

CHAPTER 44  
ON-SITE CONTAINMENT  
OF PESTICIDES, FERTILIZERS AND SOIL CONDITIONERS  
[Prior to 7/27/88, see 21—Ch 9]

PESTICIDES

**21—44.1(206) Definitions.** Where used in these rules:

*“Aerial applicator”* means a commercial applicator who is certified in #11—Aerial Application and who applies the pesticide by using an aircraft.

*“Bulk pesticide”* means any registered pesticide which is transported or held in an individual container in undivided quantities of greater than 55 U.S. gallons liquid measure or 100 pounds net dry weight.

*“Bulk repackaging”* means the transfer of a registered pesticide from one bulk container (containing undivided quantities of greater than 55 U.S. gallons liquid measure or 100 pounds net dry weight) to another bulk container (containing undivided quantities of greater than 55 U.S. gallons liquid measure or 100 pounds of net dry weight) in an unaltered state in preparation for sale or distribution to another person.

*“Certified commercial applicator”* means a pesticide applicator or individual who applies or uses a pesticide or device on any property of another for compensation.

*“Mobile containers”* means containers designed and used for transporting pesticide materials.

*“Nonmobile containers”* means all containers not defined as mobile.

*“Permanent pesticide storage and mixing site”* means a site where pesticides are being stored for more than 30 days per year and at which more than 300 gallons of liquid pesticide or 300 pounds of dry pesticide are being mixed, repackaged or transferred from one container to another within a 30-day period.

*“Secondary containment”* means any structure used to prevent runoff or leaching of pesticide materials.

**21—44.2(206) On-site containment of pesticides.** All nonmobile bulk pesticide storage containers shall be located within a watertight secondary containment facility.

All mixing, repackaging and transfer of pesticides from one container to another performed at a permanent pesticide storage and mixing site shall be done within a containment area. The designated site shall be paved with asphalt or concrete and be elevated above the surrounding area or curbed so as not to receive runoff from surrounding areas that would overload the recovery system and shall slope to a discharge point that allows materials to flow to a watertight containment structure in compliance with rule 21—44.10(206).

**21—44.3(206) Design plans and specifications.** Design plans and specifications for facilities required under these rules shall be submitted to the Iowa department of agriculture and land stewardship prior to the start of construction, along with certification from an Iowa registered engineer (as defined in Iowa Code chapter 542B) that the designed facilities will comply with all requirements of these rules.

A person may deviate from the requirements of these rules if such deviations are clearly noted on the design plans and specifications, along with certification from an Iowa registered engineer that these deviations will not reduce the effectiveness of the facilities in protecting surface or groundwaters.

**21—44.4(206) Certification of construction.** Upon completion of construction, certification by the owner or owner’s agent shall be made to the Iowa department of agriculture and land stewardship that the facilities were constructed in accordance with rules 21—44.2(206) to 21—44.11(206). If departmental investigation, subsequent to the completion of construction, determines the constructed facilities were not constructed in accordance with the submitted plans and specifications or the requirements of these rules, the owner shall correct any deficiencies in a timely manner as set forth by the department.

The department may exempt any person from a requirement under rules 21—44.2(206) to 21—44.11(206) if an engineering justification is provided demonstrating variations from the requirements will result in at least equivalent effectiveness.

**21—44.5(206) New pesticide storage and mixing site location.** New permanent storage and mixing sites as defined in rule 21—44.1(206) shall be selected in accordance with requirements of the Iowa department of natural resources. The new site, if located in a flood plain, shall be protected from inundation from floods. New permanent pesticide storage and mixing sites shall be located a minimum of 400 feet from public water supply wells or below ground level finished water storage facilities and a minimum of 150 feet from private water supply wells.

**21—44.6(206) Pesticide storage and mixing site.** Each site shall comply with those ordinances and regulations enacted by the city or county affected by such location that related to the location of such sites. All sites and facilities where flammable pesticides are stored shall comply with state and federal fire protection rules and regulations, including the National Fire Protection Standards (Standard 30) for storage of flammable liquids.

**21—44.7(206) Secondary containment for nonmobile bulk pesticide storage and mixing.** Base and walls of secondary containment facilities must be constructed of concrete, steel or other impervious materials which are compatible with the pesticides being stored and will maintain their integrity under fire conditions. Storage containers must be anchored, as necessary, to prevent flotation or instability in the event of discharge into the secondary containment facility. Routine inspection is required to ensure against cracks or other conditions that may reduce the effectiveness of the containment facility. Cracks that occur in a secondary containment structure must be repaired with an acceptable sealant, and other repairs shall be made as needed to maintain the effectiveness of the containment facility.

The diked area shall not have a relief outlet and valve. The base shall slope to a collecting spot where precipitation water may be pumped out, provided the liquid is not contaminated with pesticides. If contaminated with a pesticide, the liquid shall be disposed of in accordance with applicable hazardous or solid waste requirements or field applied according to the pesticide label instructions.

**44.7(1) Storage in other than an enclosed structure.**

*a.* Secondary containment for nonmobile bulk liquid pesticide storage located in other than an enclosed structure shall be constructed with a volume sufficient to contain a minimum of 110 percent of the capacity of the largest single container, plus the space occupied by other tanks located within the secondary containment structure.

*b.* Secondary containment for nonmobile bulk dry pesticide storage located in other than an enclosed structure shall be constructed to contain any releases of dry pesticide. The secondary containment will have as a minimum a six-inch high curb separated horizontally from the storage vessel a minimum of three feet. Provisions shall be made for the collection of rainwater, and rainwater shall not be allowed to accumulate in the containment structure.

**44.7(2) Storage in an enclosed structure.**

*a.* Secondary containment for nonmobile bulk liquid pesticide storage located in an enclosed structure shall be constructed with a volume sufficient to contain a minimum of 100 percent of the capacity of the largest single container, plus the space occupied by other tanks located within the secondary containment structure.

*b.* Secondary containment for nonmobile bulk dry pesticide storage located in an enclosed structure shall be constructed to contain any releases of dry pesticide. The secondary containment will have as a minimum a six-inch high curb separated horizontally from the storage vessel a minimum of three feet on an open side. Nonmobile bulk dry pesticide storage tanks may be constructed within three feet of a permanent wall provided the wall is lined with an impervious surface which contains and directs any spilled material into a containment structure, according to the engineer's design plans.

**44.7(3)** Precipitation must not be allowed to accumulate in the secondary containment facility. Failure to properly maintain secondary containment facilities may subject the firm to state and federal regulations related to hazardous waste generators.

**44.7(4)** Discharges into a secondary containment facility must be promptly recovered to the maximum extent possible. Failure to properly manage discharge may subject the firm to pesticide misuse regulations and possibly to regulations related to hazardous waste generators.

**44.7(5)** Pesticides shall be handled in a manner that minimizes the movement of pesticide dusts, aerosols and vapors from the pesticide storage and mixing site. The following dust control measures shall apply to bulk dry pesticide storage tanks:

*a.* Primary vents on all tanks must be equipped with a dust filter. Filters shall be capable of handling 500 cubic feet per minute air flow. Primary filtration systems may be mounted on the tank or on the delivery truck.

*b.* Filters shall retain all particles greater than ten microns in size and retain greater than 90 percent of particles between three and ten microns in size.

*c.* Pressure relief valves shall be enclosed in a filter arrangement capable of retaining 100 percent of ten micron particles. Filters shall be maintained on a regular basis and replaced when necessary to maintain the proper filtering capacity.

*d.* Tanks and loading areas and all plant site transfer systems shall be equipped with fittings which facilitate closed system handling.

**44.7(6)** Discharge of pesticides from a secondary containment facility shall be recovered to the maximum extent possible. The Iowa department of natural resources, the county sheriff or local police shall be contacted as soon as possible, but not later than six hours of onset or discovery of spill.

**21—44.8(206) Pesticide storage and mixing site containers.** Containers used for pesticide storage and handling shall be of materials and construction compatible with the pesticide stored and the conditions of storage and maintained in a manner as to minimize the possibility of a spill.

**44.8(1)** Storage container labeling and protection. Upon delivery of the bulk pesticide, the registered product label shall be affixed in a prominent location on the bulk pesticide storage container and designed to remain intact and legible through active use of container.

Locking devices are required on bulk pesticide storage containers and all valves shall be closed and locked when the facility is left unattended.

Containers, pipes and valves must be protected against reasonably foreseeable risks of damage by trucks and other moving vehicles.

**44.8(2)** Reserved.

**21—44.9(206) Transportation of bulk pesticides.** Bulk pesticide containers shall meet all applicable standards of the appropriate state and U.S. Department of Transportation laws and regulations.

**44.9(1)** Mobile bulk pesticide containers shall be secured to prevent significant movement during transportation.

**44.9(2)** Mobile bulk pesticide containers shall bear the registered product label for the material contained therein.

**21—44.10(206) Mixing, repackaging and transfer of pesticides.** Pesticides shall be mixed, repackaged and transferred in a manner that will prevent unreasonable adverse effects to humans or to the environment. Physical and chemical properties, including volatility, toxicity and flammability, shall be considered in the mixing, repackaging and transfer of pesticides.

**44.10(1)** Spilled, leaked or unchecked pesticides.

*a.* Liquid pesticides that are spilled, leaked or otherwise unchecked during the normal operation of permanent pesticide storage and mixing sites (including the mixing, repackaging and transfer of pesticides) must discharge or drain into a watertight catch basin from which discharges are to be recovered, including discharge from any empty pesticide containers not rinsed according to label.

b. Dry pesticides that are spilled or otherwise unchecked during normal operation of permanent pesticide storage and mixing sites (including the mixing, repackaging and transfer of pesticides) must be located within an operational containment area that is curbed and watertight to facilitate the recovery of any product spilled.

**44.10(2)** All washing of pesticide handling and application equipment performed at a permanent pesticide storage and mixing site shall be conducted within an area which drains to a watertight containment structure. No pesticide rinsates or wash waters from pesticide equipment shall be disposed of through storm sewer systems; and no pesticide rinsates or wash waters shall be disposed of through sanitary sewer systems without a National Pollutant Discharge Elimination System Permit; and no pesticide rinsates or wash waters shall be disposed of through sanitary sewers connected to a publicly owned treatment works without prior approval of the sanitary sewer authority and in accordance with the discharge limitations of a pretreatment agreement or sewer use ordinance.

**44.10(3)** Prior to refilling, bulk pesticide containers must be thoroughly cleaned except when a sealed or dedicated recyclable bulk pesticide container is refilled with the same labeled pesticide product as the preceding product.

**44.10(4)** All drainage into a containment structure shall be monitored and properly managed. All rinsates and minor spillages related to pesticides which have not resulted from a container failure and which accumulated in the secondary containment structure shall be disposed of as provided by the product's original labeling. If contaminated with a pesticide product that is labeled incompatible because of chemical characteristics, the pesticide bureau of the Iowa department of agriculture and land stewardship shall be contacted for guidance.

**44.10(5)** All pesticide handling facilities shall be equipped with adequate personal protective equipment as required by each label of each pesticide handled and as needed for the number of employees handling these pesticides. Emergency first-aid provisions shall be maintained in an area immediately accessible by all employees, if and when needed.

**44.10(6)** Field mixing and transferring of pesticides, including field rinsing of equipment, is exempted from the on-site containment provisions of rule 21—44.2(206). Rinsates shall be field applied at rates compatible with pesticide product labeling. No mixing and transferring of pesticides and rinsing of equipment shall be conducted on public highways, roads and streets.

**21—44.11(206) Distribution of bulk pesticides.** Bulk repackaging for sale or delivery may be made provided the establishment conducting the transfer, sale or delivery shall comply with FIFRA, Section 7 (registration of pesticide producing establishments).

**44.11(1)** There shall be no change in pesticide product labeling, except for the addition of the required EPA establishment number and net contents statement; or identity of the party accountable for the integrity of the product, i.e., the manufacturer or registrant as evidenced by the assigned EPA product registration number.

**44.11(2)** A written letter of authorization from the registrant is required for the bulk repackaging.

**44.11(3)** Bulk repackaging may be made only into containers which conform with rules 21—44.8(206) and 21—44.9(206) and which meet the approval of the seller of the pesticide.

**44.11(4)** Scales or meters used for bulk pesticide sales shall meet the specifications, tolerances and other technical requirements for weighing and measuring devices as specified by the Iowa department of agriculture and land stewardship, bureau of weights and measures.

**44.11(5)** Appropriate measures shall be taken to prevent contamination of product when meters or other devices are used to dispense pesticides.

These rules are intended to implement Iowa Code section 206.19.

**21—44.12(206) Secondary containment for aerial applicator aircraft.** If the spray component of an aircraft is being drained or repaired during aircraft maintenance, secondary containment with permanent devices or portable devices suitable for use with pesticides is required.

**21—44.13 to 44.49** Reserved.

## FERTILIZERS AND SOIL CONDITIONERS

**21—44.50(200) On-site containment of fertilizers and soil conditioners.** Effective February 18, 1987, all new construction of fertilizer and soil conditioner facilities shall provide secondary product containment as specified in rules 21—44.51(200) to 21—44.58(200). Effective February 18, 1997, ten years after the adoption of these rules, all fertilizer and soil conditioner facilities shall provide secondary product containment as specified in these rules.

**21—44.51(200) Definitions.**

*“Minimally manipulated manures.”* Minimally processed, nonliquid substances composed primarily of excreta, plant remains, or mixtures of such substances.

*“Minimally processed.”* Processing a nonliquid substance in a manner which does not modify the nutrient value on a dry matter basis.

*“Mobile containers.”* Containers designed and used for transporting fertilizer or soil conditioner materials.

*“Nonmobile containers.”* All containers not defined as mobile.

*“Permanent storage site.”* Location where nonmobile containers are used for fertilizer and soil conditioner storage in quantities of 5,000 gallons or more. One container or a combination of containers with a volume of 5,000 gallons or less is exempt.

*“Secondary containment.”* Any structure used to prevent runoff or leaching of fertilizer or soil conditioner materials.

[ARC 5912C, IAB 9/22/21, effective 11/1/21]

**21—44.52(200) Design plans and specifications.** Design plans and specifications for facilities required under these rules shall be submitted to the Iowa department of agriculture and land stewardship prior to the start of construction, along with certification from a registered engineer (as defined in Iowa Code chapter 542B) that the designed facilities will comply with all requirements of these rules.

A person may deviate from the requirements of these rules if such deviations are clearly noted on the design plans and specifications, along with certification from a registered engineer that these deviations will not reduce the effectiveness of the facilities in protecting surface or groundwaters.

**21—44.53(200) New fertilizer or soil conditioner storage site location.** New permanent storage sites as defined in rule 21—44.51(200) shall be selected in accordance with the requirements of the Iowa department of natural resources. The new site, if located in a floodplain, shall be protected from inundation from floods. New permanent fertilizer and soil conditioner storage sites shall be located at a minimum of 400 feet from public water supply wells or below ground level finished water storage facilities and a minimum of 150 feet from private water supply wells.

**21—44.54(200) Certification of construction.** Upon completion of construction, certification by the owner or owner’s agent shall be made to the Iowa department of agriculture and land stewardship that the facilities were constructed in accordance with rules 21—44.52(200) to 21—44.58(200). If departmental investigation, subsequent to the completion of construction, determines the constructed facilities were not constructed in accordance with the submitted plans and specifications or the requirements of these rules, the owner shall correct any deficiencies in a timely manner as set forth by the department.

The department may exempt any person from a requirement under rules 21—44.52(200) to 21—44.58(200) if an engineering justification is provided demonstrating variations from the requirements will result in at least equivalent effectiveness.

**21—44.55(200) Secondary containment for liquid fertilizers and liquid soil conditioner storage.** All liquid fertilizer and soil conditioner storage facilities, except anhydrous ammonia storage facilities, as defined in rule 21—44.51(200) shall be located within a secondary containment structure. The secondary containment structure shall have a volume 20 percent greater than the volume of the largest storage tank

within the area, plus the space occupied by the other tanks in the area, and may be constructed of earth, concrete, or a combination of both.

**44.55(1)** Secondary containment structures constructed entirely or partially of earth shall comply with the following minimum requirements:

*a.* The soil surface, including dike, shall be constructed to prevent downward water movement at rates greater than  $1 \times 10^{-6}$  cm/sec., and shall be maintained to prevent downward water movement at rates greater than  $1 \times 10^{-5}$  cm/sec. The method of achieving a satisfactory seal shall be determined by a registered engineer.

*b.* Dike shall be protected against erosion. If the slope is 30 degrees or less, grass can be sufficient protection, provided it does not interfere with the required soil seal. If greater than 30 degrees, other methods of erosion protection shall be used.

*c.* Top width of dike shall be no less than 2½ feet. The slope should be no greater than 45 degrees.

*d.* The diked area shall not have a relief outlet and valve. The base shall slope to a collecting spot where storm water can be pumped over the berm, provided the liquid is not contaminated with fertilizer or soil conditioner materials. If contaminated with liquid fertilizer or soil conditioner, the liquid shall be field applied at normal fertilizer application rates or transferred to auxiliary storage tanks.

*e.* Storage containers shall be anchored or placed on a raised area to prevent flotation or instability in the event of discharge into the secondary containment facility.

**44.55(2)** Secondary containment structures constructed of concrete shall be watertight and comply with the following requirements:

*a.* The base of the containment structure shall be designed to support all tanks and their contents.

*b.* The diked area shall not have a relief outlet and valve. The concrete base shall be sloped to a collecting area for recovery of fertilizer material. Storm water may be discharged over the containment wall, provided the liquid is not contaminated with fertilizer or soil conditioner material. If contaminated, the liquid shall be field applied at normal fertilizer application rates or transferred to auxiliary storage tanks.

*c.* Storage containers shall be anchored or placed on a raised area to prevent flotation or instability in the event of discharge into the secondary containment facility.

*d.* Routine inspection is required to ensure against concrete cracks. Where cracks exist, storage integrity shall be maintained with acceptable sealant.

**21—44.56(200) Secondary containment for nonliquid fertilizers and soil conditioners.** Nonliquid fertilizer and soil conditioner stored in a totally enclosed building and a soil conditioner meeting the requirements of subrule 44.56(3) are exempt from the requirements of this rule. Unless stored in a totally enclosed building, or soil conditioners meeting the requirements under subrule 44.56(3), all nonliquid fertilizer and soil conditioner materials shall be stored within an area which drains into a secondary containment structure. The secondary containment structure shall have a volume sufficient to retain the equivalent of 12 inches of runoff from the area drained into the containment structure. This minimum storage volume may be provided within the containment structure or in auxiliary storage tanks, and may be constructed of earth, concrete, or a combination of both.

**44.56(1)** Secondary containment structures constructed entirely or partially of earth shall comply with the following requirements:

*a.* The soil surface, including dike, shall be constructed to prevent downward water movement at rates greater than  $1 \times 10^{-6}$  cm/sec., and shall be maintained to prevent downward water movement at rates greater than  $1 \times 10^{-5}$  cm/sec. The method of achieving a satisfactory seal shall be determined by a registered engineer.

*b.* Dike shall be protected against erosion. If the slope is 30 degrees or less, grass can be sufficient protection, provided it does not interfere with the required soil seal. If greater than 30 degrees, other methods of erosion protection shall be used.

*c.* Top width of dike shall be no less than 2½ feet. The slope should be no greater than 45 degrees.

*d.* The diked area shall not have a relief outlet.

*e.* All liquid and other material collected shall be field applied at normal fertilizer application rates or transferred to auxiliary storage tanks.

**44.56(2)** Runoff collection structures constructed of concrete shall comply with the following requirements:

- a.* The base of the structure shall be maintained to prevent downward water movement.
- b.* The diked area shall not have a relief outlet.
- c.* All liquid and other material collected shall be field applied at normal fertilizer application rates or transferred to auxiliary storage tanks.

**44.56(3)** Soil conditioners consisting entirely of minimally manipulated manures are exempt from the requirements of this rule if all of the following apply to the storage of the soil conditioner:

- a.* The soil conditioner is stored in an impermeable container.
- b.* The soil conditioner is stored in the field of application or adjacent fields of application and the amount stored does not exceed the necessary amount of nitrogen, phosphorus, or potassium to achieve optimal crop yields, as determined by average county or proven yields, on the acres in the fields of application. The total potential acres of application stored in any field shall not exceed an amount necessary for application on 160 acres.
- c.* The soil conditioner is stored in the field for a period not to exceed six months.
- d.* The soil conditioner meets all of the storage requirements for bulk dry animal nutrients under rule 21—49.7(200A).

[ARC 5912C, IAB 9/22/21, effective 11/1/21]

These rules are intended to implement Iowa Code section 200.14.

**21—44.57(200) Fertilizer loading, unloading, and mixing area.**

**44.57(1)** All loading, unloading, and mixing of liquid fertilizer or liquid soil conditioners, unless performed in the field of application, shall be done within a containment area. The containment area shall be large enough to prevent spillage onto unprotected areas and paved with asphalt, concrete, or other impervious material. It shall slope to a recovery system that will allow collected materials to move to a containment structure which complies with rule 21—44.55(200). In addition, the area shall be so constructed, using curbs or other means, as to prevent spilled materials from running out of the containment area. Any contaminated liquid or material shall be field applied at normal fertilizer rates or used in a liquid mixing operation.

**44.57(2)** All loading or mixing of nonliquid fertilizers or nonliquid soil conditioners at permanent storage sites shall be done in an area paved with asphalt, concrete or other impervious materials. The area shall also be so constructed, using curbs or other means to prevent runoff of storm water generated by a four-inch rain. The area shall contain a recessed catch basin so that contaminated water can be moved to storage tanks or a secondary containment area. Uncontaminated rain water, ice, or snow can be discharged as storm water. Any contaminated water or other materials shall be field applied at normal fertilizer rates or used in a liquid mixing operation.

**44.57(3)** A spill containment structure will not be required if loading, unloading, or mixing of a nonliquid fertilizer or nonliquid soil conditioners is done entirely within an enclosed building and no washing operations are conducted within the enclosed area.

**44.57(4)** Unloading of all types of equipment and loading of railroad cars with nonliquid fertilizer or nonliquid soil conditioners shall be exempt from the containment area provisions of subrule 44.57(2) provided any materials spilled during the unloading/loading operations are promptly cleaned up and fed back into the unloading/loading system.

**44.57(5)** Rules 21—44.2(206) to 21—44.11(206) shall apply when fertilizers or soil conditioners and pesticides are combined.

**44.57(6)** Fertilizers and soil conditioners must be handled in a manner that minimizes dust and vapors from movement off of the site.

**21—44.58(200) Wash water and rinsates.** All washing of fertilizer and soil conditioner handling and application equipment at permanent storage sites shall be conducted within an area which drains into a

containment structure which complies with rule 21—44.55(200). No fertilizer rinsates or wash waters from fertilizer or soil conditioner equipment shall be disposed of through sanitary or storm sewer systems. Field washing of fertilizer or soil conditioner equipment is permissible and encouraged if performed at the site of final fertilizer or soil conditioner application for a given day and no runoff from the wash site occurs.

These rules are intended to implement Iowa Code section 200.14.

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<sup>1</sup> Effective date of 9.3 and 9.7 delayed 70 days by the Administrative Rules Review Committee at its 11/11/86 meeting.