



Pollutants from agricultural sources, such as pesticides, fertilizers, and eroded soil, are the most common types of contaminants found in U.S. rivers and streams. Manure, dead animals, and other waste from livestock operations may also contribute to this pollution.

Proposed Regulations to Address Water Pollution from Concentrated Animal Feeding Operations

Beef Cattle on a Feedlot



Source: USDA Online Photo Center

The U.S. Environmental Protection Agency (EPA) is proposing regulations to reduce the amount of water pollution from large livestock operations. Revisions to current Clean Water Act permit requirements and effluent guidelines for as many as 39,000 concentrated animal feeding operations, or "CAFOs," will address water quality concerns relevant to livestock industries. This proposal will update regulations that are more than 20 years old and will result in more effective, nationally consistent regulations to protect water resources.

Why does EPA want to change the NPDES regulations and effluent guidelines for CAFOs?

According to the 1998 National Water Quality Inventory, which reported on assessments of 32 percent of the Nation's waters, 40 percent of assessed waters are impaired. In that report, agriculture is identified among the sources contributing to impairment in 60 percent of the impaired rivers and streams and 30 percent of the impaired lakes. In the United States an estimated 376,000 livestock operations confine animals, generating approximately 128 billion pounds of manure each year. Concentrated animal feeding operations (CAFOs) are the largest of these livestock operations and are regulated under the Clean Water Act.

In response to public concern about contamination of rivers, lakes, streams, coastal waters, and ground water from livestock manure and other animal wastes from livestock operations, EPA and the U.S. Department of Agriculture (USDA) developed the *Unified National Strategy for Animal Feeding Operations* (AFOs) in March 1999, as part of the *Clean Water Action Plan*. The strategy includes a national goal that all "AFOs should develop and implement technically sound, economically feasible, and site-specific comprehensive nutrient management plans (CNMPs) to minimize impact on water quality and public health." As part of this strategy, EPA announced that it would develop new approaches for improving existing regulations for the largest operations, CAFOs. EPA currently administers two Clean Water Act regulatory programs that pertain to CAFOs: National Pollutant Discharge Elimination System (NPDES) permits and effluent guidelines.

For more than 20 years, Clean Water Act NPDES permits and effluent guidelines for CAFOs have helped to improve the quality of our nation's waters. However, reports of manure runoff and waste discharges from livestock operations show that the existing regulatory program for CAFOs needs to be revised to prevent water pollution.

The livestock industry has undergone dramatic changes in the past 20 years. The continued trend toward fewer but larger operations, coupled with greater emphasis on more intensive production methods and specialization, is concentrating more manure and other animal waste constituents within some geographic areas. This trend has coincided with an increased number of reports of large-scale discharges from these facilities. In addition, more and more of the larger livestock facilities are concentrated in areas where there is inadequate land to accommodate the useful application of the animal manure they produce.

Dairy Cattle Operation



Source: Kurt Roos, USEPA

Swine Operation



Source: USDA ARS Image Gallery

Why is livestock waste a water quality concern?

Runoff from livestock operations enters water bodies when poor maintenance of waste lagoons, improper design of storage structures, improper storage of animal waste, and excessive rainfall result in spills and leaks of manure-laden water. Overapplication of manure to

cropland is another source of animal waste runoff. When livestock manure and other animal waste spills or leaks into surface or ground water, it can create an immediate threat to

public health and water resources. This runoff has nutrients, such as nitrogen and phosphorus, that in excess cause algae and other microorganisms to reproduce in waterways, creating unsightly and possibly harmful algae blooms. Explosive algae populations can lower the level of dissolved oxygen, which can cause fish and other aquatic organisms to die. Spills from ruptured waste lagoons and other faulty storage facilities have killed tens of thousands of fish. Animal waste runoff can also be a threat to the health of people who come into contact with affected waters because some of the microbes (bacteria, protozoa, and viruses) in animal waste can cause disease.

Algae Bloom



Source: USDA ARS Image

Inconsistent interpretation of current regulations over the years by state and federal regulators has resulted in inadequate permitting and enforcement practices across the country. Public concern, changes in the livestock industry, persistent water quality problems, and public health risks have demonstrated the need for simpler, nationally consistent regulations that are more easily implemented and enforced to protect public health and water resources.

What are the current CAFO regulations?

Under the Clean Water Act, CAFOs are defined as point sources of pollution and are therefore subject to NPDES permit regulations. Under these regulations, CAFOs are defined as facilities with 1,000 or more animal units (AU). They are not considered CAFOs, however, if they discharge only during a 25-year, 24-hour storm. An animal feeding operation (AFO) that confines 300 to 1,000 AU is defined as a CAFO if it discharges pollutants through a man-made structure or if pollutants are discharged to waterways that run through the facility or come into contact with the confined animals. The authority that issues NPDES permits may also designate any AFO, including those with fewer than 300 AU, as a CAFO if it meets the definitions above and is a significant source of water pollution.

For those facilities with more than 1,000 AU that need a permit, the effluent guidelines establish national requirements limiting wastewater discharges. EPA established the effluent guidelines for feedlots in 1974 based on the best available technology that was economically feasible for the industry.

The current effluent guidelines do not allow discharges of pollutants from CAFOs into the Nation's waters except when a chronic or catastrophic storm causes an overflow from a facility that has been designed to contain manure and runoff during a 25-year, 24-hour storm. For permitted facilities with fewer than 1,000 AU, discharge limits are established using the permit writer's best professional judgment.

Aerial View of a CAFO



Source: Hoosier Environmental Council

What changes is EPA proposing for the NPDES CAFO regulations?

EPA is proposing several changes to the NPDES regulations that define which facilities are AFOs and which are CAFOs (that is, subject to the NPDES program). These proposed changes include specific requirements in NPDES permits for CAFO manure at both production and land application areas.

Definition of an animal feeding operation (AFO)

- The proposed changes to this definition are intended to help permit writers and permit holders clearly distinguish between confined facilities and operations with only pasture or grazing land. Operations that maintain animals in confinement are considered AFOs.

Proposed definitions for CAFOs

Animal Type	Two-Tier Structure	Three-Tier Structure	
	Number of animals equal to 500 AU	Number of animals equal to 1,000 AU	Number of animals equal to 300 AU
Beef Cattle and Heifers	500	1,000	300
Veal Cattle	500	1,000	300
Dairy Cattle (mature milked or dry)	350	700	200
Swine (>55 lb)	1,250	2,500	750
Immature Swine (≤55 lb)	5,000	10,000	3,000
Turkeys	27,500	55,000	16,500
Chickens	50,000	100,000	30,000
Horses	250	500	150
Sheep or Lambs	5,000	10,000	3,000
Ducks	2,500	5,000	1,500

Definition of a concentrated animal feeding operation (CAFO)

- Asking for comments on two alternative structures for defining CAFOs (see table):
 - A three-tier structure in which an AFO is a CAFO if it has more than 1,000 AU, if it has 300 to 1,000 AU and it meets certain conditions, or if the permit authority designates the facility a CAFO. All facilities with 300 to 1,000 AU must either certify that they do not meet the conditions for being defined as a CAFO or apply for a permit; or
 - A two-tier structure in which an AFO is a CAFO if it has 500 AU or more. Facilities with fewer than 500 AU may become CAFOs only if designated by the permit authority.
- Including new animal types that may be subject to NPDES permit requirements:
 - Dry manure-handling poultry operations
 - Stand-alone swine nurseries and heifer operations
 - Subcategory for veal operations
- Imposing on all CAFOs a duty to apply for a permit.
- Eliminating the 25-year, 24-hour storm permit exemption.
- Eliminating the "mixed animal type calculation."

Land application of CAFO manure

- Including the land application area in the CAFO definition.
- Requiring each CAFO to prepare and implement a site-specific permit nutrient plan (PNP) that is prepared or approved by a certified planner, identifies the nutrients generated at the facility, determines the amount of nutrients needed by the planned crop rotation, and establishes agronomic rates of manure application.
- Clarifying that the agricultural storm water exemption is applicable only where CAFO manure is land-applied according to proper agricultural practices.
- Proposing two options for recipients of CAFO manure:
 - Recipients must certify they are land-applying at proper agronomic rates unless there is a state program for addressing excess manure.
 - No certification is required, but the CAFO operator must maintain records of manure transferred.

Beef Cattle Operation



Source: USDA ARS Image Gallery

Permit requirements

- Requiring processors that exercise substantial operational control over contract growers to be co-permitted.
- Requiring a CAFO to maintain a permit until the facility is properly closed, including proper closure of manure storage.
- Clarifying the NPDES requirements pertaining to discharges to ground water through a direct hydrological connection to surface water.
- Improving public access to information in the following ways:
 - Requiring the permit authority to publish quarterly a list of CAFOs covered under a general permit. [A general NPDES permit is written to cover a category of point sources with similar characteristics (such as CAFOs) for a defined geographic area.]
 - Requiring permittees to submit a notice that they have developed or amended the PNP.
 - Proposing that the CAFO operator make the executive summary of the PNP publicly available upon request and considering making the entire PNP publicly available.
 - Proposing that states must conduct a public process for determining when individual permits must be issued.

What changes is EPA proposing for the CAFO effluent guidelines?

EPA is proposing several changes to the effluent guidelines for CAFOs, including guidelines concerning animal confinement and manure storage areas, as well as land application and off-site transfer of manure.

Turkey Operation



Source: Gene Alexander

- Applying the effluent guidelines to all facilities that meet the "Definition of a concentrated animal feeding operation" as described in the previous section on changes to the NPDES CAFO regulations (i.e., three-tier and two-tier structures).

Animal confinement and manure storage areas

- Requiring all beef and dairy CAFOs and new swine, poultry, and veal CAFOs to perform an assessment to determine whether a hydrologic link exists from ground water beneath the feedlot and manure storage area to surface water.
- Adopting a zero discharge requirement with no overflow allowance for swine, veal, and poultry CAFOs.
- Requiring routine inspections of the production area to ensure that wastewater and manure handling and storage are functioning properly.
- Requiring installation of depth markers for liquid impoundments (e.g., lagoons, ponds, and tanks) that are open and capture precipitation.
- Requiring CAFOs to handle dead animals in ways that prevent contributing pollutants to waters.

Land application and off-site transfer of manure

- Requiring CAFO operators to determine the nutrient needs of their crops based on realistic crop yields, to sample soil to determine nutrient content, and to refrain from applying manure in quantities that exceed the land-application rate calculated using the Phosphorus Index, Phosphorus Threshold, or Soil Test Phosphorus Method (NRCS 590 Standard).
- Establishing setback requirements that prohibit applying manure and wastewater within 100 feet of surface water.

- Requiring CAFOs to maintain records on the amount and destination of manure and wastewater transferred off-site.

What are the costs of the proposed regulations?

EPA estimates that the proposed regulations will result in compliance costs to CAFO operators of \$850 million to \$940 million per year, depending on which proposals are finalized.

Poultry Operation



Source: USDA ARS Image Gallery

How many AFOs will be regulated as CAFOs?

EPA's proposals would regulate between 26,000 and 39,000 AFOs or 5 to 10 percent of all AFOs, and would address 60 to 70 percent of all AFO manure.

When will the proposed regulations become final and be implemented?

EPA plans to take final action on these regulations by December 15, 2002 (published approximately by January 2003).

For newly defined CAFOs, permits will not be required until 3 years after the final regulations are published (January 2006).

Once the proposed regulations are final, the new requirements will be in effect immediately for new or reissued permits.

How to obtain a copy of the proposed regulations:

On December 15, 2000, Administrator Browner signed the proposed revisions to the NPDES regulations and effluent guidelines for CAFOs. On January 12, 2001, the *Federal Register* published these proposed revisions. You can obtain a copy by going to the EPA Office of Waste-water Management's web site at <http://www.epa.gov/owm/af0.htm>.

How to comment on the proposed regulations:

EPA encourages all interested individuals and groups to comment on these proposed regulations. The public comment period begins on the day the regulations are published in the *Federal Register* and is open for comment until July 30, 2001. You may send your comments to EPA in a number of ways.

- By e-mail: CAFOs.comments@epa.gov
- By postal service:
Concentrated Animal Feeding Operation Proposed Rule
USEPA Office of Water
Engineering and Analysis Division (4303)
1200 Pennsylvania Avenue, NW
Washington, DC 20460
- By hand delivery:
Concentrated Animal Feeding Operation Proposed Rule
USEPA Office of Water
401 M Street, SW
Room 611 West Tower
Washington DC 20460

Please submit any references cited in your comments. Please submit an original and three copies of your written comments and enclosures.

EPA suggests that you contact organizations of which you are a member to find out if the organizations are commenting on the proposed regulations.

If you have any questions about this process, please call the **CAFO HOTLINE** at (202) 564-0766.

United States
Environmental Protection
Agency (4203)
Washington, DC 20460

Official Business
Penalty for Private Use \$300

Where can I find more information on CAFOs?

Additional information on NPDES regulations and effluent guidelines affecting CAFOs can be obtained by contacting the EPA headquarters Office of Wastewater Management and Office of Science and Technology or your nearest EPA Regional Office contact listed below.

Office of Wastewater Management
Permits Division (4203)
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460
(202) 564-0766, (202) 564-6384 Fax

Office of Science and Technology
Engineering and Analysis Division (4303)
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460
(202) 564-0766, (202) 260-7185 Fax

Mr. Bruce Rosinoff
Office of Ecosystem Protection
United States Environmental Protection Agency
Region 1, One Congress Street
John F. Kennedy Federal Building
Boston, MA 02203-0001
(617) 918-1698, (617) 918-1505 Fax

Ms. Andrea Coats
Division of Environmental Planning and Protection
United States Environmental Protection Agency
Region 2, 290 Broadway
New York, NY 10007-1866
(212) 637-3850, (212) 637-3772 Fax

Ms. Mary Letzkus
Water Protection Division
United States Environmental Protection Agency
Region 3, 1650 Arch Street
Philadelphia, PA19103
(215) 814-2087, (215) 814-2301 Fax

Ms. Hilda Hatzell
Water Management Division
United States Environmental Protection Agency
Region 4, 61 Forsyth Street
Atlanta, GA 30303
(404) 562-9445, (404) 562-8692 Fax

Mr. Stephen Jann
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United States Environmental Protection Agency
Region 5, 77 West Jackson Boulevard
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(312) 886-2446, (312) 353-4135 Fax

Mr. Kenneth Huffman
Water Quality Protection Division
United States Environmental Protection Agency
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1445 Ross Avenue
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Mr. Ralph Summers
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United States Environmental Protection Agency
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(913) 551-7418, (913) 551-7765 or 7165 Fax

Ms. Debra Thomas
Office of Partnership and Regulatory Assistance
United States Environmental Protection Agency
Region 8, 999 18th Street, Suite 300
Denver, CO 80202-2466
(303) 312-6373, (303) 312-6741 Fax

Ms. Shirin Tolle
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United States Environmental Protection Agency
Region 9, 75 Hawthorne Street
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(415) 744-1898, (415) 744-2499 Fax

Mr. David Allnut
Office of Water
United States Environmental Protection Agency
Region 10, 1200 Sixth Avenue
Seattle, WA 98101
(206) 553-2581, (206) 553-0163 Fax