



General Feedlot Program Information

The Minnesota Pollution Control Agency's (MPCA) Feedlot Program was established in 1971 to address pollution related to feedlots. The term "feedlot" has been defined by the MPCA to include any animal confinement area where a vegetative cover cannot be maintained, including poultry ranges, zoos, race tracks and fur farms. The feedlot program is currently administered under Minnesota Rules chapter 7020.

There are currently an estimated 45,000 feedlots in Minnesota of which 16,000 have been permitted by the MPCA. The 208 Study released in 1979 estimated that there are 9,000 - 14,000 feedlots located within shoreland (within 300 feet of a stream or 1000 feet of a lake). Calculations based on recent Minnesota agricultural statistics indicate that livestock and poultry in the state produce animal wastes that would exceed the amount of human waste produced by a population of over 40,000,000 people.

Feedlot Pollutants

Animal manure, when properly used as fertilizer, is a useful resource since it contains valuable nutrients such as nitrogen, phosphorus and potassium. However, if animal manure is improperly disposed of or allowed to leach or run off into surface or ground waters, it can create a serious water pollution hazard.

Manure can create ground water pollution if it is:

- improperly stored;
- washed off a feedlot into a low area where it seeps into the ground;
- improperly land applied.

Ground water pollution resulting from animal waste is typically in the form of nitrate nitrogen, but can also be in the form of ammonia nitrogen. Nitrogen in the form of ammonia can also be toxic to aquatic life if manure runs off into surface water.

Phosphorus typically does not leach through soils. However, phosphorus from animal manure can be a significant pollutant if runoff containing manure is allowed to enter a surface water. Phosphorus is usually the limiting nutrient in lakes. Therefore, if animal manure or feedlot runoff is allowed to enter a lake, it can lead to nuisance weed and algae growth. One pound of phosphorus will produce approximately 500 pounds of weeds or algae growth in a lake. Feedlot runoff typically contains roughly ten times as much phosphorus as untreated domestic sewage.

Other pollutants in animal manure include oxygen demanding materials and potential pathogens. Organic materials are broken down in water by microorganisms, which use the organic material as a food source. These microorganisms deplete oxygen in the water. The lack of oxygen can kill fish or degrade the water quality to the point that either no fish or only undesirable fish can survive. Many fish kills are the result of excess organic materials being allowed to enter surface waters. Animal manure and feedlot runoff are relatively concentrated sources of these pollutants.

Animal manure can also include potential pathogens (disease-causing microorganisms). If carried in either surface or ground water, these can spread disease to other animals and humans.

Feedlot Pollutants

Affects Toxic to fish and at high levels can cause fish kill

Phosphorus

Sources Feedlot runoff or soil erosion from land application sites.

Affects Acceleration of the natural eutrophication, or aging, process in a lake.

Increased phosphorus levels cause the plants and algae in a lake to grow at a much faster rate. Oxygen depletion caused by the increased plant growth and decomposition can kill fish or other aquatic species in both lakes and streams.

Increased weeds and algae decrease the clarity of a lake and affects the recreational and wildlife use.

Nitrates

Sources Leaching of manure in feedlots or at land application sites.

Affects High levels of nitrates in drinking water can cause methemoglobinemia (blue baby syndrome) in human infants and the young of warm blooded animals.

Fecal Coliform Bacteria

Sources Leaching of manure in feedlots or at land application sites.

Affects Often associated with disease producing organisms that can infect humans and livestock if it gets into ground water.

Ammonia

Sources Runoff from feedlots, manure storage or land application sites.

Biological Oxygen Demand (BOD)

Sources Runoff from feedlots, manure storage or land application sites

Affects Microorganisms flourish on the increased food supply provided by the organic matter in manure, this increase in microorganisms depletes the oxygen level in the water body faster than it can be replaced.

The depletion of oxygen causes a fish kill.

Permitting Process

MN Rules part 7020.0500, Subp. 1, requires the owner of a proposed or existing feedlot with 10 or more animal units to apply for permit when any of the following conditions exist:

- A new feedlot is proposed;
- A site which has been abandoned for five years or more is restocked;
- An existing feedlot is expanded or modified;
- The ownership of an existing feedlot is changed;
- A National Pollutant Discharge Elimination System (NPDES) Permit is required under state or federal rules and regulations; or
- Investigation of a complaint on a feedlot reveals a pollution problem.

The feedlot permit application review procedure can assist a feedlot operator in the planning process, from both a water quality and farm management perspective, resulting in:

- Water quality protection through review of existing and proposed facilities, and;
- Overall least cost to a feedlot operator for new facility construction.

The following items are needed for review of a feedlot facility:

- A completed, signed MPCA feedlot permit application form;
- A map or aerial photograph showing wells, surface waters, sink holes, etc. within a 1000 ft. radius;
- A manure management plan;
- A soil boring record at underground earthen manure storage sites, and;
- Plans prepared by qualified registered professional engineer or by the Natural Resources Conservation Service (NRCS) for any proposed earthen manure storage facilities.

Additional information that can be used in the review of feedlot permit applications include:

- USGS Topographic maps to locate nearby waterbodies, slopes and watersheds;
- NRCS soils maps to determine soil types, approximate seasonal high water tables in the area and crop yields; or
- Local government agencies, such as county, NRCS, SWCD or extension may have information about the site that is applicable.

Compliance Determination

The following items are checked for compliance with MPCA regulations:

- Runoff to surface waters from open lots or manure storage;
- Seepage to groundwater;
- Available cropland for land application of manure;
- Separation between wells and livestock confinement or manure storage;
- Construction of manure storage structures;
- Seasonal high water table problems, and;
- Fractured bedrock problems.

Definitions

Feedlot - MN Rules part 7020.0300, Subp. 3

Any lot or building or combination of lots and buildings intended for the confinement of animals where manure can accumulate, or where the concentration of animals is such that a vegetative cover can not be maintained. The definition of a feedlot does include poultry ranges, however pastures are not included.

Animal Unit - MN Rules part 7020.0300, Subp. 5

A unit of measure used to compare differences in the production of manure that uses as a standard the amount of manure produced by a slaughter steer or heifer. Specific animal unit equivalents can be found

in the rules or the enclosed attachment.

Potential Pollution Hazard - MN Rules part 7020.0300, Subp. 20

An animal feedlot or manure storage area whose boundaries are located within:

- Shoreland (1000 feet from a lake or 300 feet from a river);
- A 100 yr. floodplain;
- 100 feet of a water well;
- An area draining directly to a sinkhole, or;
- A drainageway to an area with shallow soils overlaying fractured or cavernous rock, and;

An animal feedlot or manure storage area whose construction or operation will allow:

- Discharge of pollutants to surface waters of the state in excess of applicable standards during a rainstorm event of less magnitude than the 25 year - 24 hour storm event (4.5" to 5" of rainfall in 24 hours in Minnesota), or;
- Uncontrolled seepage of pollutants into the ground or surface water, or will violate any applicable state rules or regulations.

Other definitions can be found in MN Rules part 7020.0300.

Land Application of Manure

MN Rules part 7020.0400, Subp. 3, requires manure to be land applied at agronomic rates, or at rates that allow the crop to take up nutrients available in the

manure which prevents runoff or leaching of manure. The University of Minnesota Extension Service, in conjunction with the MPCA and the Natural Resource Conservation Service (NRCS), has developed a guide for land application of manure. This guide is based on research done at University of Minnesota Research Stations and other similar facilities.

Other Uses

MN Rules part 7020.0500, Subp. 4,B,(2), requires that if manure is not to be used as a fertilizer, the feedlot owner is required to apply to the MPCA for a Five-Year Permit. This would include sites where the manure is used for methane digestion, dried and resold as a feed supplement, etc.

Stockpiling of Manure

MN Rules part 7020.0400, Subp. 3, also prohibits the stockpiling of manure for more than one year. Any stockpiling is to be done such that there is no runoff to surface water or leaching into ground water. Stockpiling for more than one year is not allowed unless specifically allowed by permit.

Owners Responsibility

MN Rules part 7020.0400, Subp. 5, states that the owner of the livestock facility is responsible for the storage, transportation and disposal of all manure. MN Rules part 7020.0300, Subp. 17, defines the "owner" as anyone having possession, control or title to a livestock facility.

Transportation of Manure

MN Rules part 7020.0400, Subp. 2, requires vehicles used to transport manure over county, state or interstate highways, or through municipalities must be leak proof.

MPCA Feedlot Permit Types

The permit review process results in issuance of one

of the following (in accordance with MN Rules part 7020.0500, Subp. 4):

Certificate of Compliance

Issued for facilities which do not have a potential pollution problem. Of the facilities reviewed by the MPCA, 80 percent or more are issued Certificates of Compliance.

Interim Permit

Temporary permits issued for facilities that are creating ground or surface water quality problems, for which solutions will be developed and implemented within one year. About 15 percent of the facilities reviewed are issued these temporary permits. After the problems are resolved, the feedlots may be issued Certificates of Compliance.

National Pollutant Discharge Elimination System Permit (NPDES)

Issued to large facilities (1,000 animal units or more) that have the potential to discharge to waters of the state. These have been issued to less than one percent of the facilities reviewed by the MPCA.

Five-Year Permit

Issued to facilities that require more than one year to correct the problems due to technical or economic problems, or for sites that do not dispose of the manure as domestic fertilizer. Less than one percent of the feedlots reviewed have been issued these permits.

Feedlot Permit Mail List

There are five copies of each Certificate of Compliance and Interim Permit. These are distributed to the permittee, MPCA Central Office, MPCA Regional Office, Soil and Water Conservation District, and County Planning and Zoning Office. Copies are also sent to watershed districts or other parties when requested.

County Feedlot Program

MN Rules part 7020.1600 provides for delegating the administration of the feedlot program by the MPCA to counties requesting this authority. Under the current procedure, counties may regulate feedlots with 1000 animal units or less if no pollution hazard exists. Counties may also regulate feedlots of 300 animal units or less where a pollution hazard exists which will be corrected in one construction season. The MPCA is responsible for all other facilities.

A county is not required by the state to regulate feedlots, and a majority of the counties have chosen not to assume this authority. A March, 1989, survey of the counties indicated that the two prime reasons counties have chosen not to administer the feedlot program are lack of funding for the required staff and lack of support from the county board to regulate agricultural practices. Education of local government staff, livestock owners and the general public on issues related to feedlot related pollution problems may help resolve the lack of support for the county feedlot program.

Technical Assistance

Natural Resource Conservation Service (NRCS)

This is a branch of the United States Department of Agriculture (USDA) responsible for providing technical assistance to farmers for conservation practices, including pollution abatement systems. When a feedlot is determined by the MPCA or County Feedlot Officer to be creating a pollution problem, the feedlot owner is requested to contact the local NRCS for technical assistance. The NRCS cannot provide the assistance unless the owner requests the service. If an owner thinks there is a problem that needs to be corrected he should contact the NRCS to discuss a pollution abatement system even if the MPCA has never received a complaint or done an inspection.

EAW with the assistance of the project proposer.
EAW's are public noticed for 30 days.

Soil and Water Conservation District (SWCD)

The SWCD staff provide support to the NRCS in the field work and design of pollution abatement systems. They are usually located in the same office as the NRCS.

Consultant

If the NRCS or SWCD is unable to provide technical assistance to a feedlot owner because the site is not a pollution problem, a private consultant may be needed. If the project requires design by an engineer, the consultant must be an engineer registered with the State of Minnesota and be qualified to do the type of work required.

For More Information:

Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155-4194
(612) 296-3890
1-800-657-3864

Fact Sheet 33

Environmental Assessment Worksheet (EAW)

For total confinement sites:

An EAW is required if a new livestock facility is constructed with 2000 animal units or more, or if 2000 or more animal units are added to an existing livestock facility.

For partial confinement sites:

An EAW is required if a new livestock facility is constructed with 1000 animal units or more, or if 1000 or more animal units are added to an existing livestock facility.

An EAW may also be prepared in response to a petition signed by 25 citizens, where the petition must address "real" environmental issues (Petitioned EAW).

The third way an EAW may be done is at the discretion of a government agency with permitting authority over the feedlot (Discretionary EAW).

The MPCA is the Responsible Governmental Unit for all EAW's prepared for feedlots, and prepares the