



**Minnesota
Pollution
Control
Agency**

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Livestock feed storage areas

Permitting and operation

Water quality/Feedlots 8.21 • Updated July 2010

This document outlines the Minnesota Pollution Control Agency's (MPCA) requirements and guidance to address feed storage area runoff for NPDES Permitted facilities as well as facilities without a NPDES Permit. The purpose is to provide clarification as to when a feedlot permit is required to create/expand a feed storage area, as well as management requirements and guidelines for runoff from a feed storage area.

The Environmental Protection Agency (EPA) has indicated that containment of runoff generated by precipitation on feedstocks, or remnants of feedstocks, is necessary for large concentrated animal feeding operations (CAFO) to comply with the effluent limitations contained within the federal rule.

It is important to note that merely following these guidelines does not ensure compliance with the discharge standard. These guidelines are simply best management practices that have the potential for achieving compliance, in most situations. At the permitting authority's discretion, additional measures may be required.

Definitions

"Process Wastewaters" as defined by Minn. Rule 7020.0300 Subp.19b: Waters and/or precipitation, including rain or snow that comes into contact with manure, litter, bedding, or other raw material, or intermediate or final material or product used in or resulting from the production of



animals, poultry, or direct products such as milk or eggs.

"Feed Storage Area or Feed Pad": A designated area at the production facility, paved or unpaved, covered or uncovered, used for storage of any materials used to create the rations for livestock. Also included are those areas used to store spoiled, spilled, or other unused rations for livestock. Feed storage area or feed pad does not include buildings or roofed structures that contain dry commodities, provided that precipitation does not come into contact with the commodities stored in said structure. Runoff from the roofs of these structures is considered "clean water" and does not require containment/storage, unless it is allowed to come into contact with process wastewaters or manure. Feed storage areas also do not include areas used for the storage of hay bales and other absorbent materials that do not create contaminated leachate and do not create a pollution hazard.

“Stormwater” (commonly called “clean water”):
Runoff, as a result of precipitation, that has **not** come into contact with manure, litter, bedding, or other raw material or intermediate or final material or product used in or resulting from the production of animals, poultry, or direct products, such as milk or eggs.

“Leachate”: Liquid generated from the storage of feedstocks as a result of the moisture of the feedstocks and is not a result of precipitation on the feedstocks themselves.

“Feed Storage Area or Feed Pad Runoff”: Liquid that leaves the feed storage area or feed pad that is the result of precipitation on the feedstocks or the surrounding feed storage area or feed pad where residual feed is present. This does not include water that flows off of the tarp/roof of a feed storage area, unless that liquid is allowed to come into contact with feedstocks, residual feed, or other liquid that has come into contact with feedstocks or residual feed. This liquid is not stormwater and should not be allowed to directly enter waters of the state, tile intakes, or stormwater collection/mitigation areas (stormwater ponds, etc.)

Requirements – NPDES-permitted feedlots

(Including sites where an expansion will necessitate NPDES permit coverage)

Permit application requirements (NPDES permitted facilities):

A permit or permit modification is required when a feed storage area is constructed or expanded by adding additional area to the existing footprint of the feed storage area.

A permit or permit modification is not required when a different type of feedstock or additional feedstock is proposed to be stored on the existing feed pad, except when over 1,000 tons of sweet corn silage or other materials that require non-feedlot permits are stored on the feed pad.

A permit or permit modification may also be required when the existing feed storage area is determined to be a pollution hazard.

Feed storage area operation and runoff management (NPDES permitted facilities):

ALL NPDES PERMITTED FACILITIES

The feed storage area shall be placed on an impermeable surface consisting of concrete, asphalt or at least one foot of soil categorized by NRCS practice standard 313 as group III or IV (20 to 100 percent passing the #200 sieve and a plasticity index of 11 or greater). If a soil pad is to be used for feed storage a minimum of two feet of separation shall be maintained between the top surface of the soil pad and the seasonal high water table.

Manure or other waste products shall not be stored on the feed storage pad unless a runoff control practice is in place and designed to account for this practice. Leachate that leaves the feed storage area shall be contained to prevent it from discharging to waters of the state.

The facility shall maintain an impervious cover (i.e. a roof or plastic sheet) over the feedstuffs that will prevent exposure of the feedstuffs to precipitation except during active removal of feedstuffs from the storage area. Any spillage of feedstuff outside of the area protected by the impervious cover shall be cleaned up on a daily basis.

Note: It is unnecessary for facilities that currently have one of the runoff control features identified below (1-4) to maintain the impervious cover or clean up of spilled feed, unless part of the design plans and specs.

NPDES FACILITIES UNDERGOING A MAJOR MODIFICATION OR EXPANSION

When undergoing an expansion in the number of animals, manure storage system, feed storage area, making major renovations or additions to the facility, or if the runoff/leachate from the feed storage area is creating a pollution hazard, one of the feed storage area runoff controls identified below, shall be implemented. A permit application containing the plans and specifications for the runoff control area shall be submitted to the MPCA and construction of the runoff control area shall not begin until written approval from the MPCA has been received by the owner/operator.

One or more of the following measures must be implemented to control runoff caused by precipitation events when expanding or constructing:

1. A receiving tank that collects the leachate and runoff, and transfers this material to an existing or proposed Liquid Manure Storage Area located elsewhere at the facility. The permittee must demonstrate that the existing LMSA has sufficient storage capacity to remain in compliance with the nine-month minimum storage requirement of Minn. Rule 7020.
2. A LMSA that is constructed specifically for the collection of the leachate and runoff from the feed storage area. The basin shall be designed, constructed, operated and maintained in accordance with all portions of Minn. Rule 7020.2100, except for the nine-month storage requirement. The basin must have a capacity that is equal or greater than the total of:
 - a. The volume of feed pad runoff resulting from the 25-year, 24-hour storm event;
 - b. One foot of freeboard; and
 - c. The capacity required for storage between land application events.
3. A vegetated infiltration area that is designed to effectively contain the 25-year, 24-hour storm event and meet the NRCS practice standards for such structures (unless deviations are allowed on a site specific basis by the MPCA).
4. A comparable system that controls the leachate and runoff resulting from a 25-year, 24-hour storm event, providing equal or greater runoff control and environmental protection as items 1-3, above. Detailed design and analysis of the proposed “treatment” system will be required and facilities that want to pursue this option should work closely with the MPCA staff in their region. Emerging technologies or systems which require intensive management and oversight may necessitate the issuance of an individual NPDES permit.

Alternatives to the options identified above are available with the issuance of an individual NPDES permit. These options can include an alternative design to the options identified above, vegetated treatment strips, other vegetated infiltration areas, or other “treatment” systems for the feed storage area runoff, provided that they do not allow discharge into waters. Detailed design and analysis of the proposed “treatment” system will be required and facilities that want to pursue this option

should work closely with the MPCA staff in their region.

Guidance for non-NPDES feedlots

Permit application requirements (non-NPDES permitted facilities):

A permit or permit modification is not required when a feed storage area is constructed or expanded by adding additional area to the existing footprint of the feed storage area, provided that feed storage area does not cause non-attainment with state water quality discharge standards.

A permit or permit modification is not required when a different type of feedstock or additional feedstock is proposed to be stored on the existing feed pad, except when over 1,000 tons of sweet corn silage or other materials that require non-feedlot permits are stored on the feed pad.

A permit, permit modification, or an enforcement action (as appropriate), may be required when the existing feed storage area is determined to be a pollution hazard.

Feed storage area operation and runoff management (non-NPDES permitted facilities):

Feed storage areas at non-NPDES permitted facilities are subject to the discharge standard as defined in Minn. Rule 7020.2003. The following are guidelines that have the potential to achieve compliance with the discharge standard:

- Harvest and establish a field corn silage pile at 65% moisture or less.
- Keep all feedstocks covered including any waste or spoiled feedstocks.
- Ensure that surface water runoff is directed around or away from the feed storage area and does not enter or flow through the feed storage area.
- Provide adequate vegetative buffer from surface waters and tile intakes for feed storage area runoff.
- When possible establish the feed storage area on a impermeable surface (concrete or asphalt) or a soil with at least 1 foot of soil categorized by NRCS practice standard 313 as group III or IV (20 to 100% passing the #200 sieve and a plasticity index of 11 or greater), and maintain a 2 foot separation to the seasonal high water table.
- Do not stockpile manure or other waste products on the feed pad.