation; and

b. Either one of the following conditions is met:

(1) Manure or process wastewater is discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or

(2) Manure or process wastewater is discharged directly into waters of the United States which originate outside of and pass over, across or through the facility or otherwise come into direct contact with animals confined in the operation.

"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, 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.

"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, 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 is located or the person who has title to the animal feeding operation structures. "Owner" does not include a person who has a lease to use the land where the animal feeding operation is located or to use the animal feeding operation structures.

"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 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" means that portion of open feedlot 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.

"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, 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 as that section existed on July 1, 2005.

[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 8998B**, IAB 8/11/10, effective 9/15/10]

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 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 any of the following apply:

(1) For an open feedlot operation that houses cattle, other than veal calves, the operation is designed, constructed, operated, and maintained to comply with the requirements of 567—subrule 62.4(12) and not to discharge manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent resulting from precipitation events less than or equal to the 25-year, 24-hour precipitation event into any waters of the United States.

(2) For an open feedlot operation that houses veal calves, swine, chickens, or turkeys, the operation is designed, constructed, operated, and maintained not to discharge manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent resulting from precipitation events less than or equal to the 100-year, 24-hour precipitation event into any waters of the United States.

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 as defined in rule 567—65.100(455B,459,459A) or a designated CAFO pursuant to rule 567—65.103(455B,459A) 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) as amended through July 30, 2012.

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 manure and settleable solids. Stockpiles of manure 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(455B,459,459A), shall be reported to the department as provided in this subrule. This subrule does not apply to land application of manure, process wastewater, open feedlot effluent, settled open feedlot effluent 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 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 at (515)281-8694. 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, 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]

567—65.102(455B,459A) NPDES permits required for CAFOs. Concentrated animal feeding operations (CAFOs) are point sources that require NPDES permits.

65.102(1) *Duty to apply.* Each CAFO owner or operator must apply for an NPDES permit, except as provided in subrule 65.102(2). The owner or operator of a CAFO that includes an open feedlot must apply for an individual NPDES permit. The application procedures are prescribed in 567—65.104(455B,459A).

65.102(2) *Exception.* An open feedlot operation shall not be required to obtain an NPDES permit if the operation does not discharge manure, process wastewater, settled open feedlot effluent, settleable solids, or open feedlot effluent into any waters of the United States.

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 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 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.* Applications for NPDES permits received from animal feeding operations which are not defined as CAFOs will be acknowledged and returned to the applicant. NPDES permits will not be issued for facilities which are not defined or designated as CAFOs.

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 2005 Iowa Code Supplement 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 by December 31, 2006. CAFOs that seek to obtain coverage under an NPDES permit issued after December 31, 2006, 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 two 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 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 or the 100-year, 24-hour precipitation event as applicable pursuant to 65.101(2)*"a."*

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; and

(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.

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) During the first two years of operation of an AT system, a permittee will be issued a two-year NPDES permit. Renewal of this permit 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]

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 the Natural Resources Conservation Service of the United States Department of Agriculture certifying that the construction of the settled open feedlot effluent basin or AT system complies with the construction design standards required in Division II of chapter 65.

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, Natural Resources Conservation Service 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. 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.

65.105(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. A construction permit issued prior to September 14, 2005, shall expire if construction, as defined in rule 567—65.106(459A), is not begun within one year of the date of issuance and shall expire on September 15, 2012, if construction is not completed by September 14, 2012. 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]

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 or compacting at the site.

d. Installation of temporary utility services.

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 Natural Resources Conservation Service 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.

567—65.108(455B,459A) Water well separation distances for open feedlot operations.

65.108(1) *Settled open feedlot effluent basins.* 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 and deep wells.

65.108(2) *Open feedlots, solids settling facilities, feed storage runoff control structures and AT systems.* Open feedlots, solids settling facilities, feed storage runoff control structures and AT systems shall be separated from water wells as follows: for both public 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]

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 2005 Iowa Code Supplement 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, 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. The department may accept 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 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 Natural Resources Conservation Service (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 settled open feedlot effluent basins 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 DNR permits and provide protection from inundation by flood waters, as specified in 567—Chapters 71 and 72.

b. Permits for dam construction. Open feedlot operation structures exceeding storage capacity or dam height thresholds may be required to obtain DNR 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.

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 Natural Resources Conservation Service (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.

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) on or after July 1, 2005, shall submit to the department a construction certification from a professional engineer certifying all of the following:

a. The 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 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.

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 after December 31, 2006, 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 Web site. The notice for public comment shall include the address of the department's Internet Web site as required by the department.

65.112(8) 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 levels 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.

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.

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 a 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.

65.112(11) Settled open feedlot effluent on land planted to soybeans. Effective May 14, 2013, the owner of an open feedlot operation that is required to submit a nutrient management plan shall not apply liquid manure, process wastewater or settled open feedlot effluent to land that is currently planted to soybeans or to land where the current crop has been harvested that will be planted to soybeans the next crop season. Not later than November 14, 2012, the commission shall review the available scientific evidence and determine whether any further or alternative action is necessary. The prohibition on applying liquid manure, process wastewater or settled open feedlot effluent shall not become effective unless the commission publishes a notice in the Iowa Administrative Bulletin confirming that it has reviewed the available scientific evidence and that the prohibition shall take effect on May 14, 2013.
[**ARC 8120B**, IAB 9/9/09, effective 10/14/09; **ARC 8998B**, IAB 8/11/10, effective 9/15/10]

567—65.113(459A) Complaint investigations. Complaints of violations of Iowa Code chapter 455B or 459, or 2005 Iowa Code Supplement chapter 459A, 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 or 459, or 2005 Iowa Code Supplement chapter 459A, 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 or 459, or 2005 Iowa Code Supplement chapter 459A, 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.

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.

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 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

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 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

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 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

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 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

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 0.05 inch per day for each of the three days immediately preceding application and no precipitation is occurring on the day of application.

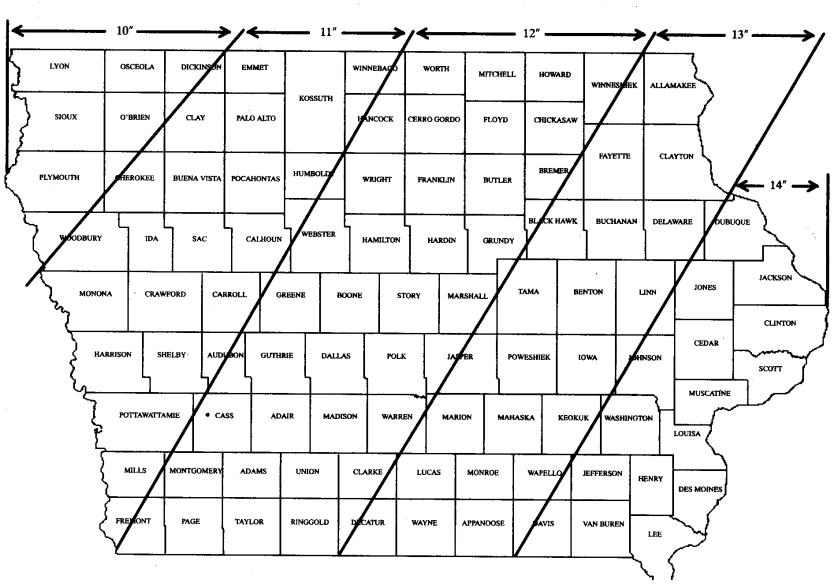

FIGURE 1. – Feedlot runoff value, in inches, for determining required capacity of the "System 1: One Open Feedlot Effluent Application Period Per Year" manure control system.

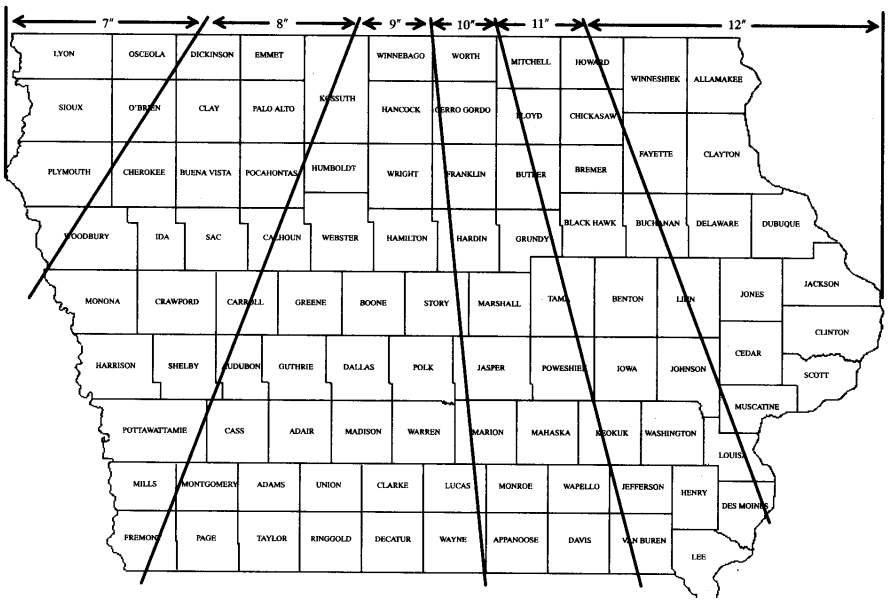

FIGURE 2. – Feedlot runoff value, in inches, for determining required capacity of the "System 2: July and October Open Feedlot Effluent Application" manure control system.

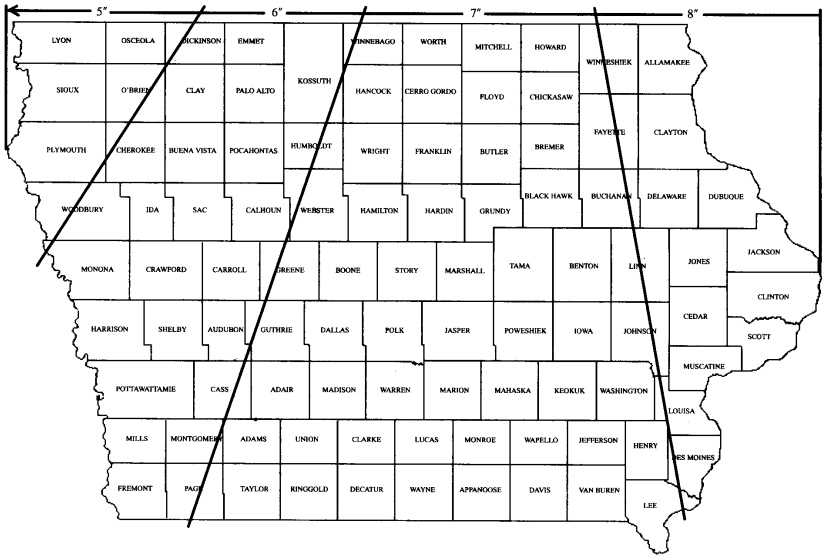

FIGURE 3. – Feedlot runoff value, in inches, for determining required capacity of the "System 3: April, July, and October Open Feedlot Effluent Application" manure control system.

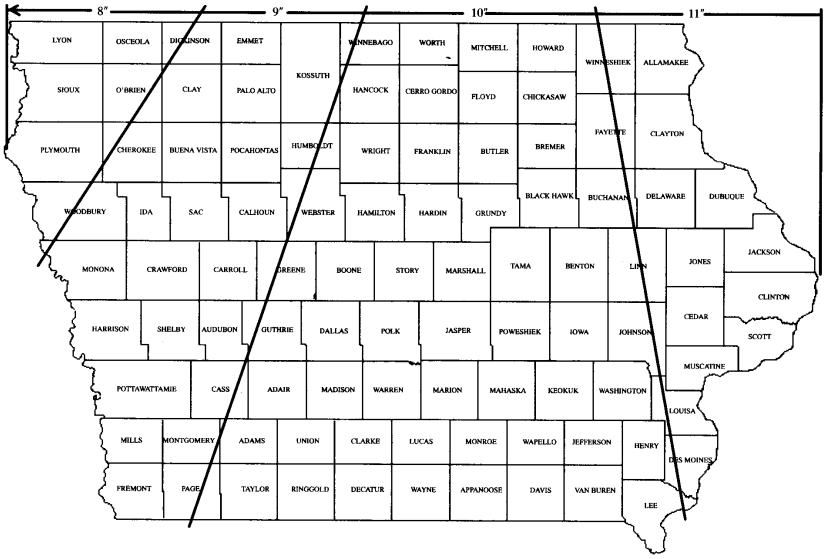

FIGURE 4. – Feedlot runoff value, in inches, for determining required capacity of the "System 5: April/May and October/November Open Feedlot Effluent Application" manure control system.

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 http://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 http://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 http://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 http://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

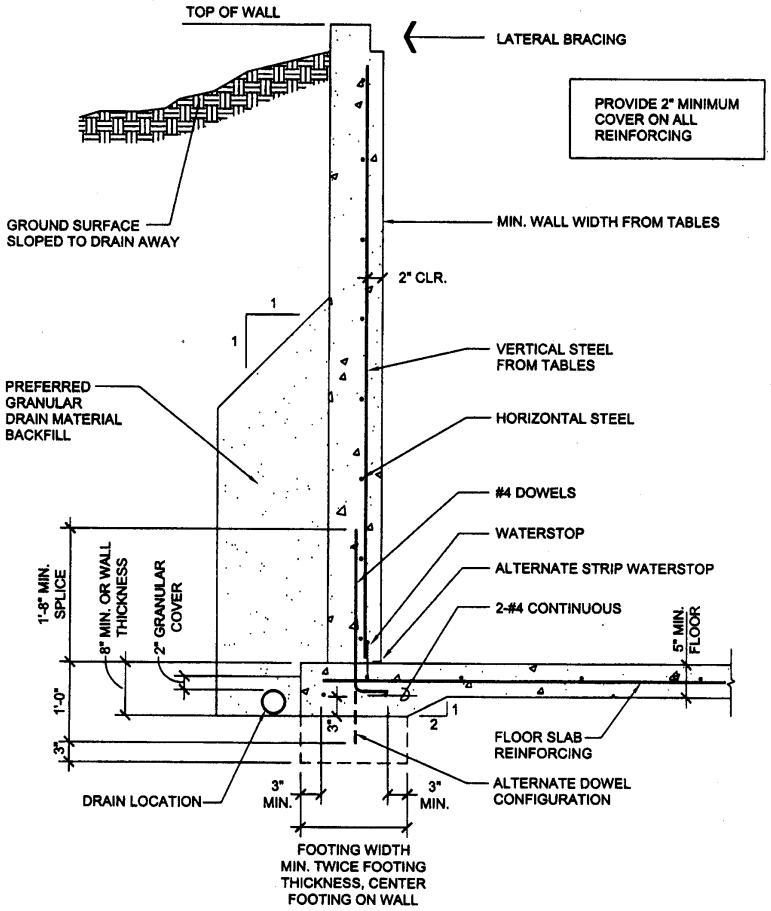
(7) Minimum horizontal steel for a rectangular tank shall be selected and placed according to Table D-5, regardless of wall height, and shall be tied to the soil side of vertical steel:

APPENDIX D, TABLE D-5

Minimum Wall Horizontal Steel Reinforcement

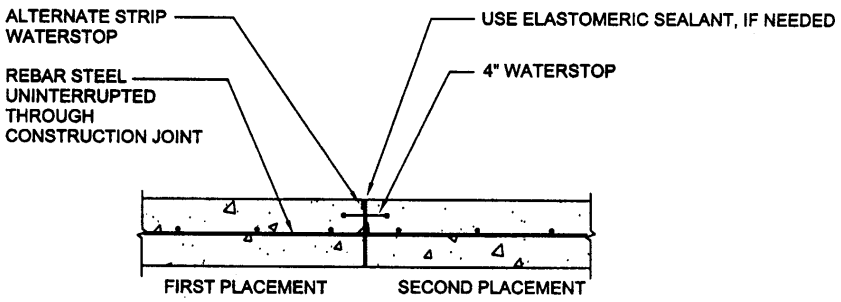
Wall thickness (inches)	Steel Grade			
	Grade 40		Grade 60	
	Bar	Space o.c. (inches)	Bar	Space o.c. (inches)
6	#4	16.5	#4	18.0
	#5	18.0	#5	18.0
8	#4	12.0	#4	13.5
	#5	18.0	#5	18.0
10	#4	9.5	#4	11.0
	#5	15.0	#5	17.0

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	Location
Adair	Greenfield Lake	1 mile Southwest of Greenfield
	Orient Lake	1 mile Southwest of Orient
	Meadow	6 miles Northeast of Greenfield
	Mormon Trail Lake	1½ miles Southeast of Bridgewater
	Nodaway Lake	2 miles Southwest of Greenfield
Adams	Binder Lake	1 mile Northeast of Corning
	Corning Reservoir	North edge of Corning
	Lake Icaria	4 miles North of Corning
Appanoose	Centerville Reservoir (Upper)	Southwest edge of Centerville
	Centerville Reservoir (Lower)	Southwest edge of Centerville
	Mystic Reservoir	½ mile North of Mystic
	Rathbun Reservoir	8 miles Northwest of Centerville
Audubon	Littlefield	4 miles East of Exira
Benton	Hannen Lake	4 miles Southwest of Blairstown
	Rodgers Park Lake	3½ miles Northwest of Vinton
Black Hawk	Alice Wyth Lake	North edge of Waterloo
	Big Woods Lake	Northwest edge of Cedar Falls
	Cedar Falls Reservoir	North edge of Cedar Falls
	East Lake (Quarry Lake)	North edge of Waterloo
	Fisher Lake	North edge of Waterloo
	George Wyth Lake	North edge of Waterloo
	Green Belt Lake	West edge of Waterloo
	Meyer Lake	Evansdale
	Mitchell Lake	Waterloo
	North Prairie Lake	Southwest edge of Cedar Falls
	South Prairie Lake	Southwest edge of Cedar Falls
Boone	Don Williams Lake	5 miles North of Ogden
	Sturtz	3 miles West of Boone
Bremer	Sweet Marsh (Martens Lake)	1 mile East of Tripoli
	Sweet Marsh (A)	2 miles East of Tripoli
	Waverly Impoundment	Waverly
Buchanan	Fontana Mill	½ mile South of Hazelton
	Independence Impoundment	Independence
	Kounty Pond	2½ miles Southeast of Brandon
Buena Vista	Gustafson Lake	1 mile South of Sioux Rapids
	Newell Pit	1½ miles Northwest of Newell
	Pickerel Lake	7 miles Northwest of Marathon
	Storm Lake	South edge of Storm Lake
Calhoun	Calhoun Wildlife Area	4 miles East of Manson
	Hwy. 4 Recreation Area	1 mile South of Rockwell City
	North Twin Lake	6 miles North of Rockwell City
	South Twin Lake	5 miles North of Rockwell City

County	Lake	Location
Carroll	Swan Lake	3 miles Southeast of Carroll
Cass	Cold Springs Lake	1 mile South of Lewis
	Lake Anita	½ mile South of Anita
Cerro Gordo	Blue Pit	Southwest edge of Mason City
	Clear Lake	South edge of Clear Lake
	Fin and Feather Lake	3 miles South, 1 mile East of Mason City
Cherokee	Larson Lake	2½ miles East, 2 miles North of Aurelia
	Spring Lake	South edge of Cherokee
Chickasaw	Airport Park Lake	S35, T96N, R13W
	Nashua Impoundment	Nashua
	Split Rock Park Lake	5 miles Southwest of Fredericksburg
Clarke	East Lake	½ mile East of Osceola
	West Lake	2 miles West of Osceola
Clay	Elk Lake	3 miles South, 1 mile West of Ruthven
	Trumbull Lake	4 miles West, 5 miles North of Ruthven
Clinton	Kildeer and Malone	4 miles East of DeWitt
Crawford	Ahart/Rudd Natural Resource Area	2 miles South of Dow City, S21, T82N, R40W
	Nelson Park Lake	3 miles West, 3 miles North of Dow City
	Yellow Smoke Park	2 miles East, 2 miles North of Denison
Dallas	Beaver	1½ miles North of Dexter
Davis	Lake Fisher	2 miles Northwest of Bloomfield
	Lake Wapello	7 miles West of Drakesville
Decatur	Little River Watershed Lake	1 mile West of Leon
	Nine Eagles Lake	3½ miles Southeast of Davis City
	Slip Bluff Lake	2 miles Northwest of Davis City
Delaware	Backbone Lake	4 miles Southwest of Strawberry Point
	Lake Delhi	3 miles West of Delhi
	Quaker Mills Impoundment	Northwest edge of Manchester
	Silver Lake	Southeast edge of Delhi
Des Moines	Fourth Pumping Plant	6 miles North, 5 miles East of Kingston

County	Lake	Location
Dickinson	Center Lake	2 miles West, ½ mile South of Spirit Lake
	Diamond	2 miles East, 2 miles North of Montgomery
	East Okoboji Lake	East edge of Okoboji
	Gar (Lower)	½ mile South of Arnolds Park
	Gar (Upper)	East of Arnolds Park
	Little Spirit Lake	4 miles North of Orleans
	Minnewashta	½ mile South of Arnolds Park
	Silver	West Edge of Lake Park
	Spirit Lake	1 mile North of Spirit Lake
	Swan Lake	2 miles North of Superior
	West Okoboji Lake	Northwest edge of Arnolds Park
Dubuque	Heritage Pond	2 miles North of Dubuque
Emmet	High Lake	6 miles East of Wallingford
	Ingham Lake	6 miles East of Wallingford
	Iowa Lake	6 miles North of Armstrong
	Tuttle Lake	1 mile East, 2 miles North of Dolliver
	West Swan	1½ miles South, 2 miles East of Gruver
Fayette	Lake Oelwein	Oelwein
	Volga Lake	3 miles North of Fayette
Franklin	Beeds Lake	2 miles West, 1 mile North of Hampton
	Interstate Park Pond	1 mile West, 2 miles South I-35 & Hwy. 3
	Maynes Grove Lake	4 miles South of Hampton on Hwy. 65
Fremont	McPaul "A"	2 miles South of Bartlett
	McPaul "B"	2 miles South of Bartlett
	Percival Lake	1 mile North of Percival
	Scott Lake "A"	1½ miles South of Bartlett
Greene	Spring Lake	4 miles Northwest of Grand Junction
Guthrie	Springbrook	7 miles North of Guthrie Center
Hamilton	Andersen Lake/Marsh	1 Mile East of Jewell
	Bjorkboda Marsh	S36, T86N, R26W
	Briggs Wood Lake	2 miles South of Webster City
	Gordons Marsh	S33 and 34, T88N, R26W
	Little Wall Lake	1½ miles South of Jewell
Hancock	Crystal Lake	North edge of Crystal Lake
	Eagle Lake	3 miles Northeast of Britt
	Eldred Sherwood Lake	3 miles East, 1 mile North of Goodell
	West Twin Lake	3 miles East of Kanawha
Hardin	Pine Lake (Lower)	½ mile East of Eldora
	Pine Lake (Upper)	½ mile East of Eldora
Harrison	DeSoto Bend	5 miles West of Missouri Valley
	Willow Lake	5½ miles West of Woodbine

County	Lake	Location
Henry	City of Westwood Pond	S11, T71N, R7W
	Crane's Pond	Mt. Pleasant
	East Lake Park Pond	Mt. Pleasant
	Geode Lake	4 miles Southwest of Danville
	Gibson Park Pond	S28, T71N, R7W
Howard	Lake Hendricks	½ mile Northeast of Riceville
Ida	Crawford Creek	3½ miles South of Battle Creek
	Moorehead Park Pond	½ mile North of Ida Grove
Iowa	Iowa Lake	5 miles North of Millersburg
Jackson	Green Island Lakes	1 mile East of Green Island
	Middle Sabula Lake	West edge of Sabula
Jasper	Mariposa Lake	5 miles Northeast of Newton
	Rock Creek Lake	4 miles Northeast of Kellogg
Johnson	Coralville Reservoir	4 miles North of Iowa City
	Kent Park Lake	2½ miles West of Tiffin
	Lake Macbride	4 miles West of Solon
Jones	Central Park Lake	2 miles West of Center Junction
Keokuk	Belva Deer Ponds (4)	5 miles Northeast of Sigourney
	Yen-Ruo-Gis	2 miles North of Sigourney
Kossuth	Burt Lake	4 miles West, 8 miles North of Sway City
	Smith	3 miles North of Algona
Lee	Chatfield Lake	3 miles Northwest of Keokuk
	Pollmiller Park Lake	½ mile East of West Point
	Shimek Forest Ponds (4)	1 mile East of Farmington
Linn	Pleasant Creek Lake	4 miles North of Palo
Louisa	Cone Marsh	10 miles Northwest of Columbus Jct.
	Indian Slough	4 miles Northwest of Wapello
	Iowa Slough	3 miles Southeast of Oakville
	Lake Odessa	5 miles East of Wapello
Lucas	Brown's Slough	7 miles Southeast of Russell
	Colyn North	4 miles South of Russell
	Colyn South	4 miles South of Russell
	Ellis Lake	1 mile East of Chariton
	Morris Lake	3 miles East of Chariton
	Red Haw Lake	1 mile East of Chariton
	Stephens Forest Ponds #1 & #2	3 miles Southwest of Lucas
	Williamson Pond	2 miles East of Williamson
Lyon	Fairview Pond	5 miles South, 3 miles West of Inwood
	Lake Pahoja	4 miles South, 2 miles West of Larchwood

County	Lake	Location
Madison	Badger Creek Lake	5 miles Southeast of Van Meter
	Winterset City Reservoir	2 miles Northeast of Winterset
Mahaska	Hawthorne Lake	1 mile South of Barnes City
	Lake Keomah	6 miles East of Oskaloosa
	White Oak Lake	3 miles South of Rose Hill
Marion	Red Rock	4 miles North of Knoxville
	Roberts Creek	6 miles Northeast of Knoxville
	Roberts Creek Lake	S28, 29, 33 and 34, Summit Twp.
Marshall	Green Castle Lake	1 mile South of Ferguson
Mills	Folsom Lake	2 miles West of Glenwood
	Keg Creek Lake	2 miles Southwest of Pacific Junction
	Mile Hill Lake	2 miles West of Glenwood
	P.J. Lake	1 mile Southwest of Pacific Junction
	Pony Creek Lake	3½ miles Northwest of Glenwood
Mitchell	Interstate Park	West edge of Mitchell
Monona	Blue Lake	3 miles West of Onawa
	Johnston Pit	1 mile East of Rodney
	McDonald Pit	1 mile East of Rodney
	Oldham Lake	1 mile North of Soldier
	Peters Park Pond	1 mile East of Rodney
	Savery	2 miles Southeast of Moorhead
	Utterback Pond	3 miles North, 3 miles West of Castana
Monroe	Albia (Upper)	1 mile North of Albia
	Albia (Lower)	1 mile North of Albia
	Cottonwood Pits	2 miles South of Albia
	Lattart	4 miles Southwest of Lovilla
	Lake Miami	5 miles Southeast of Lovilla
Montgomery	Hacklebarney East	4 miles North of Villisca
	Viking Lake	4 miles East of Stanton
Muscatine	Cone Lake	1½ miles East of Conesville
	Wiese Slough	2 miles Southeast of Atalissa
O'Brien	Dog Creek Lake	2 miles East, ½ mile South of Sutherland
	Douma Area Park Pond	2 miles West, 1 mile South of Sanborn
	Hagan Wildlife Pond	S13, T95N, R41W
	Mill Creek Lake	1 mile East of Paullina
	Negus Wildlife Area Pond	S30, T94N, R39W
	Tjossem Park Ponds	S6, T95N, R40W

County	Lake	Location
Osceola	Ashton Park Lake	S14, T98N, R42W
	Ashton Pits Access Area	S11, T98N, R42W
	Iowa Lake	S9, T100N, R39W
	Leinen Pits	S25, T99N, R42W
	May City Pit	S5, T98N, R39W
	Ocheyedan Pits	2 miles South of Ocheyedan
	Peters Pits	S19, T100N, R42W
	Thomas Pit	S36, T99N, R40W
	Willow Creek Lake	S31, T100N, R40W
Page	Pierce Creek Lake/Pond	5 miles North of Shenandoah
	Ross Area	8 miles Southeast of Clarinda
Palo Alto	Five Island Lake	North edge of Emmetsburg
	Lost Island Lake	3 miles North of Ruthven
	Rush Lake	9 miles West of Mallard
	Silver Lake	2 miles West of Ayrshire
	Virgin Lake	2 miles South of Ruthven
Plymouth	Deer Creek	11 miles West, 1 mile South, 1½ miles West of Merrill
	Hillview Lake	1 mile Northwest of Hinton
	Silver Maple Primitive Area Lake	3 miles Southeast of Akron
	Southeast Wildwood Park Pond	3 miles Northeast of Kingsley
Polk	Big Creek Lake	2 miles North of Polk City
	Bondurant	Northeast edge of Bondurant
	Carney Marsh	Ankeny
	Case's Lake	Des Moines, S13, T78N, R24W
	Dale Maffitt Reservoir	6 miles Southwest of Des Moines
	Easter Lake Park	Southeast edge of Des Moines
	Engledinger Marsh	6 miles Northwest of Bondurant
	Ft. Des Moines Pond	South edge of Des Moines
	Grays Lake	Fleur Dr., Des Moines
	Saylorville Reservoir	North edge of Des Moines
	Skull Pond	Jester Park near Polk City
	Teal Pond	Jester Park near Polk City
	Thomas Mitchell Park Pond	2 miles Southwest of Mitchellville
	Two Dam Pond	Jester Park near Polk City
	Yellow Banks Park Pond	4 miles Southeast of Pleasant Hill
Pottawattamie	Arrowhead Pond	1½ miles Southeast of Neola
	Carter Lake	Carter Lake
	Lake Manawa	Southwest edge of Council Bluffs
Poweshiek	Arbor Lake	Grinnell
	Diamond Lake	1 mile West of Montezuma
Ringgold	Loch Ayr	2 miles North of Mt. Ayr
	Old Reservoir	½ mile North of Mt. Ayr
	Walnut Creek Marsh	5 miles Southwest of Mt. Ayr

County	Lake	Location
Sac	Arrowhead Lake	South Side of Lake View
	Black Hawk Lake	East edge of Lake View
	Black Hawk Pits	1½ miles South of Lake View
Scott	Crow Creek	East edge of Mt. Joy
	West Park Lakes (4)	¼ mile West of Davenport
Shelby	Mantano Park Pond	8 miles Northwest of Defiance
	Prairie Rose	8 miles Southeast of Harlan
Story	Dakin's Lake	½ mile North of Zearing
	Hendrickson Marsh	3 miles Northeast of Collins
	Hickory Grove Lake	3 miles Southwest of Colo
	McFarland Lake	4 miles Northeast of Ames
	Peterson Pits	4 miles Northeast of Ames
Tama	Casey Lake	7 miles North of Dysart
	Otter Creek Lake	6 miles Northeast of Toledo
	Union Grove Lake	4 miles South of Gladbrook
Taylor	East Lake	½ mile North of Lenox
	Lake of Three Fires	3 miles Northeast of Bedford
	West Lake	1 mile North of Lenox
	Wilson Park Lake	2½ miles Southeast of Lenox
	Windmill Lake	3½ miles East of New Market
Union	Afton City Reservoir	1 mile West of Afton
	Green Valley Lake	2½ miles Northwest of Creston
	Summitt Lake	West edge of Creston
	Three Mile Creek Lake	East of Creston
	Twelve Mile Creek Lake	4 miles East of Creston
Van Buren	Indian Lake	1 mile Southwest of Farmington
	Lacey-Keosauqua Park Lake	1 mile Southwest of Keosauqua
	Lake Miss-Tug Fork W	5 miles Southwest of Keosauqua
	Lake Sugema	3 miles Southwest of Keosauqua
	Piper's Pond-Tug Fork E	5 miles Southwest of Keosauqua
Wapello	Arrowhead Lake	3 miles Southeast of Ottumwa
	Ottumwa Reservoir	Ottumwa
Warren	Banner Pits	4½ miles North of Indianola
	Lake Ahquabi	5 miles Southwest of Indianola
Washington	Lake Darling	3 miles West of Brighton
Wayne	Bob White Lake	1 mile West of Allerton
	Corydon Reservoir	West edge of Corydon
	Humeston Reservoir	1 mile North of Humeston
	Lineville Reservoir	North edge of Lineville
	Medicine Creek Wildlife Area Complex	6 miles East of Lineville
	Seymour Reservoir	½ mile South of Seymour

County	Lake	Location
Webster	Badger Lake	4½ miles North of Fort Dodge
	Brushy Creek Lake	5 miles Northeast of Lehigh
Winnebago	Ambrosson Pits	3½ miles North of Forest City
	Lake Catherine	6 miles West of Forest City
	Rice Lake	1 mile South, 1 mile East of Lake Mills
Winneshiek	Lake Meyers	3 miles Southwest of Calmar
Woodbury	Bacon Creek	East edge of Sioux City
	Browns Lake	2 miles West of Salix
	Little Sioux Park Lake	2 miles South of Correctionville
	Snyder Bend Lake	1½ miles West of Salix
	Southwood	½ mile West, ½ mile South of Smithland
Worth	Kuennen's Pit	2 miles South, ½ mile East of Northwood
	Silver Lake	10 miles West, 3½ miles North of Northwood
Wright	Lake Cornelia	3½ miles North, 2 miles East of Clarion
	Morse Lake	3½ miles West of Belmond
	Wall Lake	10 miles Southeast of Clarion

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.

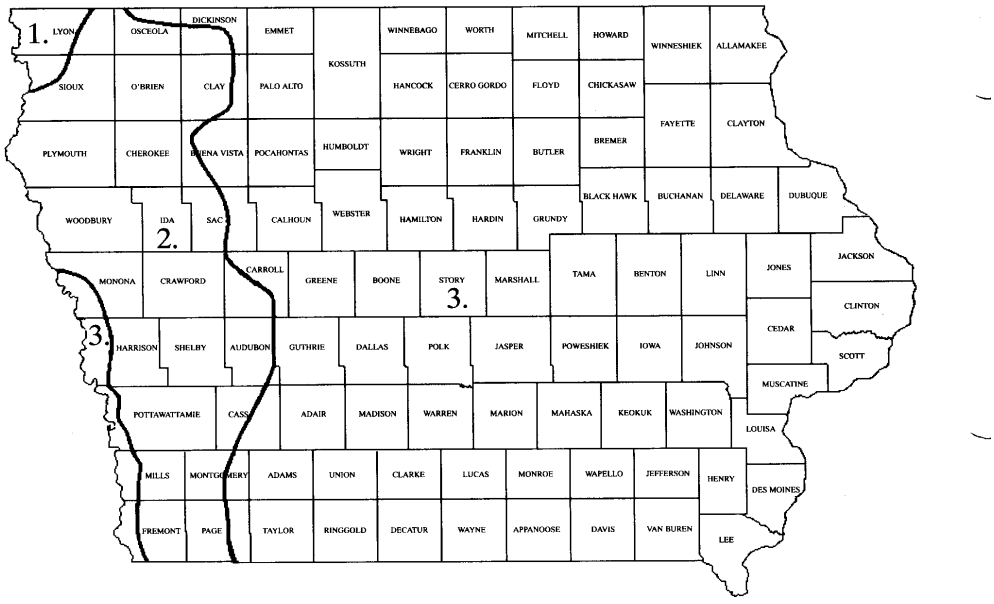


TABLE 4a

Phosphorus Removal for Iowa Crops

Source: PM 1688, General Guide for Crop Nutrient Recommendations in Iowa

CROP	UNITS	P_2O_5 (pounds/unit)
Corn	bu.	0.375
Corn silage	ton (65% H_2O)	3.5
Soybeans	bu.	0.8
Alfalfa	ton	12.5
Oat and straw	bu.	0.4
Wheat	bu.	0.6
Smooth brome	ton	9
Orchard grass	ton	14
Tall fescue	ton	12
Switch grass	ton	12
Sorghum-Sudan	ton	12
Vetch	ton	12
Red clover	ton	12
Perennial rye grass	ton	12
Timothy	ton	9
Wheat straw	ton	4
Oat straw	ton	5

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
Aerobic structure, anaerobic lagoon, earthen manure storage basin 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]

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
Aerobic structure, anaerobic lagoon, earthen manure storage basin 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]

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
Aerobic structure, anaerobic lagoon, earthen manure storage basin 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]

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
Aerobic structure, anaerobic lagoon, earthen manure storage basin 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]

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
Aerobic structure, anaerobic lagoon, earthen manure storage basin 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]

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
Settled open feedlot effluent basin	1,000 feet	400 feet	400 feet	400 feet
Open feedlot, open feedlot solids settling facility, 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]

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.