

Nutrient Pollution Control and Prevention at Agricultural Operations

All Farm Operations

All farms in Pennsylvania are required to manage nutrients. Details are contained in Section 91.36 of the department's regulations (25 Pa. Code § 91.36). The basic requirement of the Clean Streams Law is to prevent manure nutrients (nitrogen and phosphorus) from polluting surface or groundwater.

Any farm with manure handling, storage and land application activities has two options to meet this legal requirement: (1) follow the practices described in the Pennsylvania Manure Management Manual (MMM), or (2) obtain a DEP permit or other approval, if alternative practices are used. Copies of the MMM can be obtained from your local conservation district or your DEP regional office. The manual can also be found online at www.depweb.state.pa.us, keywords: Manure Management and Field Application.

- Requirements for Manure Storage

Manure storage facilities are to be designed, installed, operated and maintained to prevent leaks and spills up to the 25-year, 24-hour storm event. (Certain storage facilities at Concentrated Animal Feeding Operations (CAFOs) must be designed to a 100-year standard.) The MMM and the Pennsylvania Technical Guide (PaTG) manure storage standards must be followed, or a water quality management permit or other approval must be obtained from the department.

DEP regulations further require that the design and construction of any liquid or semisolid manure storage facility built after January 2000 be certified by a professional engineer as meeting the PaTG and the MMM, and this certification documentation must be kept at the operation. In the absence of this certification, the operator must obtain a water quality management permit.

For certain large liquid or semisolid manure storage facilities, operators are required to obtain a water quality management permit. For further information on these requirements, please refer to the DEP fact sheet entitled "Agricultural Manure Storage Facilities."

- Requirements for Land Application of Manure

Operators must follow the MMM land application guidelines in developing and implementing a site-specific written nutrient management plan to protect water quality. This includes soil and manure testing and calculation of proper levels and methods of nitrogen and phosphorus application. Operators who do not wish to follow the MMM guidelines must obtain a department permit or approval.

Agricultural operations that receive manure from a Concentrated Animal Operation (CAO) or a CAFO, either directly or through a broker or other person, are not allowed to mechanically land apply manure within 100 feet of surface water, unless a vegetated buffer of at least 35 feet in width is used to prevent manure runoff into surface water.

- Visual Examples of Potential Water Quality Problems

1. Manure runoff from the operation accumulating on streambeds and banks; or visual observation of manure runoff discharging into a stream during storm events of less than a 25-year frequency.
2. Nutrient laden runoff from loafing or feeding areas discharging into a stream during storm events of less than a 25-year frequency.
3. Stockpiling of dry manure in unprotected areas for extended periods of time; uncontrolled release of manure from a storage facility; or unsafe level of manure in the storage (required freeboard not being maintained).
4. Excessive amounts of manure in fields; soil test results that significantly exceed optimum range for phosphorus (200 ppm); groundwater nitrate levels exceeding 10 ppm, where the farm's application of nutrients is the reasonable source.

Concentrated Animal Operations

A CAO is an animal operation that has at least eight

animal equivalent units and a density of more than two animal equivalent units per acre of land suitable and available for manure application. An animal equivalent unit is defined as 1,000 pounds of live animal weight. The State Conservation Commission (SCC) regulates these operations under Act 38 of 2005.

CAOs must develop and implement an approved nutrient management plan prepared by a nutrient management specialist certified by the Pennsylvania Department of Agriculture. The plan must undergo review by a certified plan reviewer prior to approval by the local county conservation district or the SCC. The regulations for CAOs, which deal in detail with the handling of nitrogen and phosphorus from all sources at the operation, can be found online at the following Web site: <http://panutrientmgmt.cas.psu.edu>.

The program requires that new manure storage facilities installed on CAOs follow PaTG standards as well as setbacks established in the regulations relating to waterways, wells and property lines.

The program monitors the operation of CAOs through annual status reviews administered by the conservation district or the SCC. The program also establishes restrictions relating to: the design and operation of barnyards and feedlots, manure application setbacks, stockpiling of manure on crop fields, fall and winter manure application, and manure exported from these operations.

CAOs are required to follow the criteria established in this law, while other farmers are encouraged to voluntarily participate. Under Act 38, all program participants receive certain liability protections.

Concentrated Animal Feeding Operations (CAFOs)

CAFOs in Pennsylvania are defined as agricultural operations that:

- have more than 1,000 AEUs;
- are CAOs with greater than 300 AEUs; or
- meet the large CAFO definition under the federal CAFO rule. This definition sets threshold numbers for specific animal types. Operations that exceed any one of these numbers are classified as CAFOs. Examples of thresholds are: 2,500 swine, each weighing 55 pounds or more; 82,000 laying hens, for operations that do not use a liquid manure handling system; and 125,000 chickens (other than laying hens), for operations that do not use a liquid manure handling system. (For a complete definition: http://www.epa.gov/npdes/regulations/cafo_fedrgstr.pdf Select "Part 122" from the table of contents and look for §122.23(b)(4) for the definition of a large concentrated animal feeding operation.)

CAFOs are the most strictly regulated agricultural operations in Pennsylvania. They fall under the authority of the Federal Clean Water Act, and Pennsylvania's Clean Streams Law. In addition to meeting all the requirements of a CAO, these operations are required to obtain a National Pollutant Discharge Elimination System permit from DEP. The permit application process provides a 30-day public comment period and a DEP permit review prior to issuance of a permit.

The nutrient management plan for a CAFO must include manure application setbacks of at least 100 feet, or vegetated buffers at least 35 feet in width from surface waters and conduits to surface waters. The plan must also include a statement that manure that is stockpiled for 15 consecutive days or longer will be covered or otherwise stored to prevent discharge to surface waters during certain storm events. Additional requirements for CAFOs include, but are not limited to: the preparation of a preparedness, prevention and contingency plan, identification of measures to prevent discharges from raw material storage areas and compliance with the Domestic Animals Act when handling animal mortalities. The complete CAFO regulation can be found at §92.5a of the department's regulations.

For more information, visit DEP's Web site at www.depweb.state.pa.us, keyword: CAFOs. You may also contact:

Division of Conservation Districts and Nutrient Management, Bureau of Watershed Management, P.O. Box 8465, Harrisburg, PA 17105-8465, or telephone 717-783-7577, fax 717-787-9549 or your DEP regional office.