

FEEDLOT RULES

OVERVIEW

Minnesota Rules chapter 7020



Minnesota Pollution Control Agency

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Updated August 2007

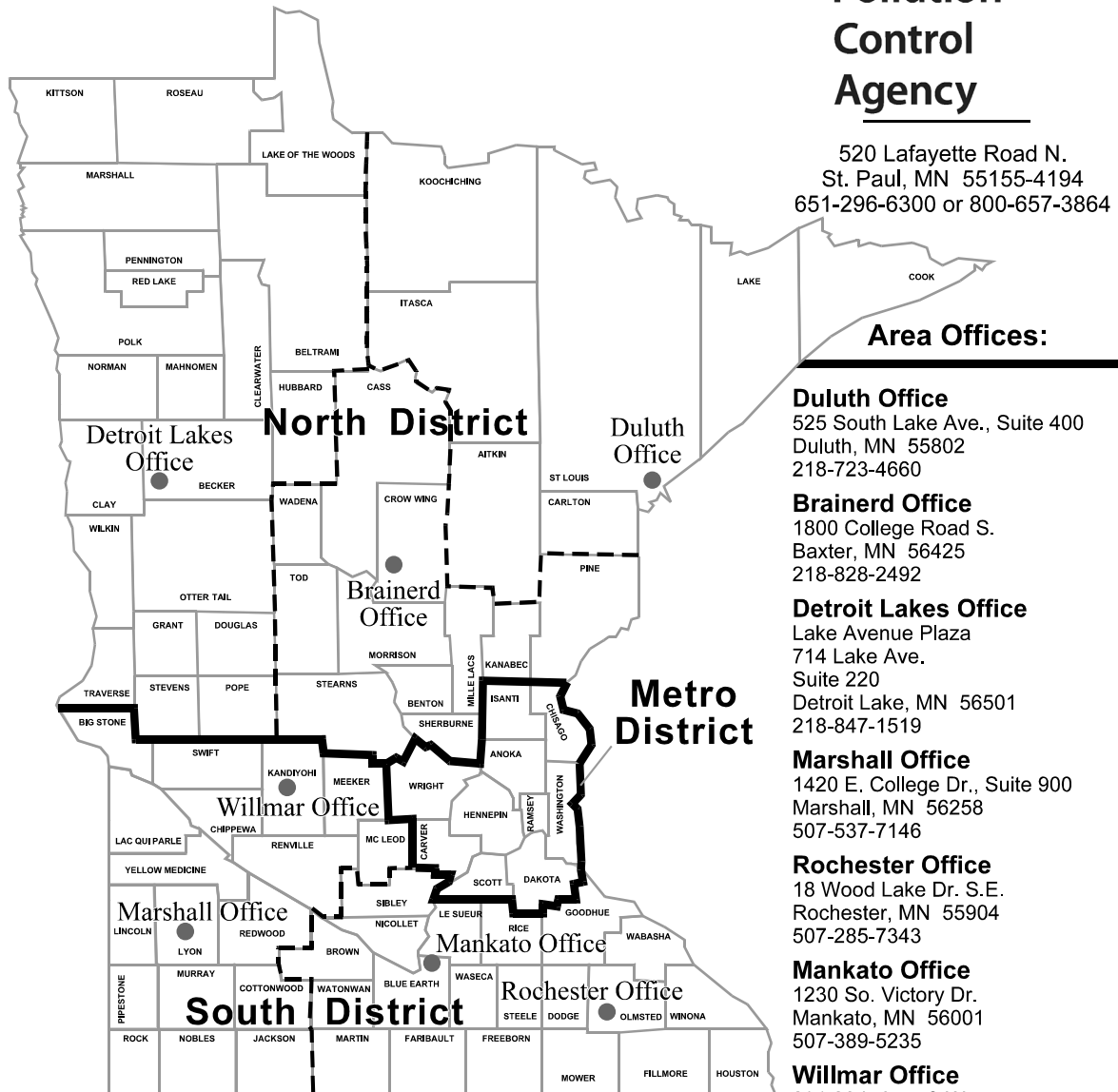
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MPCA AREA OFFICES BOUNDARIES



Minnesota Pollution Control Agency

520 Lafayette Road N.
St. Paul, MN 55155-4194
651-296-6300 or 800-657-3864



Area Offices:

Duluth Office
525 South Lake Ave., Suite 400
Duluth, MN 55802
218-723-4660

Brainerd Office
1800 College Road S.
Baxter, MN 56425
218-828-2492

Detroit Lakes Office
Lake Avenue Plaza
714 Lake Ave.
Suite 220
Detroit Lake, MN 56501
218-847-1519

Marshall Office
1420 E. College Dr., Suite 900
Marshall, MN 56258
507-537-7146

Rochester Office
18 Wood Lake Dr. S.E.
Rochester, MN 55904
507-285-7343

Mankato Office
1230 So. Victory Dr.
Mankato, MN 56001
507-389-5235

Willmar Office
201 28th Ave. S.W.
Willmar, MN 56201
320-214-3786

www.pca.state.mn.us

TTY users may contact any staff through the agency's
teletypewriter 651-282-5332 or 800-657-3864.

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Refer to the actual rule for specific language. A copy can be viewed on the MPCA Internet web site <http://www.pca.state.mn.us/hot/feedlot-rules.html#newrules>

HOW TO USE RULES AT A GLANCE

This handbook is intended to provide animal agriculture producers and persons involved in manure management activities with the basic information needed to comply with the state rules last revised in October, 2000. Also included are some changes resulting from revisions to Federal feedlot regulations in April, 2003. It includes a summary and general description of what is required in each section of the rule. Note that the headings in this document also include the rule number so that you can refer to the actual rule language. *Rules at a Glance* is not a substitute for the actual rule language, so if you need further details, please refer to the rule itself.

NEED INFORMATION OR ASSISTANCE?

If you have questions about any part of this document or the actual rule language, please contact your county feedlot officer or MPCA staff.

MPCA AREA OFFICES:

- Rochester area: 507/285-7343
- Mankato area: 507/389-5977
- Marshall area: 507/537-7146
- Willmar area: 320/214-3786
- Detroit Lakes area: 218/847-1519
- Brainerd area: 218/828-2492
- Duluth area: 218/723-4660
- Metro area: 651/296-6300
- Toll-Free Number for all MPCA offices: 800/657-3864

See the map in the front of this handbook for area office boundaries.



MPCA FEEDLOT RULES

After nearly five years of meetings, responding to citizens' comments and making revisions and improvements, the feedlot rules became effective on October 23, 2000. The rules (Minn. R. 7001.0020, 7002.0210 to 7002.0280, and Minn. R. ch. 7020) govern the storage, transportation, and utilization of manure. The revision updates regulations that were 20 years old. In general, the feedlot rules apply to all aspects of livestock production, including the location, construction, operation and management of feedlots, manure handling facilities, and land application of manure. There are four major sections in the rules:

- Registration program
- Permit program
- Delegated county program
- Technical standards for discharge, design, construction, operation and closure

There are also minor sections for permit fees, incorporation by reference, submittals and records, and definitions.

7020.0300 DEFINITIONS

The revised rules contain more than 40 specific definitions. The four most commonly referred to are the definitions of animal unit, animal feedlot, pastures and pollution hazard. Please refer to the rules for other definitions.

Subp. 3. Animal Feedlot

A lot or building or combination of lots and buildings intended for the confined feeding, breeding, raising, or holding of animals and specifically designed as a confinement area in which manure may accumulate. Or, where the concentration of animals is such that a vegetative cover cannot be maintained within the enclosure. Open lots used for the feeding and rearing of poultry (poultry ranges) shall be considered to be animal feedlots. Pastures shall not be considered animal feedlots.

Subp. 5. Animal Unit

See page 21 for a calculation sheet you can use to determine animal units for your facility. Unit of measure used to compare differences in the production of animal manure for an animal feedlot or manure storage area. Multiply the number of animals of each type by their multiplication factor and add the values to obtain the total number of animal units.

(Under a 2003 revision of its rules, the federal government began to use animal numbers instead of animal units. The new rule defines a "large CAFO" as operations raising more than 1,000 cattle, 700 dairy cows, 2,500 swine, 10,000 sheep, 125,000 chickens, 82,000 laying hens, and 55,000 turkeys in confinement. Minnesota law for determining feedlot size by using animal units remains in effect, except when determining the need for applying for a Federal NPDES permit.)

Subp. 18. Pastures

Areas where grass or other growing plants are used for grazing and where the concentration of animals is such that a vegetation cover is maintained during the growing

season except in the immediate vicinity of temporary supplemental feeding or watering devices.

Subp. 19a. Pollution Hazard

An animal feedlot or manure storage area that does not comply with the requirements of parts 7020.2000 to 7020.2225 and has not been issued an SDS or NPDES permit establishing an alternative construction or operating method. Or, an animal feedlot that presents a potential or immediate source of pollution to waters of the state as determined by inspection by a county feedlot officer or MPCA staff, taking into consideration the following:

- The size of the animal feedlot or manure storage area;
- The amount of pollutants reaching or that may reach waters of the state;
- The location of the animal feedlot or manure storage area relative to waters of the state;
- The means of conveyance of animal manure or process wastewater into waters of the state; and
- The slope, vegetation, rainfall, and other factors affecting the likelihood or frequency of discharge of animal manure or process wastewater into waters of the state.

7020.0350 REGISTRATION PROGRAM

Who needs to register?

Owners of an animal feedlot or manure storage area with 50 or more animal units, or 10 or more animal units if in shoreland (less than 300 feet from a stream or river, less than 1,000 feet from a lake) need to have registered by January 1, 2002.

Registration data must be updated at least once in every four-year period after January 1, 2002. The MPCA or delegated county will notify owners that they must re-register at least 90 days before their current registration expires. Also, the MPCA or delegated county will send the owner a receipt within 30 days of receiving the registration information from the owner.

EXEMPTION:

- Owners of livestock facilities located on county fairgrounds are not required to register.
- Owners of pasture or grazing operations that have buildings or lots with a capacity of less than 50 animal units, or less than 10 animal units in shoreland areas, are not required to register.
- Owners of pasture or grazing operations that do not have buildings or open lots are not required to register.



How do you register?

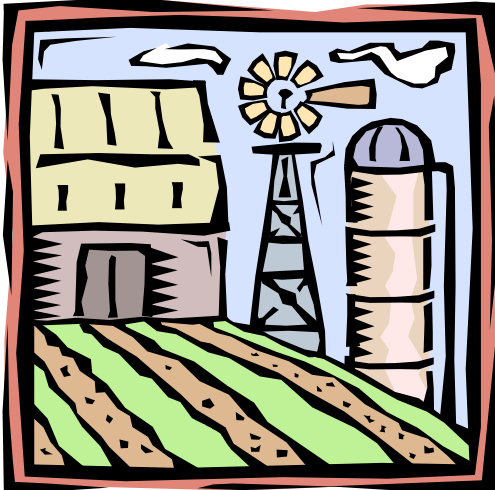
A feedlot owner registers by:

1. Filling out the following information on an MPCA registration form and return to the MPCA or, in a delegated county, the delegated county feedlot officer. The form will require the following information:

- Date form was completed
- Name and address of all owners
- Facility location (township, county, section and quarter section)
- Permit or certificate number, if one has been issued in the past and is known
- Types of animal holding areas (pastures, confinement barns, open lots)
- Maximum number and types of animal to be housed at the facility
- Identification of surface waters within 1,000 feet of facility
- Presence and type of manure storage areas
- Distance from animal holding area or manure storage areas to a well
- Name of person completing form

or

2. Filling out a permit application (if required to obtain a permit).



7020.0400 PERMIT PROGRAM

A New Way of Thinking about Permitting

Under the new rules, anyone who operates a feedlot must comply with all the provisions of the regulations, whether or not they have a permit. Most feedlot owners or handlers of manure will not be required to have an operating permit. Owners with fewer than 300 animal units are not required to have a permit for the construction of a new facility or expansion of an existing facility if construction is in accordance with the technical standards. For owners with 300 animal units or more, and less than 1,000 animal units, a streamlined short-form construction permit is required for construction activities. A National Pollutant Discharge Elimination System (NPDES) permit or State Disposal System (SDS) permit is required for all feedlots with 1,000 animal units or more, or that are defined as a CAFO under the federal rule.

General Requirements

Owners who have SW-A permits, Certificates of Compliance and expired Interim A and Interim B permits must comply with the registration requirements and the revised permitting and technical requirements. NPDES and SDS permits will remain in effect until they expire. Unexpired interim permits also remain in effect until they expire.

7020.0405 PERMIT REQUIREMENTS

No Permit is Required:

- If the facility is located on county fairgrounds.
- If the facility is a feedlot or manure storage area with less than 300 animal units that is not designated a concentrated animal feeding operation (CAFO) and does not have a pollution hazard.
- If the facility is a short-term stockpile or compost site where the owner does not also own a feedlot or manure storage area.



Permit Required:

There are five types of permits that may be issued:

<p>1. General NPDES/SDS Maximum term of five years</p>	<p>For the construction and/or operation of an animal feedlot that has 1000 or more animal units, or is otherwise a concentrated animal feeding operation (CAFO) as defined under federal regulations Title 40 section 122.23 that meets the criteria for a General NPDES/SDS permit.</p>
<p>2. Individual NPDES/SDS Maximum term of five years</p>	<p>For the construction and/or operation of an animal feedlot that is a CAFO as defined or designated under federal regulations Title 40 section 122.23, but does not meet the criteria for a General NPDES/SDS permit.</p>
<p>3. Individual SDS Maximum term of five years</p>	<p>For owners of facilities with 1,000 or more animal units that do not meet the criteria for a CAFO. Also, for owners of facilities with less than 1,000 animal units who are unable to fix a problem under an interim permit <u>timeframe</u> or who have new technology, construction or operational methods.</p>
<p>4. Interim Permit Maximum term of 24 months (possible extension of up to 90 days)</p>	<p>For owners of facilities with less than 1,000 animal units and non-CAFOs that have an identified pollution hazard. For owners of facilities with more than 300 animal units where land application is on high phosphorus soils; on greater than 6 percent slopes in special protection areas; or in a drinking-water supply management area where the aquifer is vulnerable. Interim permits can be issued for any size facility under 1,000 animal units. In some cases, interim permits may be required for construction or expansion activities under 300 animal units.</p>
<p>5. Construction Short-Form Maximum term of 24 months (possible extension of 24 months)</p>	<p>For facilities proposing to construct or expand in the range of 300 to 999 animal units that do not have pollution hazards.</p>

Miscellaneous Permitting Notes:

Prior to construction or expansion, the owner must obtain the proper permit or permit modification. Owners constructing or expanding must complete all notifications and may commence construction/expansion 30 days after notifying the MPCA and/or delegated county and all local zoning authorities. Liquid manure storage plans and specifications

must be submitted with a permit application or at least 90 days before the planned start date of construction/expansion.

If an owner with a pollution hazard was issued an interim permit that also authorizes construction for an expansion, the owner cannot stock the expansion until the pollution hazard is corrected.

7020.0505 PERMIT APPLICATIONS AND PROCEDURES

Submittal of Permit Applications

- All NPDES and SDS permit applications must be submitted to the MPCA, with a copy to the delegated county (if the facility is in a delegated county).
- Interim permits and construction short-form permit applications must be submitted to the delegated county or (if the facility is not in a delegated county) to the MPCA.

WHEN DO OWNERS APPLY FOR A PERMIT?

Existing CAFO or $\geq 1,000$ animal units	Immediately, for 2006-2011 permit
New CAFO or expands to $\geq 1,000$ animal units	180 days prior to planned* construction start date
Construction short-form	90 days prior to planned* construction start date
If determined to be a pollution hazard	15 days from request by MPCA or delegated county

*Note that the intent of the “planned” construction date is to allow adequate time for permitting staff to review the proposed project and, if necessary, conduct an inspection of the site. Construction or expansion can start upon actual receipt of the NPDES, SDS or construction short-form permit provided the notifications mentioned in the previous section were completed 30 days prior to starting construction.

WHERE DO I OBTAIN A PERMIT APPLICATION?

Feedlot owners can get a permit application form for all permits from their county feedlot officer in delegated counties or from the MPCA offices or website at pca.state.mn.us/hot/feedlots.html. Application forms may also be available at local Soil and Water Conservation District, Natural Resources Conservation Service, Local Zoning Offices, and Minnesota Extension Service offices.

WHAT MUST A PERMIT APPLICATION INCLUDE?

The rules contain the detailed requirements for all permit applications. The permit application identifies all the information that must be submitted. A permit application for an NPDES permit must include the following plans in addition to the permit application:

1. An air emission plan;
2. An emergency response plan that describes the procedures to be used to contain, minimize and manage an unauthorized discharge;

3. A manure management plan,
4. If proposing a liquid manure storage area, plans by a registered professional engineer for the system,
5. Dead animal disposal plan, and
6. Operation and maintenance plan.

OTHER PERMIT APPLICATION AND NOTIFICATION REQUIREMENTS

- The owner must submit, on a form provided by the MPCA, certification and documentation that the county, town and city zoning authorities have been notified of any proposed construction or expansion.
- For feedlots with 500 or more animal units, the owner must document that a notification describing the construction or expansion has been published in the local newspaper, or that a written notice was mailed or delivered in person to each resident and property owner within 5,000 feet of the proposed feedlot. The MPCA provides a form for this.
- If the owner will have less than 300 animal units after construction or expansion, a permit is not required, but the delegated county or MPCA in a nondelegated county must be notified 30 days before commencement of construction.

7020.1600 DELEGATED COUNTY PROGRAM

Agreements between a county board and the MPCA allow counties to be delegated to carry out the feedlot program for non-CAFO feedlots and manure storage areas with less than 1,000 animal units. Delegated county feedlot officers have the following duties:

- Administer the registration program;
- Distribute and review permit applications;
- Issue construction short-form and interim permits;
- Inspect feedlots and manure storage areas according to delegation agreement;
- Review and process complaints;
- Provide assistance to owners in completing permit applications and registration forms;
- Maintain records on permit actions, inspections and complaints. Per Minnesota state law, all information regarding the complainant must be kept confidential;
- Maintain a record of notifications from owners claiming the ambient air standards exemption; and
- Submit an annual report to the MPCA by April 1 of each year.

In some cases, the county feedlot officer must forward the permit applications to the MPCA. Those special cases are listed in the rule under 7020.1600, subp.4.B.

For a list of delegated county feedlot officers view the MPCA Internet web site at: www.pca.state.mn.us/hot/feedlots.html/#countyfeedlotofficers or call your MPCA regional office.

TECHNICAL STANDARDS

The technical standards in parts 7020.2000 to 7020.2225 are a compilation of requirements for planning, design, construction and operation of feedlots, manure storage areas and related manure handling activities. The most important point regarding these standards is that they apply to all persons involved in livestock operations or handling of manure, not just those required to register or apply for a permit. The technical standards are broken down into the following sections:

1. General Requirements and Notifications
2. Air standards
3. Water standards
4. Location and expansion restrictions
5. Transportation
6. Livestock access to waters
7. Closure
8. Liquid manure storage areas
9. Unpermitted liquid manure storage areas
10. Poultry barn floors
11. Stockpiling
12. Composting
13. Land application of manure and manure management plans

Any person may apply for a variance from any requirement of the technical standards, except the location restrictions under part 7020.2005, in order to avoid undue hardship. See Minn. Stat. § 116.07, subd. 5, for application information.



7020.2000 OVERVIEW

Listed here are six general requirements related to manure handling and the required notifications.

General Requirements

IN GENERAL, all persons, whether or not they are required to apply for a permit, must comply with the applicable technical requirements if their operation produces, stores, disposes, transports or utilizes animal manure or process wastewater.

MANURE NOT USED AS DOMESTIC FERTILIZER: Owners who use or dispose of manure other than applying it to the land as fertilizer, must do so in a manner that does not cause pollution. They also must apply for an NPDES or SDS permit. These permits will allow the MPCA to review and evaluate new or unique operational methods.

MANURE PACKS AND MOUNDING: Owners who use “manure packs” or “mounding” must manage the manure so that a pollution hazard is not created or maintained.

NOTIFICATION: Not less than 20 days before a permit is issued to construct or expand a facility of 500 or more animal units, an owner must publish a notification about their proposal in the local newspaper, or deliver in person or mail the information to each resident within 5,000 feet of the proposed feedlot. In addition, a copy of the notice must be sent by first class mail to the clerk of the town in which the feedlot is proposed not less than 20 business days before the date on which a permit is issued. The agency or county must verify these notifications or the permit cannot be issued.

GOVERNMENT NOTIFICATIONS: A form must be filled out and mailed to the MPCA or delegated county 30 days before beginning construction or expanding a feedlot or manure storage area if the size of the feedlot or manure storage area is 300 animal units or less. Sending in the required plans and specifications required under 7020.2100, subp. 4 for liquid manure storage construction meets this requirement. All local zoning authorities (county, town and city) must also be notified of proposed construction or expansion of any animal feedlot or manure storage area of any size.

RECORD OF LIVESTOCK OWNERS AND MANURE SOURCES: If a person owns a feedlot or manure storage area and raises livestock that are not owned by that person or stores manure not produced at their facility, that person needs to keep a record of who owns the livestock. This record has to be retained on file for at least the most recent three years.

7020.2002 AMBIENT AIR QUALITY STANDARD APPLICABILITY

This section of the rule provides the requirements for notifications that are necessary in order for owners to obtain the exemption to the ambient air standards as provided in MN Session Laws 2000, Chapter 435.

State law provides that owners of animal feedlots are exempt from the state ambient air quality standards during the removal of manure from barns or manure storage facilities, and for seven days after the manure is removed. For a livestock facility greater than 300 animal units, the maximum cumulative exemption in a calendar year is 21 days. The law requires the operator to notify the MPCA or the county feedlot officer beforehand of the

anticipated start date of manure removal and the anticipated number of days of removal of manure from barns or manure storage facilities.

Under this rule section, the owner's notification must include:

- The names of the owners or the legal name of the facility
- The location of the facility by county, township, section, and quarter section
- The facility's permit number, if applicable
- The anticipated start date and the anticipated number of days of removal of manure from barns or manure storage facilities

7020.2003 WATER QUALITY DISCHARGE STANDARDS

- Manure and manure-contaminated runoff or process wastewater from feedlots or manure storage areas is prohibited from entering a sinkhole, fractured bedrock, a well, a surface tile intake, a mine or a quarry.
- No discharge is allowed to waters of the state from a CAFO or any feedlot or manure storage area with 1,000 animal units or more.
- The water quality standard for all other feedlots and manure storage areas are the effluent limitations in Minn. R. 7050.0215 with a temporary exception for owners of feedlots with under 300 animal units that meet the requirements in the 2005/2010 open-lot agreement. The effluent limits in Minn. R. 7050.0215 are: the discharge must not exceed 25 milligrams per liter (based on the average of all samples within a calendar month) of Biochemical Oxygen Demand; and if the discharge is to a lake or reservoir, the discharge must also not exceed the limit of 1 mg/l of phosphorus.
- State Statutes prevent the agency from requiring more costly fixes to feedlot discharges until 75 percent cost share is available. If 75 percent cost share is not available, then lower cost improvements are still required until cost share becomes available (\$3,000 if less than 300 animal units and \$10,000 if 300 to 499 animal units).

7020.2005 LOCATION RESTRICTIONS AND EXPANSION LIMITATIONS

- **Shoreland:** The owner of a feedlot or manure storage area in shoreland that has been unused for less than 10 years must apply for and obtain an interim permit before reopening. If the animal feedlot is not used for more than 10 years, it must be permanently closed.
- **Shoreland:** Expansions of existing feedlots in shoreland are limited to 999 animal units.

New Feedlots are prohibited in:

In floodplains ;

within 300 feet of a sinkhole

- Within 100 feet of a private well
- Within 1,000 feet of a community water supply well or wells serving a school or licensed childcare center (some exceptions allowed, as specified in 7020.2005).

7020.2010 TRANSPORTATION OF MANURE

Manure hauled on federal, state and local highways, roads or streets must be prevented from leaking and spilling. Any manure that does spill onto the public roadway must be removed and properly disposed of by the hauler.

7020.2015 LIVESTOCK ACCESS TO WATERS RESTRICTION

The rule requires non-pastured animals from a CAFO or from a 1,000 or more animal-unit facility be fenced from entering waters of the state.

Non-pastured animals of non-CAFO feedlots must be fenced to prohibit entry to and must not be allowed to enter a natural environment lake, recreational lake or general development lake by October 1, 2001 [classification by Minnesota Department of Natural Resources, Minn. R. 6120.3000].

7020.2025 CLOSURE OF AN ANIMAL FEEDLOT OR MANURE STORAGE AREA

Within **one year** of ceasing operation, all of the manure from the animal holding areas and manure storage areas must be removed and land applied. Then, as soon as practical, alfalfa, grasses, or other perennial forage must be grown on the area for at least **five years**. Send a certified letter (within 60 days after closure) to the MPCA or county feedlot officer stating that the feedlot has closed according to requirements. Identify the location of the feedlot or manure storage area by county, township, section, and quarter section.

7020.2100 LIQUID MANURE STORAGE AREAS

The requirements for design, construction, operation and maintenance of liquid manure storage areas are described in this part.

- Owners must submit their engineered plans and specifications to the MPCA or delegated county feedlot officer. All plans and specifications, except for concrete-lined tanks having a capacity of 20,000 gallons or less, must be prepared and signed by a registered Professional Engineer.
- An owner of a liquid manure storage area that has been unused for three years or more must have a design engineer evaluate and prepare a report on the condition of the liner and include this report with a permit application prior to reuse.
- Construction or expansion of liquid manure storage areas are subject to the location restrictions in part 7020.2005.
- Construction in areas susceptible to sinkhole formation are subject to the location and separation restrictions in part 7020.2100, subpart 2, items A and B.

Design Standards

- New or modified liquid manure storage area with 1,000 or more animal units must be designed to provide a minimum of nine months storage capacity.
 - Liner requirements and prohibited | **12** penetrations are listed in this part of the rule:
-

- ▶ The seepage standard of not more than 1/56 of an inch/day, or less, is specified for standard non-concrete liners.
 - ▶ Concrete liner requirements include: water stops or joint sealant materials in all construction joints, sealing of all cracks that extend through the liner, and steel or fiber reinforcing in a five-inch minimum thickness floor.
 - ▶ All composite-lined or above-ground manure storage areas must be designed and constructed to achieve a seepage rate of not more than 1/560 inch/day, or less.
 - ▶ To protect the integrity of the liner, no water supply systems, fuel lines, electrical conduit or other equipment may be designed to penetrate the liner of a manure storage area.
- Manure storage structure plans and specifications must be submitted with a complete permit application or at least 90 days prior to the planned start of construction. The 90-day timeframe is also required for facilities under 300 animal units that may not be required to apply for a permit.
 - The owner must notify the MPCA or county feedlot officer and the design engineer of intent to construct at least three days prior to beginning construction, and within three days following completion of construction of the manure storage area liner.
 - Notification for vertical concrete-lined walls must be completed before backfilling the walls. See this part of the rule for the specific information needed in the notification.
 - The owner must submit a construction report to the MPCA or county within 60 days of completion of the manure storage area. The report must be prepared and signed by the design engineer and contain an evaluation as to whether the completed structure conforms to the design standards in the rule and design plans and specifications prepared by the engineer.

Construction Inspections

The owner of a liquid manure storage area (except for concrete manure storage areas with a capacity of 20,000 gallons or less) must have inspections completed during the construction process. The inspector must be one of the following:

- A Minnesota-registered Professional Engineer or person working under his or her direct supervision,
- Qualified NRCS staff, or
- Concrete field Levels I and II certified by the American Concrete Institute and/or Minnesota Department of Transportation (for concrete-lined manure storage areas only).

Inspection records must be on a form provided by the MPCA or delegated county. The liner contractor must also complete an inspection form and certify that construction was completed in accordance with the plans and specifications. The rule lists the required contents of the inspector and contractor certification forms.

7020.2110 UNPERMITTED OR NONCERTIFIED LIQUID MANURE STORAGE AREAS

An owner who uses an unpermitted or noncertified liquid manure storage area and has a facility capable of holding 1,000 or more animal units, or who has a basin built after June 3, 1991, must by October 1, 2001, complete one of the following options:

- Reconstruct the liquid manure storage area according to liquid storage standards in part 7020.2100.
- Close the liquid manure storage area according to part 7020.2025.
- Submit the original design plans and specifications that were prepared by a design engineer (prior to actual time of construction) and a construction certification report.
- If the original plans and specifications for an NPDES/SCS designed liquid manure storage area are no longer available, the owner must submit a certification by the manager of the NRCS office who was responsible for the design and oversight of the project, that the project was constructed according to the NRCS/SCS design plans and specifications.
- Conduct and submit the results of a water balance test that demonstrates that the basin meets the 1/56-inch or less seepage rate standard.

Open-lot feedlots with less than 300 animal units that have entered the 2005/2010 open-lot agreement of Minn. R. 7020.2003, subd. 4 to 6, have until October 1, 2010, to actually complete closure or reconstruction of the unpermitted basin.

7020.2120 POULTRY BARN FLOORS

Owners with 300 or more animal units must apply for and obtain a Construction Short Form, NPDES or SDS permit prior to commencing construction.



- Location restrictions in 7020.2005 apply.
- Concrete floors must be a minimum of 3.5 inches thick.
- Asphalt floors must be a minimum of two inches thick.
- Soil liners must be: 1) 12 inches or more of compacted clay soils, or 2) eight inches of compacted clay soils over three inches of sand or a geotextile fabric.
- Specific soil standards are listed in the rule for soil texture and plasticity index.
- The poultry barn floor must be three feet above bedrock and the seasonal high-water table.
- The floor must NOT be saturated at any time during the service life of the floor.
- PVC-lined floors must be at least 30 mils. thick and covered by six inches of soil.
- Construction notifications to the MPCA or county feedlot officer must be completed three days prior to starting construction and within three days of completing construction.
- The owner must record and keep on file the results of all testing and allow the MPCA or county feedlot officer to review them upon request.

7020.2125 MANURE STOCKPILING SITES

Stockpiles must be located, constructed and operated so that manure-contaminated runoff from the site does not discharge to waters of the state.

- Location restrictions in 7020.2005 apply to stockpiles.
- Only solid manure can be stockpiled **14** side a barn or feedlot. It must be able to maintain a 3:1 ratio or have at least 15 percent solids content.

- No stockpiling is allowed in rock quarries, gravel or sandpits, on bedrock or in any mining excavation sites.
- The size of a stockpile is limited to a volume needed to supply the agronomic needs of crops on a field (up to 320 acres).

Short-term (manure is stockpiled less than one year)

All short-term stockpile sites must comply with the following:

- Manure can only be stockpiled for up to one year of the date when the stockpile was initially established.
- A vegetative cover must be established for at least one full growing season prior to reuse.
- Stockpiles must not be located within:
 - 300 feet of waters of the state, sinkholes, rock outcroppings, open tile intakes, uncultivated wetlands, and road ditches which flow to features listed here (50 feet from road ditches that do not flow to features listed here).
 - 100 feet from a private well (200 feet if the well has less than 50 feet of watertight casing and is not cased through a confining layer at least ten feet thick) and/or a field drain tile that is three feet from soil surface.
- Stockpiles must not be located on land with greater than a six percent slope. (If between two and six percent, clean-water diversions and erosion practices must be installed.)
- Maintain a minimum distance of two feet between the base of the stockpile and the seasonal high-water table or saturated soils.
- Stockpiles are not allowed on soils that are coarser than a sandy loam to a depth of five feet or have less than two feet between the bottom of the stockpile and the seasonal high water table.

Recordkeeping

The owner must maintain records for each stockpile for three years including the location of each stockpile, the date it was established, the volume of and nutrient value of manure and the date the manure was land applied.

Permanent Stockpile Sites (Manure is stockpiled for more than one year or the same site is used year after year)

All permanent stockpiles must comply with the following:

- The owner must install, if necessary, a liquid manure storage area to contain manure-contaminated runoff.
- NPDES/SDS permits are required if feedlot is 1,000 animal units or greater. If constructing a manure storage area for feedlot between 300 and 1,000 animal units, a Construction Short Form permit is required.
- Liners with a hydraulic conductivity of 1×10^{-7} cm/sec must be constructed under the permanent stockpiles.

Clean water diversion structures must be **15** feet wide where up-gradient slopes are greater than two percent.

7020.2150 MANURE COMPOST SITES

The location and operation requirements for compost sites are the same as for stockpile sites. In addition, compost must meet one of three time/temperature processes to ensure that pathogens are killed and that the compost is somewhat stabilized (a curing period of at least several months should follow). Temperatures should be taken daily and aerobic conditions maintained. The details are found in part 7020.2150 of the rules.

If the facility is required to obtain an NPDES or SDS permit (i.e., if over 1,000 animal units, a CAFO, or designing a unique structure), records must be submitted in the permit's annual report (which is required of NPDES or SDS permits). The mature compost at these facilities must be analyzed for pH, moisture content, particle size, NPK and soluble salts.

7020.2225 LAND APPLICATION

- Manure and process wastewater must **not** be applied to land in a manner that will:
 1. Result in a discharge to waters of the state during the application process; or
 2. Cause water pollution due to manure-contaminated runoff.
- No application is permitted in road ditches.



Manure Nutrient Testing

- Manure from all manure-storage areas storing manure produced from more than 100 animal units must be tested for nitrogen and phosphorus content at a minimum of once every four years, with the following exceptions:
 - Test once/year for at least three years if manure is from a 300 or more animal unit storage area, and then every four years.
 - Retest when manure nutrient content may change due to climatic conditions, changes in manure storage and handling, livestock types, or livestock feed.
- Must use laboratories certified by the Minnesota Department of Agriculture or MPCA-approved on-farm sampling and analysis.
- Must obtain a representative sample (according to U of M Extension Service recommendations).

Nutrient Application Rates

- Manure application rates must be limited so that the estimated plant-available nitrogen from all nitrogen sources does not exceed expected crop nitrogen needs for non-legume crops and expected nitrogen removal for legumes. Nitrogen sources include:
 - Commercial fertilizer nitrogen
 - Manure applied for current and previous year
 - Soil organic matter
 - Irrigation water
 - Legumes grown during previous years
 - Biosolids

- ▶ Process wastewater
- Determinations of crop nitrogen needs, removal rates, and the amount of nitrogen available from manure or legumes are to be based on published recommendations of the University of Minnesota Extension Service or another land grant college in a contiguous state, with the following exceptions:
 - ▶ Estimated plant-available nitrogen from organic nitrogen sources, including manure, may deviate up to 20 percent from University of Minnesota recommendations based on management history, soil conditions or cool weather that warrants additional nitrogen application.
 - ▶ When crop deficiencies are visible or measured, nitrogen applications above 20 percent can be made.
- For land receiving manure from a 300 or more animal unit facility, soil samples from the upper six inches must be collected at least once every four years and analyzed for **phosphorus** using the Bray P1 or Olsen test. The owner must obtain an interim permit and submit the associated manure management plan if manure is to be applied onto soils where:
 - ▶ Soil phosphorus exceeds levels of 75 ppm (Bray P1 test) or 60 ppm (Olsen test) in a special protection area or within 300 feet of an open-tile intake, **or**
 - ▶ Outside a special protection, levels exceed 150 ppm (Bray P1 test) or 120 ppm (Olsen test).

Manure Management Plan Requirements

Manure management plans are required to be prepared upon application for an NPDES, SDS, interim or construction short form permit, except if the feedlot has less than 100 animal units. If not requiring a permit, feedlots capable of holding 300 or more animal units must prepare or update a plan and keep it on site, unless the manure is applied by a commercial animal-waste technician or a certified private manure applicator.

The manure management plan must be reviewed by the owner each year and adjusted for changes in the amount of manure production, manure-nutrient test results, fields available, crop rotations, etc. The required items of a manure management plan are found in 7020.2225, subp. 4. The types of required information for the plan include:

- Manure storage and application methods
- Field locations and acreage
- Amount of manure to be applied to each field
- Manure-nutrient testing plans
- Soil-nutrient testing plans
- Crop-nutrient needs and/or expected nutrient removal
- Protective measures when applying in environmentally sensitive areas
- Protective measures when applying during winter months

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Any person receiving manure to apply on their land from a feedlot of 300 or more animal units must comply with the manure management plan and complete any portions of the plan that are specific to the land/crops where the manure is to be applied.

Recordkeeping

Any person applying or receiving manure from a 100 or more animal-unit facility must maintain manure application records for the most recent six years within special protection areas and for three years outside special protection areas. The type of information required for the records depends on the number of animal units on the farm where the manure originated.

For an animal feedlot capable of holding 100 to 299 animal units, records must include manure-nutrient test results and all information needed to credit nitrogen from manure applications. If the feedlot holds between 100 and 299 animal units and is in a drinking-water supply management area where the aquifer is designated vulnerable to contamination, then the records must contain the same information as for feedlots with more than 300 animal units (listed below).

For an animal feedlot capable of holding 300 or more animal units, records must include:

- Field acreage and location
- Amount of manure applied to each field
- Manure test results
- Dates of manure application and incorporation
- Expected amounts of plant-available nutrients from manure and commercial fertilizer each year
- Soil test results
- Any changes to the manure management plan

Manure Applications in Special Protection Areas

Added protective measures are required for application of manure in special protection areas. These areas include land within 300 feet of lakes, streams, intermittent streams (excluding grassed waterways), public-waters wetlands (typically, over 10 acres in rural areas), and drainage ditches without berms. Requirements vary depending on whether or not there is a permanent vegetated buffer along the water or waterway.

Option 1: For Land Without a Perennial Vegetative Buffer in Special Protection Areas

- Manure applications within 25 feet of the water or waterway are prohibited.
- Manure applied between 25 and 300 feet of the water or waterway must be incorporated immediately (within 24 hours of application).
- The rate and frequency of application of manure must be at a level that will not allow phosphorus to build up over any six-year period if the soil already exceeds the crop needs for phosphorus (21 ppm Bray P1 or 16 ppm Olsen soil tests).
- No winter applications onto land within special protection area.

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Option 2: For Land with Perennial Vegetative Buffer in Special Protection Areas

- Minimum buffer widths:
 - 100 feet for lakes and streams

- ▶ 50 feet for wetlands (more than 10 acres), intermittent streams, and unbermed ditches
- No manure applications onto the buffers
- No winter application of manure within a special protection area.

Manure Applications Near Open Tile Intakes, Sinkholes, Mines and Quarries

OPEN TILE INTAKES – Liquid manure must be injected or immediately incorporated when applied within 300 feet of an open tile intake. Solid manure must be immediately incorporated when applied within 300 feet of an open tile intake.

SINKHOLES – Do not apply manure to land within 50 feet of a sinkhole. Inject or immediately incorporate when applied within 300 feet on the upslope side of a sinkhole.

Additional restrictions for feedlots with NPDES permits

Feedlot owners who are required to apply for an NPDES permit must also follow all permit conditions, as outlined in the permit. The NPDES permitted facilities have additional requirements related to manure testing, winter-time spreading, and more.



Animal Unit Calculations

Use this table to calculate animal units for your facility.

For each animal type checked, list the maximum number of animals that you intend to have (standing herd size) at the facility at any given time in the next four years. Put that number in the # of Animals column (column 3).

Multiply the **Animal Unit Factor** (column 2) by the # of Animals (column 3) to get the **Animal Units** for each animal type (column 4). Then add up all your animal unit numbers in column 4 for a total.

Example: If you have 245 heifers, you will check the heifer checkbox, write 245 in column 3 for heifers and multiply 245 x 0.7 (animal unit factor) for a total of 171.5. You will write 171.5 in column 4 for heifers.

	1. Example	2. Animal Unit Factor	3. # of Animals	4. Animal Units
<input checked="" type="checkbox"/>	Heifer	0.7	245	171.5

	1. Animal Type	2. Animal Unit Factor	3. # of Animals	4. Animal Units
A. Dairy Cattle				
<input type="checkbox"/>	Mature cow (whether milked or dry) over 1,000 pounds	1.4		
<input type="checkbox"/>	Mature cow (whether milked or dry) under 1,000 pounds	1.0		
<input type="checkbox"/>	Heifer	0.7		
<input type="checkbox"/>	Calf	0.2		
B. Beef Cattle				
<input type="checkbox"/>	Slaughter steer or stock cow	1.0		
<input type="checkbox"/>	Feeder cattle (stocker or backgrounding) or heifer	0.7		
<input type="checkbox"/>	Cow and calf pair	1.2		
<input type="checkbox"/>	Calf	0.2		
C. Swine				
<input type="checkbox"/>	Over 300 pounds	0.4		
<input type="checkbox"/>	Between 55 and 300 pounds	0.3		
<input type="checkbox"/>	Under 55 pounds (<i>and separated from sow</i>)	0.05		
D. Horses				
<input type="checkbox"/>	Horse	1.0		
E. Sheep				
<input type="checkbox"/>	Sheep or lamb	0.1		
F. Chickens				
<input type="checkbox"/>	Laying hen or broiler, if the facility has a liquid manure system	0.033		
<input type="checkbox"/>	Chicken over 5 pounds, if using a dry manure system	0.005		
<input type="checkbox"/>	Chicken under 5 pounds, if using a dry manure system	0.003		
G. Turkeys				
<input type="checkbox"/>	Over five pounds	0.018		
<input type="checkbox"/>	Under five pounds	0.005		
H. Ducks				
<input type="checkbox"/>	Duck	0.01		
I. Animals not listed in item A to H				
<input type="checkbox"/>	Animals not listed in item A to H Type 1: _____ Type 2: _____	Average weight of the animal in pounds divided by 1,000 pounds	1: _____ 2: _____	1: _____ 2: _____

TOTAL ANIMAL UNITS (Add up all numbers in column 4)				
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