

State Compendium - Region 8

Programs and Regulatory Activities Related to Animal Feeding Operations

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CHAPTER 1. INTRODUCTION

This compendium has been developed to support the U.S. Environmental Protection Agency's (EPA) efforts to address the environmental and public health problems associated with animal feeding operations (AFOs) and concentrated animal feeding operations (CAFOs). The compendium is a compilation of AFO-related state program and state initiative information intended to illustrate how states are regulating AFOs, with a specific focus on the use of permits or similar mechanisms. This document is not intended as an evaluation of the effectiveness of individual state efforts.

Most of the State programmatic and regulatory information gathered and presented in this document pertains to controlling water quality impacts from AFOs. Although some states have designed regulatory standards to control non-water quality impacts (e.g., setback requirements for odor control), the vast majority of information presented is based on state efforts to address water quality and nutrient management issues.

The *Compendium* has been compiled from a number of publicly available information sources, including:

- Previously published research and existing surveys of State AFO and CAFO programs
- World Wide Web pages of state governments, agencies, and national agriculture organizations
- Select publicly accessible state statutes and regulations (generally accessed via the Web)
- National Pollutant Discharge Elimination System (NPDES) permits developed for CAFOs
- Summaries of State program information provided by EPA regional offices

Based on these sources of publicly available information, the *Compendium* represents a reasonable appraisal of how states are addressing AFO-related environmental problems. Nevertheless, the information presented here is subject to several important limits. First, in compiling this compendium no new formal survey of the states was conducted, nor was a comprehensive review of each state's regulations undertaken, as both were beyond the scope of this task. Thus, in some instances information presented here may be limited or minor gaps may exist. Second, state regulation of AFOs and CAFOs can be complex, involving both federal and state laws and regulations, often originating at the state level from several different agencies, with numerous variations in approaches, requirements, and jurisdiction among the different states. Consequently, different levels of information may be available among states and even between relevant agencies within a state. Finally, the various sources of publicly available information used were reviewed and compiled over a period of time during which many States were reexamining and revising their AFO regulations. As a result, this compendium is by necessity a working document that depicts reasonably current practices, but may in some instances be superseded by recent state programmatic and regulatory changes. The information presented here must be considered subject to these limits and specific regulatory requirements should be verified with state or EPA authorities as appropriate.

The *Compendium of State AFO Programs* consists of four chapters, including this introduction, and three Appendices. Chapter 2 of this document provides a national overview of State AFO initiatives based on the publicly available data. It attempts to summarize how states regulate

AFOs and highlights key aspects of State AFO programs.

Chapter 3 presents individual state profiles. Each profile includes available information addressing: background, lead regulatory agency, state regulations regarding AFO/CAFOs, types of permits, permit coverage, permit conditions, enforcement information, state voluntary programs, additional state-specific information, and references.

Finally, the *Compendium* contains three Appendices. Appendix A describe methods used to develop the *Compendium* and highlights the limits of the data collection efforts. Appendix B lists some of the more frequently used acronyms. Appendix C provides a glossary of useful terms associated with animal feedlots.

CHAPTER 2. NATIONAL SUMMARY OF STATE INITIATIVES

This chapter presents a national overview of state AFO regulatory programs and initiatives based on a review of publicly available data. The discussion begins with a brief review of the respective federal and state roles in administering the National Pollutant Discharge Elimination System (NPDES) program (Section 2.1), followed by a summary of the federal regulations addressing AFOs and CAFOs (Section 2.2). The remainder of this chapter summarizes State Programs/Initiatives (Section 2.3) and Recent State Initiatives/Trends (Section 2.4).

2.1 Overview of EPA/State Roles in NPDES Program

Under the Clean Water Act (CWA), NPDES permits may be issued by EPA or any state authorized by EPA to implement the NPDES program. Currently, 44 states are authorized to administer the base NPDES program.¹ (The base program includes the federal requirements applicable to AFOs and CAFOs, which are discussed below).² To become an authorized NPDES state, the requirements imposed under a State's NPDES program must at a minimum be as stringent as the requirements imposed under the federal NPDES program. The states, however, may impose requirements that are broader in scope or more stringent than the requirements imposed under the federal NPDES program. In states not authorized to implement the NPDES program, the appropriate EPA Regional office is responsible for implementing the NPDES program.

Regarding the regulation of AFOs, 44 of the states authorized to implement the NPDES program have some form of program requirements generally deemed to be as stringent as the federal requirements applicable to AFOs. Yet, it appears that only a handful of states rely solely on their State NPDES regulations to address CAFOs. Rather, most use their NPDES regulations as one part of their CAFO program and supplement these requirements with additional provisions.

Because the federal CAFO regulations constitute the core program requirements in many authorized states and are used for purposes of comparison and summary in this document, these regulations are briefly summarized below.

2.2 Overview of EPA AFO/CAFO Definitions and Effluent Limits, Under the Federal NPDES Program

Under the federal NPDES program, EPA has developed regulations that define which facilities constitute AFOs and which constitute CAFOs. Under these regulations, facilities that constitute CAFOs are defined as point sources for purposes of the NPDES program. No facility may discharge pollutants from a point source to waters of the United States without a NPDES permit.

¹ State NPDES authorization may be obtained for the base program, as well as for components addressing federal facilities, pretreatment, general permits, and sludge. The Virgin Islands is also authorized to administer the NPDES program.

² Alaska, Arizona, Idaho, Massachusetts, New Hampshire, and New Mexico are not authorized to implement the NPDES program. Oklahoma is delegated to implement the NPDES program, however; Oklahoma does not issue a general NPDES permit specifically for CAFOs and is in effect unauthorized to administer the CAFO portion of the NPDES program. Oklahoma CAFOs should apply for coverage under the general NPDES CAFO permit issued by U.S. EPA Region 6 (See 63 FR 53002).

The existing federal regulatory definitions of AFOs and CAFOs are provided at 40 *C.F.R.* § 122.23 and Part 122, Appendix B. These regulations define an AFO as a facility that meets the following criteria:

- Animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period.
- Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.³

Federal regulations define a CAFO generally as an animal feeding operation that:

- Confines more than 1,000 animal units (AUs)⁴, or
- Confines between 301 to 1,000 AUs and discharges pollutants:
 - ▶ Into waters of the United States through a man-made ditch, flushing system, or similar man-made device, or
 - ▶ Directly into waters of the United States that originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

The CAFO regulatory definition also provides that facilities that discharge pollutants only in the event of a 25-year, 24-hour storm event are not defined as CAFOs.

Under existing federal regulations, the permitting authority (e.g., EPA or an authorized state) can designate an AFO as a CAFO upon determining that the operation is a significant contributor of pollution to waters of the United States. This determination, which takes a number of factors into account (e.g., slope, vegetation, and the proximity of the operation to surface waters), is based on an onsite inspection by the agency that issues the permits and is subject to certain discharge conditions.

In addition to the provisions that define AFOs and CAFOs, EPA has promulgated an effluent limitation guideline (ELG) applicable to feedlots (feedlots are defined in the same manner as CAFOs) (see 40 *C.F.R.* § 412). This regulation generally establishes that CAFOs are subject to a zero discharge standard except for discharges, resulting from a catastrophic or chronic storm event, that occur from a properly maintained and operated waste management system designed to control waste and runoff from a 25-year, 24-hour storm.

2.3 State Programs/Initiatives

³ 40 *CFR* 122.23 (b)(1).

⁴ The following examples are animal quantities equivalent to 1,000 animal units: 1,000 slaughter and feeder cattle, 700 mature dairy cattle, 2,500 swine each weighing more than 25 kilograms, 30,000 laying hens or broilers (if a facility uses a liquid manure system), and 100,000 laying hens or broilers (if a facility uses continuous overflow watering). See 40 *CFR* Part 122, Appendix B.

The national summary of state programs and initiatives is divided into four categories: (1) regulatory programs used by states, (2) State definitions of CAFO/AFO, (3) use of general versus individual permits, and (4) key permit conditions.

2.3.1 Regulatory Approach

Figure 1 provides a state-by-state depiction of the AFO permitting mechanisms available in each state. States have five categories of permitting mechanisms:

- Federally Administered NPDES Program
- Federally Administered NPDES Program and State Administered Non-NPDES Program
- State Administered NPDES Program only
- State Administered NPDES Program and State Administered Non-NPDES Program
- State Administered Non-NPDES Program only

As discussed above, 44 states are authorized to implement the base NPDES CAFO program. As illustrated in Figure 1 and summarized in Table 1, of the 44 states authorized to implement the NPDES CAFO program:

- Thirty-two states administer a State NPDES CAFO program in combination with some other state permit, license, or authorization program. Typically, this additional State authorization is a construction or operating permit.
- Seven states regulate CAFOs exclusively under their state NPDES authority (HI, NJ, NV, NY, RI, TN, WV).
- six states have chosen to solely regulate CAFOs under State non-NPDES programs (CO, MI, NC, OR, SC, VA).

Of the six states not authorized to administer the NPDES program:

- Three rely solely on federal NPDES permits to address CAFOs (AK, MA, NH).
- Three impose some form of a state non-NPDES program requirement, although EPA remains responsible for administering the NPDES CAFO requirements in these states (AZ, ID, NM).

While Oklahoma is one of the 44 NPDES-delegated states, Oklahoma does not have a general NPDES permit specific to CAFOs. In this special case, Region 6 administers the portion of Oklahoma's NPDES program that deals with CAFOs by covering Oklahoma CAFOs under the Region 6 general NPDES permit for CAFOs. Oklahoma also uses a State non-NPDES operating permit to regulate state CAFOs.

Overall, 28 states have a combination of permitting mechanisms available for addressing environmental impacts from AFOs. Eleven states exclusively regulate CAFOs under a state or federal NPDES program. Five states (CO, MI, NC, SC and OR) only regulate AFOs under a

state non-NPDES program, with Colorado and Michigan not requiring any AFOs to obtain any form of operating permit.

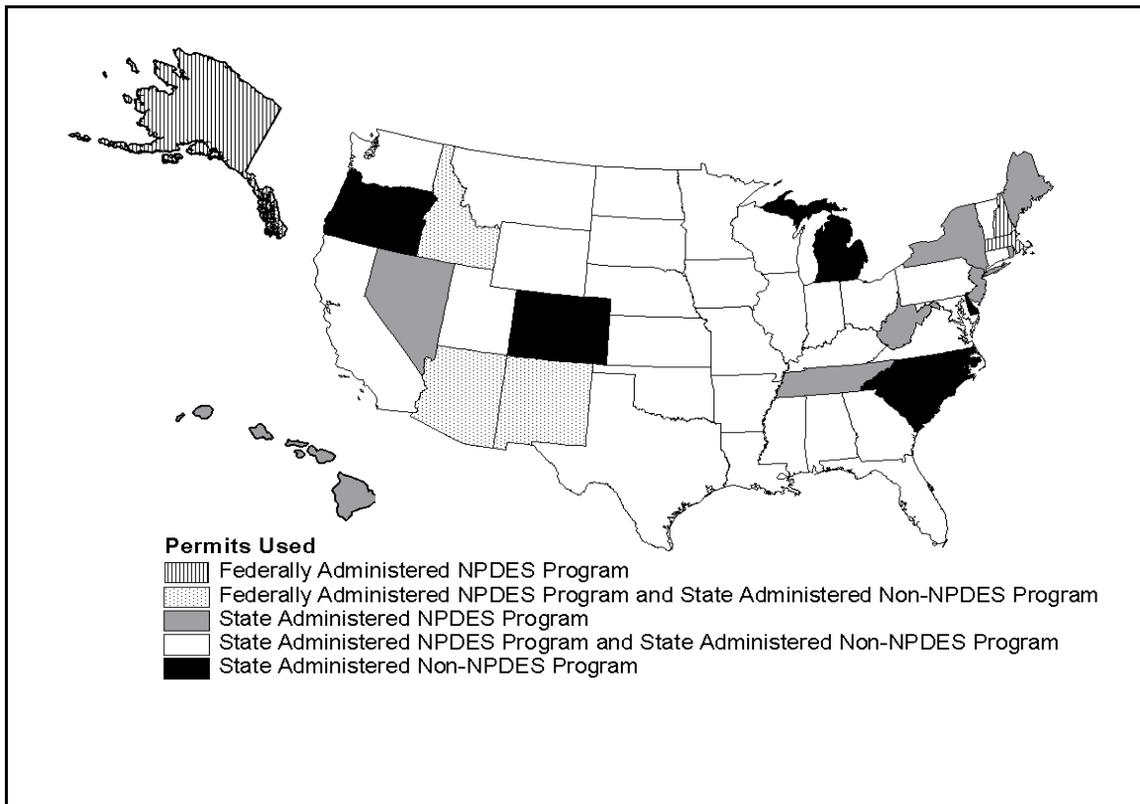


Figure 1. Regulatory Mechanisms for AFO Permitting in Each State

2.3.2 State Definitions of CAFO

EPA and state definitions of a CAFO are important because the definitions determine the scope of the existing federal and state regulatory programs. EPA's definition of a CAFO is based on the length of time animals are confined, the number of animals confined (animal units), and whether or not the facility directly discharges pollutants into waters of the United States. Virtually all state NPDES CAFO programs use the federal definition for CAFO. The vast majority of states also use the federal definition of CAFO for State non-NPDES CAFO programs. Several states, however, use a lower numeric threshold (number of animal units) for non-NPDES permitting. For example, Minnesota issues individual NPDES permits to confined feeding operations as defined by federal regulation and State feedlot permits (non-NPDES) to facilities with more than 10 animal units (calculated by using the formula used in the federal definition).

States that use the federal definition of CAFO may also increase the scope of coverage required through state NPDES programs by reducing the number of animals (number of animal units) a facility can confine before being subject to permitting.

Table 1. Identification of Permit Type and Permit Requirements Within State AFO Programs in the United States¹

| State | State NPDES | State Control Mechanism ² (non-NPDES) | | General/ Individual Permits | | | | Permit Conditions ³ | | | |
|-------|-----------------|---|-----------|-----------------------------|------------|-----------------|------------|--------------------------------|------------|------------------|---------|
| | | Construction | Operating | NPDES | | State non-NPDES | | Effluent ⁴ | Management | Land Application | |
| | | | | General | Individual | General | Individual | | | Agronomic Rates | Offsite |
| AL | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | |
| AK | ND ⁵ | | | | | | | | | | |
| AR | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| AZ | ND | | ✓ | ✓ | | ✓ | | | | ✓ | |
| CA | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | |
| CO | * | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | |
| CT | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| DE | ✓ | | ✓ | | | | | | ✓ | | |
| FL | ✓ | ✓ | ✓ | | ✓ | | | ✓ | ✓ | ✓ | |
| GA | ✓ | | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | |
| HI | ✓ | | | | ✓ | | | | | | |
| IA | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| ID | ND | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| IL | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| IN | ✓ | ✓ | ✓ | | ✓ | | | | ✓ | ✓ | |
| KY | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| KS | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

Information contained on this page is subject to the limitations described on page one of chapter one of this document.

Table 1. Identification of Permit Type and Permit Requirements Within State AFO Programs in the United States¹

| State | State NPDES | State Control Mechanism ² (non-NPDES) | | General/ Individual Permits | | | | Permit Conditions ³ | | | |
|-------|-------------|---|-----------|-----------------------------|------------|-----------------|------------|--------------------------------|------------|------------------|---------|
| | | Construction | Operating | NPDES | | State non-NPDES | | Effluent ⁴ | Management | Land Application | |
| | | | | General | Individual | General | Individual | | | Agronomic Rates | Offsite |
| LA | ✓ | | ✓ | | ✓ | | ✓ | ✓ | ✓ | | |
| MA | ND | | | | | | | | | | |
| MD | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| ME | ✓ | | ✓ | | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| MI | * | | | | | | | | | | |
| MN | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| MO | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| MS | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | |
| MT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| NE | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| NC | * | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| ND | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| NH | ND | | | | | | | | | | |
| NJ | ✓ | | | | ✓ | | | | | ✓ | |
| NM | ND | | ✓ | | | | ✓ | | ✓ | ✓ | |
| NV | ✓ | | | | ✓ | | | | | | |
| NY | ✓ | | | ✓ | ✓ | | | ✓ | ✓ | ✓ | |

Table 1. Identification of Permit Type and Permit Requirements Within State AFO Programs in the United States¹

| State | State NPDES | State Control Mechanism ² (non-NPDES) | | General/ Individual Permits | | | | Permit Conditions ³ | | | |
|---------------|-------------|---|-----------|-----------------------------|------------|-----------------|------------|--------------------------------|------------|------------------|---------|
| | | Construction | Operating | NPDES | | State non-NPDES | | Effluent ⁴ | Management | Land Application | |
| | | | | General | Individual | General | Individual | | | Agronomic Rates | Offsite |
| OH | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | |
| OK | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | | |
| OR | * | ✓ | ✓ | | | ✓ | ✓ | | | ✓ | |
| PA | ✓ | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| RI | ✓ | | | | ✓ | | | | | | |
| SC | * | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| SD | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ |
| TN | ✓ | | | ✓ | ✓ | | | ✓ | ✓ | ✓ | |
| TX | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| UT | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | |
| VA | ✓ | | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| VT | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | |
| WA | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| WI | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | |
| WV | ✓ | | | | | | | ✓ | ✓ | ✓ | |
| WY | ✓ | ✓ | | | ✓ | | ✓ | ✓ | ✓ | ✓ | |
| Totals | 38 | 27 | 36 | 20 | 32 | 12 | 31 | 35 | 38 | 40 | 8 |

Table 1. Identification of Permit Type and Permit Requirements Within State AFO Programs in the United States¹

| State | State NPDES | State Control Mechanism ² (non-NPDES) | | General/ Individual Permits | | | | Permit Conditions ³ | | | |
|-------|-------------|---|-----------|-----------------------------|------------|-----------------|------------|--------------------------------|------------|------------------|---------|
| | | Construction | Operating | NPDES | | State non-NPDES | | Effluent ⁴ | Management | Land Application | |
| | | | | General | Individual | General | Individual | | | Agronomic Rates | Offsite |
| | | | | | | | | | | | |

¹ Blank data cells indicate that the program element was not a primary component of the state program or information was not sufficient to make a determination.

² State control mechanisms include all forms of formal state approval required to construct or operate an AFO, such as state issued non-NPDES permits, letters of approval, and certificates of coverage.

³ Permit conditions are requirements imposed through either NPDES or state non-NPDES programs.

⁴ Effluent limits refer to whether or not a state imposes federal effluent limits to AFOs/CAFOs (i.e., no discharge allowed except during 25 year, 24- hour storms). A check could indicate that a state imposes effluent limits that are more strict than the federal requirements (e.g., Arkansas does not allow any discharges regardless of storm events).

⁵ ND = States not authorized to administer the NPDES program.

* Although authorized to administer the NPDES program, the state chooses to use a separate program to address AFOs.

Some states have unique definitions for their livestock regulatory programs that do not follow the federal definition (See Table 2). States typically base their definition on number of animals confined, weight of animals and design capacity of waste control system, or gross income of agricultural operation. These definitions are exclusively applied to State non-NPDES programs.

Table 2. Selected State CAFO Definitions that Differ from the EPA Definition and Use of the Definition in Regulatory Control

| State | Classification Scheme | Facilities Subject to State Non-NPDES Regulatory |
|----------------|--|---|
| Indiana | Number of animals | Operation with 600 swine, 300 cattle, or 30,000 birds |
| Iowa | Weight of animals in a confinement feeding operation | Permitting threshold for construction permit based on type of waste control system and design capacity (based on weight) of that system (e.g., an anaerobic lagoon with a design capacity of 400,000 lbs of bovine requires construction permits) |
| Kansas | Number of animals | Operations with 300 animal units |
| Maryland | Gross income and animal units | All agricultural operations with incomes of at least \$2,500 or eight animal units |
| North Carolina | Number of animals | Operations designed for 100 head of cattle, 75 horses, 250 swine, 1,000 sheep, or 30,000 birds |

One important difference between state livestock regulatory programs and the federal program is that numerous states have addressed the issue of authority to issue permits (or other control mechanisms) to CAFOs by requiring that all or a specified subgroup of CAFOs regardless of whether they have a direct point source discharge of pollutants to U.S. waters obtain a permit.⁵ This requirement is imposed under state, not federal regulations.

For example, Arkansas requires all AFOs that use a liquid waste management system to obtain permit coverage under either the State-issued general permit or an individual permit. AFOs with dry waste management systems are not automatically required to obtain a permit; however, all facilities with more than 1,000 animal units are subject to coverage under the State's general permit. This is an important distinction because states have opted to expand the scope of facilities that fall within the definition of a CAFO by eliminating the requirement that a facility must have a discharge before being considered a CAFO. In other words, states are requiring large facilities with a potential to discharge to abide by CAFO rules.

2.3.3 General/Individual Permits

The regulation of CAFOs is challenging, in part, because of the large number of facilities across the country. In 1995 it was estimated that 450,000 operations nationwide confined or concentrated animals, of which a very conservative estimate indicated that at least 6,600 had

⁵ Preliminary data indicate that the following states require all or a subset of CAFOs (under various definitions) to obtain permits: AL, AR, AZ, CO, DE, IA, ID, IN, KS, KY, MN, MS, NC, OH, OR, SC, WY.

more than 1,000 animal units and may have been considered CAFOs under the federal definition⁶. More recent estimates describe an AFO universe of approximately 375,700 operations of which approximately 12,600 are AFO operations with more than 1,000 AUs, 26,500 are AFO operations with 300-1,000 AUs, and 336,600 are AFO operations with fewer than 300 AUs.⁷ One way of reducing the administrative burden associated with permitting such large numbers of facilities is through general permits. Existing regulations provide that general permits may be issued to cover a category of discharges within a geographic region. Within such areas, general permits may regulate either storm water point sources or a category of point sources that involves similar operations with similar wastes. Operations subject to the same effluent limitations and operating conditions, and requiring similar monitoring, are most appropriately regulated under a general permit. EPA and the states are using general permits to regulate CAFOs, and this trend appears to be increasing. South Dakota, for example, has established two general permits for CAFOs, one to address swine operations and another for all other livestock.

Of the 44 states authorized to implement the NPDES program:

- Twenty have issued a State NPDES general permit for CAFOs (this number excludes federally issued general permits).
- Twelve have issued a state non-NPDES general permit for CAFOs.

Of the six states not authorized to administer the NPDES program (this excludes Oklahoma), four are subject to a federal general permit.⁸

2.3.4 Permit Conditions

Normally, a NPDES permit will include several types of permit conditions, including technology-based effluent limits (i.e., zero discharge except for discharges resulting from chronic or catastrophic rainfall events if a facility is designed to hold process wastewater and runoff from a 25-year, 24-hour storm for CAFOs subject to § 412), water quality-based effluent limits (if the technology-based limit will not ensure compliance with State water quality standards), monitoring and reporting conditions, special conditions (e.g., conditions that impose additional controls beyond numeric limits, such as best management practices [BMPs]), and standard conditions (e.g., duty to comply, duty to ensure proper operation, and duty to provide information).

The federal technology-based effluent limit for CAFOs is “no discharge.” The effluent limit includes an exception in the event of chronic or catastrophic rain for facilities that have been

⁶ *Animal Agriculture: Information on Waste Management and Water Quality Issues*, General Accounting Office, 1995.

⁷ 66 *FR* 2985, January 12, 2001.

⁸ CAFOs in New Mexico and Oklahoma are subject to an EPA Region 6 general permit; facilities in Idaho and Alaska are subject to an EPA Region 10 permit, although no facilities are covered under a NPDES permit in Alaska; and CAFOs in Arizona are subject to an EPA Region 9 general permit, although no facilities are covered under the general permit. New Hampshire, and Massachusetts are located in EPA Region 1, which does not have a general NPDES permit for CAFOs.

designed, constructed, and operated to contain all waste water and runoff from a 25-year, 24-hour storm. States not authorized to implement the NPDES program must use this federal effluent limit.

Authorized states generally are equally as stringent, but may be more stringent. Based on a review of available data, of the 44 states authorized to implement the NPDES program 34 use the federal effluent limitation guideline and 6 use a more stringent limit.

Some states with more stringent effluent limits may partially or totally prohibit discharges related to storm events. In Arkansas, for example, the effluent limit prohibits discharges from liquid waste management systems, including periods of precipitation greater than the 25-year, 24-hour storm event. California requires no discharges from new waste control structures even during 100-year storms. And in Iowa, confinement feeding operations (i.e., roofed AFOs) are prohibited from any direct discharge and must dispose of manure in a manner that will not cause a pollution of surface or ground water.

A key concern regarding the management of CAFO waste is ensuring appropriate land application. Land application is the primary management practice used by CAFOs to dispose of animal waste. Several estimates indicate that 90 percent of CAFO-generated waste is land applied. Where properly done, land application of CAFO waste fosters the reuse of the nitrogen, phosphorus, and potassium in these wastes for crop growth. However, where such wastes are excessively or improperly applied, land application can contribute to water quality impairment. Thirty-four states impose requirements addressing land application either through NPDES or non-NPDES programs. Typical requirements include that CAFO waste be applied at agronomic rates and that CAFO operators develop Waste Management Plans.

The breakout of state requirements is as follows:

- Forty states require that CAFO waste be land applied at agronomic rates.
- Thirty-eight states require the development and use of Waste Management Plans.
- One state, Georgia, issues land application system (LAS) permits.

Agronomic rates are typically based on the nitrogen needs of crops, although some states specify that waste be applied at agronomic rates for nitrogen and phosphorous. The determination of agronomic rates varies from state to state. Some states do not address how agronomic rates should be determined, while others, such as Colorado, require CAFO operators to complete detailed plans and field sampling to determine the appropriate amount of waste that can be land applied.

The complexity and details required in a waste management plan also vary among states. Some states do not explicitly identify what items must be addressed in a waste management plan, whereas others have detailed requirements. Typically, CAFO operators are required to address these items in a waste management plan:

- Estimates of the annual volume of waste.
- Schedules for emptying and applying wastes.
- Rates and locations for applying wastes.
- Provisions for determining agronomic rates (i.e., soil testing).

- Provisions for conducting required monitoring and reporting.
- Written agreements with landowners to accept liquid waste.

2.4 Recent State Initiatives/Trends

One clear indication that states have an increasing interest in expanding their efforts to control water quality impacts from AFOs is the promulgation of new state AFO laws, regulations and program initiatives. At least 28 states have developed new laws or regulations related to AFOs since 1996. For example, Kansas, Kentucky, North Carolina, and Wyoming passed legislation regarding swine facilities, with Kentucky and North Carolina imposing moratoriums on the expansion of swine AFOs until state management/regulatory plans could be developed. Mississippi also has imposed a 2-year moratorium on any new CAFOs.

Alabama's recent efforts include developing an NPDES general permitting rule and a Memorandum of Agreement outlining state agency responsibilities as they relate to AFOs. Washington's Dairy Law subjects all dairy farms with more than 300 animal units to permitting and requires each facility to develop NRCS-approved nutrient management plans. Indiana's Confined Feeding Control Law also requires AFOs to develop waste management plans and receive state approval for operating AFOs.

2.5 Summary

State efforts to manage AFOs are carried out through issuance of NPDES permits and state issued non-NPDES permits and/or authorizations. State AFO regulatory programs are directed in large part at controlling the potential environmental impacts on surface water, but also at protecting ground water and managing industry growth. State permits and/or authorization requirements are often imposed regardless of NPDES requirements. State non-NPDES AFO programs are often more stringent than NPDES programs and state efforts often extend coverage to smaller classes of AFOs. Further, the implementation of state non-NPDES programs often receives more agency attention than the implementation of NPDES programs, with several states actively choosing not to use NPDES permits.

While specific state efforts relating to AFOs vary, most states regulate facilities through permitting programs that require animal waste disposal systems to be constructed to prevent the discharge of animal wastes to waters of the United States. Coverage under state permitting programs depends on such criteria as facility size, potential for discharge, type of facility, and type of waste control. Information indicates that state agencies are increasing their commitment of resources to address environmental concerns from AFOs.

CHAPTER 3. STATE PROFILES

This chapter presents individual profiles of state programmatic and regulatory efforts addressing AFOs for each of the 50 states. These profiles provide a state-by-state summary of the key elements within State AFO regulatory programs. The profiles summarize existing State activities to address environmental and health impacts from AFOs. The profiles provide a comprehensive overview of each State program, including the following:

- A description of the lead regulatory agency(ies) (i.e., permitting authority) and agency(ies) responsible for directing voluntary programs.
- State regulations that address AFOs and voluntary programs that encourage regulatory compliance or the use of best management practices.
- The types of permits issued and the permitting processes for each state, the circumstances for which permits are required (i.e., permit coverage), and the requirements and responsibilities of AFO owners and operators (i.e., permit conditions).
- State enforcement activities, inspection programs, and staffing and funding levels dedicated to addressing AFOs.
- Examples of innovative or interesting state projects or programs to control the potential negative environmental impacts of AFOs.

If information on a particular program element was not readily available, or not identified, the following phrase was used: “no information was found in publicly available sources.” Figure 3.1 presents the outline used for each of the state profiles.

| | |
|------|--|
| 1.0 | Background |
| 2.0 | Lead Regulatory Agency |
| 3.0 | State Regulations Regarding AFOs/CAFOs |
| 4.0 | Type of Permits <i>NPDES</i> <i>Other (general use or general agriculture permits, construction permits, and operating permits)</i> |
| 5.0 | Permit Coverage (potential nuisance and/or location) |
| 6.0 | Permit Conditions <i>Approvals (permits, letters of intent, or certificates of coverage)</i> <i>Lagoon Design and Specifications (seepage limits, etc.)</i> <i>Discharge Rules</i> <i>Waste Management Plans</i> <i>Separation Distances</i> <i>Land Application Requirements</i> <i>Other Requirements</i> |
| 7.0 | Enforcement Information <i>General Enforcement Information</i> <i>General Inspection Information</i> |
| 8.0 | Voluntary Programs |
| 9.0 | Additional State-Specific Information <i>Cooperative Extension Service</i> <i>Comprehensive Nutrient Management Plan (CNMP)</i> <i>Memorandums of Understanding/Agreement (MOUs/MOAs)</i> <i>Other Information</i> |
| 10.0 | References |

Figure 3.1 Outline for Profiles of State Programs and Regulatory Activities Related to Animal Feeding Operations

Colorado's CAFO Program

1.0 Background

Colorado is a significant beef-producing state, generally ranking fourth in the nation for the number of beef cattle on feed. Colorado Agricultural Statistics indicates approximately 2,200 animal feeding operations in Colorado, including dairy and swine facilities and facilities with animals on feed (CODPHE, 2000a). Based on information provided to EPA by the U.S. Department of Agriculture (USDA), there are 170 AFOs with 300 to 1,000 animal units and 210 AFOs with more than 1,000 animal units in Colorado. These are primarily in the beef sector (USDA, 1999; USDA, 2000).

On November 3, 1998, Colorado approved Amendment 14 to the air quality and water quality statutes that required the Air Quality Control Commission and Water Quality Control Commission to develop regulations for housed commercial swine feeding operations. Amendment 14 added a new section, 25-8-501.1, to the Colorado Water Quality Control Act and amended section 25-8-504. These provisions established a new requirement that an individual discharge permit be obtained by any person who operates, constructs, or expands a "housed commercial swine feeding operation." The Commission also adopted revisions to the Colorado Discharge Permit System Regulations to implement these new requirements. Corresponding revisions also were adopted for the Confined Animal Feeding Operations Control Regulation, Regulation No. 81 (5 CCR 1002-81), to avoid regulatory overlap. Amendment 14 required the air commission to promulgate regulations by March 1, 1999, and the water commission to have promulgate regulations by March 31, 1999, to implement the statutory amendments. The Confined Animal Feeding Operations Control Regulation, Regulation No. 81, was amended on March 9, 1999, and became effective on April 30, 1999. Affected hog operations were to be in compliance by July 1, 1999 (CODPHE, 2000b).

2.0 Lead Regulatory Agency

The Colorado Department of Public Health and Environment (CODPHE), Water Quality Control Division administers the Colorado Discharge Permit System Regulations. More information about the Department and the Division can be found at www.cdphe.state.co.us/cdphehom.asp and www.cdphe.state.co.us/wq/wqhom.asp, respectively.

3.0 State Regulations Regarding AFOs/CAFOs

A description of Regulation No. 81, Confined Animal Feeding Operations Control Regulation (5 CCR 1002-81), can be found at www.cdphe.state.co.us/ap/81reg.pdf. In addition, housed commercial swine feeding operations must comply with the relevant sections of Regulation No. 61. These requirements can be found at www.cdphe.state.co.us/ap/wq14mar.pdf.

4.0 Types of Permits

The Commission intends Regulation No. 81 to be a self-implementing control regulation that requires no permit as a condition for operation of a confined animal feeding facility, whether concentrated or not. The Commission has found, however, that planning is necessary to ensure that CAFOs meet the regulation's requirements. To better monitor compliance with this self-implementing regulation and to be more responsive to public inquiries, the Division needs to be informed of the existence and operation of CAFOs. Therefore, the adopted rule requires new,

reactivated, reconstructed, and expanded CAFOs, as well as existing operations that are in significant noncompliance, to submit to the Division a Manure and Process Wastewater Management Plan (CODPHE, 2000c).

NPDES

Colorado is authorized to administer the NPDES permit program, although it does not require any permit for animal or agricultural waste on farms and ranches except as may be required by the federal act or regulations or by section 25-8-501.1, C.R.S., of the state regulations, which requires permits for housed commercial swine feeding operations. Permits for animal or agricultural waste on farms and ranches that are not housed commercial swine feeding operations are not any more stringent than the minimum provisions required by the federal act or regulations and do not contain any condition for monitoring or reporting in excess of that minimum(CODPHE, 2000b).

Other

New housed commercial swine feeding operations must include the following with their permit application (CODPHE, 2000b):

- Calculations that identify the maximum proposed animal capacity.
- Construction plan.
- Operations plan.
- Swine waste management plan, except for non-land-application facilities.
- Monitoring plan.
- Financial assurance plan (financial assurances for the final closure of the housed commercial swine feeding operation and the conduct of any necessary post-closure activities, such that any contamination resulting from actions after the effective date of the regulation is remediated and future contamination is avoided).
- Documentation that the operations will meet the definition of “non-land-application facility” for non-land-application facilities.

Existing housed commercial swine feeding operations must include the following with their permit application (CODPHE, 2000b):

- Calculations that identify the maximum proposed animal capacity.
- Construction plan.
- Information regarding the existing swine waste management practices.
- Documentation that the operations will meet the definition of “non-land-application facility” for non-land-application facilities.

5.0 Permit Coverage

Colorado’s CAFO Control Regulation identifies CAFOs in a manner similar to the federal definition, although Colorado’s regulation addresses only operations with 1,000 or more animal units and adds an additional criterion for the case-by-case considerations: The animal feeding operation in a location that reasonably could be expected to adversely affect a hydrologically sensitive area would also be considered a CAFO (CODPHE, 2000a).

Two or more animal feeding operations under common ownership or management are deemed to

be a single animal feeding operation if they are adjacent or use a common area or system for manure disposal.

No person can operate, construct, or expand a housed commercial swine feeding operation without first having obtained an individual discharge permit from the Division (CODPHE, 2000b).

"Housed Commercial Swine Feeding Operation" means a housed swine feeding operation that is capable of housing 800,000 pounds or more of live animal weight of swine at any one time or is deemed a commercial operation under local zoning or land use regulations. Operations will be presumed capable of housing 800,000 pounds or more of live animal weight if they have the capacity to house the following (CODPHE, 2000d):

- 11,500 weaned swine (70 pounds or less); or
- 3,020 feeder swine (more than 70 pounds, up to finish weight); or
- 2,000 breeding sows and/or boars

6.0 Permit Conditions

Approvals

CAFO operators must submit, for the Division's approval, a land application plan designed to demonstrate that land application rates will not result in exceedances of applicable water quality standards or numerical protection levels.

The Waste Water Management Plan does not require an official review or approval by the Water Quality Control Division unless a land application plan requires site-specific analyses (CODPHE, 2000c).

Lagoon Design and Specifications

CAFOs are required to adopt specific manure and wastewater retention and disposal requirements. These requirements focus on proper design, construction, and operations to ensure proper disposal of animal feedlot waste and protection of ground water and surface water. These requirements include (CODPHE, 2000c):

- Structures that retain process-generated wastewater must be lined so as not to exceed a seepage rate of 1/32 inch per day.
- Structures that retain storm water from open animal feeding operations must be constructed and maintained so as not to exceed a seepage rate of 1/4 inch per day.
- Compacted or in-situ earthen materials must consist of suitable soils and have a minimum compacted thickness of 12 inches.
- Manure and process wastewater stored in earthen storage structures (lagoons or earthen storage basins) must be removed from the structures as necessary to maintain a minimum of 2 feet of freeboard in the structure.

Discharge Rules

An operator of an existing CAFO constructed prior to April 16, 1974, and operated continuously since that time may not discharge manure, process wastewater, or storm water runoff from the facility to state waters except as the result of storms equal to or in excess of the amount resulting from a 10-year, 24-hour storm. A CAFO that changes ownership or increases its average working capacity may not discharge in excess of a 25-year, 24-hour storm event (CODPHE, 2000c).

An operator of a CAFO constructed after April 16, 1974, or constructed earlier but inactive for longer than three consecutive years after that date, must design, construct, and operate control structures as necessary to retain and dispose of without discharge all manure and process wastewater produced by the facility and all storm runoff that enters the facility as the result of precipitation equal to or less than the amount resulting from a 25-year, 24-hour storm (CODPHE, 2000c).

Waste Management Plans

All new, reactivated, reconstructed or expanded, or existing CAFOs that have been determined by the Director to be in significant noncompliance with Regulation No. 81 are required to submit a manure and process wastewater management plan. The plan, at a minimum, must include (CODPHE, 2000c):

- Legal owner
- Local contact
- Legal description of the site
- Surface area of the site along with a drainage schematic
- Animal unit capacity
- Storm water and wastewater conveyance facilities
- Manure and process wastewater containment and treatment facilities
- Information regarding the manure and process wastewater disposal sites.

The Division may require additional information characterizing the manure and process wastewater if deemed necessary to ensure the protection of state waters.

Manure and process wastewater management plans need not be approved by the Division unless they include the land application plan that may be required pursuant to section 5. If a land application plan is included, only the land application plan must be approved. However, the Division will review the plan and may provide comments to the operator within 45 days of receipt. The Commission does not intend for the Division's comments to be binding on the operator, nor does the Commission intend that the Division's comments or lack thereof be relied upon as an approval or a denial of the matters addressed in the plan (CODPHE, 2000c).

Swine Waste Management Plan

The plan must be prepared under the supervision of a professional engineer registered in the state of Colorado, by Natural Resources Conservation Service (NRCS), by a qualified Cooperative Extension Agent, by a crop advisor certified by the American Society of Agronomy, or by an independent crop consultant certified by the National Alliance of Independent Crop Consultants. The plan must:

- Include sufficient site-specific hydrologic and agronomic information, supplemented by other scientifically supported information, to document that land application of all residual solids and swine feeding process wastewater will be conducted and sustained at or below the agronomic rate of application for crops or vegetation to be grown on the application site(s).
- Quantify the disposition of all residual solids and swine feeding process wastewater produced at the facility, whether put to beneficial use through land application onsite or transported offsite.

Separation Distances

Process wastewater retention structures or manure stockpiles must not be located within a mapped 100-year floodplain as designated and approved by the Water Conservation Control Board (WCCB) unless proper flood proofing measures (structures) are designed and constructed (CODPHE, 2000c).

Water Quality Setbacks determine placement for swine feeding process wastewater collection systems in housed units, and swine feeding process wastewater conveyance, treatment, storage, evaporation, and land application systems, including residual solids stockpiles and impoundments. They must not be located (CODPHE 2000b):

- For land application systems only, within 10 feet vertically of the seasonally high ground water level as determined in the monitoring plan.
- Up-gradient and within 300 feet of a reservoir classified for Class I Recreational Use by the Water Quality Control Commission.
- For land application systems only, within 200 feet of any body of surface water, including intermittent streambeds when standing or running water is present in the streambed, unless land application is made either by subsurface injection or by surface application that is followed by incorporation within 48 hours, weather permitting, or the swine waste management plan describes measures that will be implemented to prevent runoff from the application site into the waterbody.
- Within 50 feet of any body of surface water, including intermittent streambeds when standing or running water is present in the streambed.
- Within 150 feet of a private domestic water supply well or within 300 feet of a community domestic water supply well.
- For treatment, storage, and evaporation impoundments and residual solids stockpiles, only, within a 100-year floodplain, unless proper flood proofing measures (structures) are designed and constructed.

Land Application Requirements

Land application of manure and process wastewater must be based on agronomic rates, as determined by one of three methods (CODPHE, 2000c):

- If no supplemental or commercial fertilizers are used other than the manure application,

operators do not have to conduct site-specific agronomic analyses. Rather, operators may use preestablished conditions to determine application rates based on standards developed and maintained by the Water Quality Control Division. This method is considered conservative and most protective of the environment.

- Operators may elect to conduct a site-specific agronomic analysis based on the nutrient needs of crops in a growing season. This method may allow for application at rates greater than allowed under the first method.
- Land applications in excess of agronomic rates may be approved if an operator chooses to undertake a comprehensive, site-specific study that would account for nutrient losses besides plant uptake. Monitoring may be required by the Division to ensure that operators do not exceed applicable water quality standards and protection levels. Operators relying on this calculation method must obtain interim or final approval from the Division prior to land application.

Monitoring Requirements

Monitoring requirements, determined on a case-by-case basis, are made for facilities whose violations could pose a significant risk to water quality (CODPHE, 2000c).

7.0 Enforcement Information

The Division will take immediate enforcement action against any housed commercial swine feeding operation that has exceeded the agronomic rate limit of subsection 61.13(4)(e) (CODPHE 2000b).

Inspection Programs

There are no routine inspections. Inspections are complaint driven (USEPA, 1988; NASDA, 1997). The Division had committed to doing 20 CAFO inspections in FY 1999 based on size and species.

8.0 Voluntary Programs

No grant or incentive programs address the water quality impacts that may be associated with CAFOs. The Commission heard testimony from the Colorado Cattle Feeders Association that efforts are underway to develop a program that would offer technical assistance to its members. Given the limited scope of the program and the nature of the regulation and sources affected, the Commission has determined that the self-implementing regulations, as adopted, are the appropriate means to address the potential impacts from CAFOs (CODPHE, 2000c).

9.0 Additional State-Specific Information

Cooperative Extension Service

Information regarding the Colorado State University Cooperative Extension is available at www.colostate.edu/Depts/CoopExt/.

Comprehensive Nutrient Management Plan (CNMP) Certification

Colorado does not have a CNMP preparer certification program. Colorado has not developed a certification program for wastewater management plan preparers. Colorado does require Wastewater Facility designs to be prepared by a professional engineer, the U.S. Department of Agriculture Soil Conservation Service, or an Agriculture Extension Service Agent.

10.0 References

- CODPHE. 2000a. *Colorado's Nonpoint Source Management Program*. Colorado Department of Public Health and Environment, Water Quality Control Division in cooperation with the Colorado Nonpoint Source Council. January 10, 2000.
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Montana's CAFO Program

1.0 Background

Based on information provided to EPA by the U.S. Department of Agriculture (USDA), in the year 2000 it is estimated that there are 60 AFOs with 300 to 1,000 animal units and 50 AFOs with more than 1,000 animal units in Montana. These are primarily in the beef sector (USDA, 1999; USDA, 2000).

In response to the EPA Office of Enforcement and Compliance Assurance's issuing the *Compliance Assurance Implementation Plan for Concentrated Animal Feeding Operations (CAFOs)*, the Montana Department of Environmental Quality (MDEQ) has developed a corresponding strategy for Montana in accordance with the requirements of the EPA. The strategy for Montana contains eight components to address the control of pollution from AFOs:

- Prioritizing watersheds for AFO compliance
- Providing assistance and incentives for AFO compliance
- Compliance coordination with federal, state, and local governments and agencies
- Describing enforcement authority
- Processing complaints of AFO water quality impacts and enforcement
- Targeting AFOs for inspections
- Scheduling AFO inspections
- Monitoring AFO compliance

Specific information about Montana's *Strategy for Improving Water Quality Compliance from Concentrated Animal Feeding Operations* and the eight components for addressing pollution can be found at www.deq.state.mt.us/wqinfo/WaterDischarge/StrategyFinal.pdf.

2.0 Lead Regulatory Agency

Montana Department of Environmental Quality (MDEQ) administers the MPDES program. The requirements of the MPDES, as they apply to CAFOs, mirror the requirements of the NPDES program. Information about the Department can be found at www.deq.state.mt.us/.

3.0 State Regulations Regarding AFOs/CAFOs

In 1972 Montana passed a new constitution that guaranteed every citizen an inalienable right to a "clean and healthful environment," and in the decade that followed, the Legislature passed strong environmental laws, including the Montana Water Quality Act. Montana Water Quality Act 75-5-101 still addresses discharges from CAFOs; however, revisions to the act in 1995 and 1997 removed some of its original protection of state waters. In 1998 MDEQ adopted a proposal to increase the levels of allowable nitrate pollution in about 30 percent of Montana's ground water—water that MDEQ's director felt was already too polluted to be usable (NRDC, 1998). Specific language from the Water Quality Act can be found at www.deq.state.mt.us/enf/laws.htm.

CAFO discharges also are addressed by the Administrative Rules of Montana (ARM) 17.30.1301 et seq. (Montana Pollution Discharge Elimination System [MPDES]) and ARM 17.30.1001 et seq. (Montana Ground Water Pollution Control System [MGWPCS]) (MDEQ, n.d.c). Specific language from the MPDES and MGWPCS rules can be found at www.deq.state.mt.us/dir/Legal/Chapters/Ch30-13.pdf and www.deq.state.mt.us/dir/Legal/Chapters/Ch30-10.pdf, respectively.

4.0 Type of Permits

NPDES

MDEQ's Water Protection Bureau issues the MPDES general permit. To obtain an MPDES permit, a CAFO owner or operator must complete the *Application for Permit to Discharge-Short Form B* (www.deq.state.mt.us/wqinfo/WaterDischarge/SHORT-B.PDF) and pay a \$200 application fee. The application requests information on facility ownership, physical surroundings, location, size, and waste control and land application practices (MDEQ, n.d.b). The general discharge permit became effective September 1, 1999, and expires August 30, 2004 (MDEQ, 1999).

Other

Discharges to ground water may require a Montana Ground Water Pollution Control System permit instead of an MPDES permit.

5.0 Permit Coverage

CAFOs, as defined by 40 CFR Part 122 Appendix B, are required to apply for coverage under an MPDES permit, which applies to discharges to surface water and ground water and discharges related to construction and dewatering. An animal feeding operation is considered a CAFO when it contains more than 1,000 animal units (AUs); contains between 301 and 1,000 AUs and a discharge occurs through a man-made conveyance or pollutants are discharged directly into state waters that originate outside the facility; or it is designated as a CAFO on a case-by-case basis by MDEQ (MDEQ, n.d.a.). MDEQ must conduct a site inspection prior to designating an operation with 301 AUs as a CAFO and requiring a permit (MDEQ, n.d.b).

A permit is required to construct, modify, or operate a disposal system or to construct and use any outlet for discharge of industrial waste into state waters.

6.0 Permit Conditions

Approvals

Applications for general MPDES permits must be submitted 30 days before the initiation of a proposed discharge. Applications for individual MPDES permits must be filed at least 180 days before the operation of a point source. An applicant must provide the permitting authority with waste disposal system plans and specifications and process and waste flow diagrams (MDEQ, n.d.c).

Lagoon Design and Specifications

No information was found in publicly available sources.

Discharge Rules

Discharge of pollutants to surface waters of the state from a CAFO may occur only when rainfall events, either chronic or catastrophic, cause an overflow from a facility designed, constructed, and operated to contain all process-generated wastewater plus the runoff from a 25-year, 24-hour

storm (MDEQ, n.d.a).

Discharge of pollutants to state ground waters may occur only when seepage or leachate from a CAFO, combined with the volume of ground water beneath the source, results in a ground water nitrate-nitrogen concentration of less than 7.5 milligrams per liter. Ground water contamination from animal feeding operations most often results from leaking storage ponds and surface accumulations of solid manure, and placement of confined animals on coarse-textured soil over shallow ground water (MDEQ, n.d.b).

Waste Management Plans

No information was found in publicly available sources.

Separation Distances

No information was found in publicly available sources.

Land Application Requirements

The CAFO general MPDES permit allows producers some flexibility in terms of the land application they choose, but the permit requires producers to apply nutrients in a manner that results in plant uptake of those nutrients during the growing season following application. No animal waste may enter surface water, and nitrate-nitrogen discharge to ground water is limited to 10 mg/L (NRDC, 1998).

7.0 Enforcement Information

MDEQ may issue a “notice of violation” to a CAFO that does not comply with its general MPDES permit. In some cases, MDEQ may require violators to perform additional monitoring or correct equipment problems in lieu of assessing penalties (NRDC, 1998).

8.0 Voluntary Programs

No information was found in publicly available sources.

9.0 Additional State-Specific Information

Cooperative Extension Service

Montana State University Extension Service has an agricultural program that provides information about livestock and natural resources. More information about the Extension Service can be found at <http://extn.msu.montana.edu/>.

Comprehensive Nutrient Management Plan (CNMP) Certification

Montana does not have a comprehensive nutrient management plan (CNMP) preparer’s certification program. However, Montana Code 75-5-101 requires that all CAFOs with 1,000 or more animal units have implemented a CNMP. The CNMP does not need to be prepared by a certified preparer, nor does it need MDEQ’s approval (MDEQ, n.d.a).

Additional Information

Contact MDEQ at 406-444-1454 for questions pertaining to the CAFO permitting process.

10.0 References

- MDEQ. N.d.a. *General Permit Fact Sheet for Concentrated Animal Feeding Operations (CAFO)*. Montana Department of Environmental Quality. <www.deq.state.mt.us/wqinfo/WaterDischarge/fact-sheet.pdf>. Accessed November 2000.
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North Dakota's CAFO Program

1.0 Background

Based on information provided to EPA by the U.S. Department of Agriculture (USDA), there are 130 AFOs with 300 to 1,000 animal units and 30 AFOs with more than 1,000 animal units in North Dakota. These are primarily in the turkey sector (USDA, 1999; USDA, 2000).

Since 1972, North Dakota's CAFO program has been designed to protect the quality of the state's water resources through oversight of the construction and management of concentrated animal feeding operations. The program regulates animal feeding operations that maintain at least 200 animal units, and it can require design or operational modifications to protect the quality of the waters of the state. Regulatory authority is provided in North Dakota Century Code (NDCC) 61-28 and North Dakota Administrative Code (NDAC) 33-16, which can require specific actions for construction, water quality monitoring, animal disposal, contingency planning, and animal waste disposal (NDDOH, 1998-1999).

A database of CAFO information provides the location, number, size, type, and contact information for each regulated CAFO. The database is updated to reflect changes, such as the approval of new operations or modifications to existing operations (NDDOH, 1998-1999).

2.0 Lead Regulatory Agency

North Dakota Department of Health, Division of Water Quality, is the lead regulatory agency regarding CAFOs. Information about the Department can be found at www.health.state.nd.us/ndhd/environ/wq/index.htm.

3.0 State Regulations Regarding AFOs/CAFOs

Water Quality Standards have been adopted for the surface waters of North Dakota, as provided by the Water Quality Act of 1965. The 1967 state legislature adopted an extensive Water Pollution Control Act, addressing issues such as the control of livestock waste. The *Rules and Regulations for the Control of Pollution from Certain Livestock Enterprises* were first issued in 1972 by the State Health Department and updated in 1989 (NDDOH, 2000).

State law provides that odor regulations do not apply to the spreading of manure done in accordance with a nutrient management plan approved by the state Department of Health or rules adopted by the Department (Ch. 23-25-11).

4.0 Type of Permits

NPDES

North Dakota is an NPDES-authorized state.

Other

Construction approval is required for new operations (USEPA, 1998).

5.0 Permit Coverage

NDAC 33-16-03-04 defines a feedlot or concentrated feeding operation as any livestock feeding, handling, holding operation, or feed yard where animals are concentrated in an area (NDDOH, 2000):

- Which is not normally used for pasture or growing crops and where animal waste can accumulate, and
- Where the space per animal unit is less than 600 square feet (an area 30 by 20 feet). Normal cattle wintering operations are not included, except when these particular operations cause or are likely to cause pollution.

Approval from the State Department of Health is needed for the following operations (NDDOH, 2000):

- All concentrated feeding operations where the number of animals being fed, handled or held at any one time is greater than or equal to 200 animal units.
- All concentrated feeding operations that are located on a floodplain and that have 100 animal units or more.
- Any concentrated feeding operation where the distance to any surface waters is less than 2 feet per animal unit. These surface waters include all waters except those which are completely contained on an operator's property and which do not join with natural surface or underground waters. (For example, if an operation has 100 animal units and they are fed within 200 feet of any surface water not completely contained on the operator's property, the operator must have approval from the Department.)
- Any concentrated feeding operation, regardless of its location or the number of animal units, if the Department has found it is causing or is likely to cause pollution.

6.0 Permit Conditions

Approvals

Any operator of a CAFO, as described above, must seek approval for waste handling operations or discharging from a point source.

Lagoon Design and Specifications

Indoor facilities should be able to store livestock waste for at least 180 days. Open livestock lots must not allow containment ponds to overflow under normal conditions. All waste and runoff should be contained on the property and not allowed to reach natural drainage.

Discharge Rules

North Dakota state law prohibits feeding livestock on ice and feeding livestock or handling livestock waste in any way that would allow the waste to enter waters of the state, or to be washed into those waters by runoff from rain or snowmelt (NDDOH, 2000).

Waste Management Plans

A nutrient management plan is required for all CAFOs that have been issued state permits to operate. The nutrient management plan (North Dakota Nonpoint Source Pollution Task Force, 1998-1999) covers:

- The handling of the manure from the time it is removed from the storage area until it is used for crop production.
- How much manure (i.e., nutrients) will be available for crops to use.
- How the manure will be applied to cropland, and at what rate the manure will be applied.
- The type of crop grown, the nutrient content of the soil, and any commercial fertilizer added to the field.

Separation Distances

The operator of a new animal feeding operation that has more than 1,000 animal units may not locate or establish the operation within a delineated source water protection area for a public water system. The source water protection areas for water supply wells include the entire wellhead protection area. For the surface-water intakes of public water systems, source water protection areas include all or portions of the surface water that supplies the water for the public water system, including all or portions of the surface water’s shoreline.(NDDOH, 2000b):

Two optional provisions are included (NDDOH, 2000b):

- Within 1,200 feet (365.6 meters) of a private ground water well that is not owned by the operator or within 1,500 feet (457.1 meters) of a public ground water well that does not have a delineated source water protection area.
- Within 1,000 feet (304.7 meters) of surface water that is not included in a source water protection area.

Odor setbacks are stated in the following table.

| Setback Distances for Animal Feeding Operations | | |
|---|--------------------|-------------------------|
| Number of Animal Units | Hog Operations | Other Animal Operations |
| fewer than 300 | none | none |
| 300 - 1,000 | 0.50 mi (0.805 km) | 0.50 mi (0.805 km) |
| 1,001 or more | 0.75 mi (1.207 km) | 0.50 mi (0.805 km) |
| 2,001 or more | 1.00 mi (1.609 km) | 0.75 mi (1.207 km) |
| 5,001 or more | 1.50 mi (2.414 km) | 1.00 mi (1.609 km) |

Land Application Requirements

The state recommends application of livestock waste to cropland where nutrients can be utilized.

7.0 Enforcement Information

General Enforcement Information

The Department of Health has issued permits to approximately 440 animal feeding operations. (The Department currently requires any livestock feeding operation with more than 200 animal units to obtain a permit, and it anticipates a rule change adjusting this threshold to 300 animal units, to be consistent with federal regulations.) There are (NDDOH, 2000b)

- About 80 operations with 300 or more animal units
- Nearly 60 operations with more than 500 animal units
- Nearly 30 operations with more than 1,000 animal units

Based on a recent survey, other livestock feeding operations may not have permits because the operators are unaware of the permit requirements. The total number of animal feeding operations in North Dakota is unknown (NDDOH, 2000b).

General Inspection Information

Onsite inspection may be required before issuing permits. Also, North Dakota conducts annual inspections of CAFOs (1,000 animal units or more) and other facilities on a complaint basis (USEPA, 1998).

8.0 Voluntary Programs

The Farmstead Assessment Program is a voluntary educational program to assist farmers and ranchers with assessing the risk of ground water contamination at their farmsteads. A checklist guides participants through the assessment process. Questions identify potential sources of ground water contamination. Supplemental publications provide background information to help reduce the contamination risks (North Dakota State University Extension Service, 2000).

In January 1997 the U.S. Environmental Protection Agency (USEPA) approved \$357,500 for a Livestock Waste Technical Information and Assistance program using Clean Water Act section 319 grant money. This funding allowed the North Dakota State University Extension Service to develop a statewide information and education program to inform livestock producers about implementing manure management practices. Information and education will be provided to ongoing section 319 projects with livestock waste management components, and an engineering extension specialist will be hired to lead the program (North Dakota Nonpoint Source Pollution Task Force, 1997).

As described in the Separation Distances section above, two setback requirements are optional.

9.0 Additional State-Specific Information

Cooperative Extension Service

North Dakota State University Extension Service provides technical assistance and educational materials that help producers operate their systems without adversely affecting the environment. More information about the extension service can be found at www.ext.nodak.edu/.

Comprehensive Nutrient Management Plan (CNMP) Certification

North Dakota does not have a CNMP preparers' certification program.

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South Dakota's CAFO Program

1.0 Background

Based on information provided to EPA by the U.S. Department of Agriculture (USDA) there are 338 AFOs with 300 to 1,000 animal units (AUs) and 173 AFOs with more than 1,000 AUs in South Dakota. These are primarily in the swine sector (USDA, 1999; USDA, 2000).

2.0 Lead Regulatory Agency

The South Dakota Department of Environmental and Natural Resources (DENR) administers the federal point source pollution programs and the state's surface water and ground water programs. Information regarding South Dakota's Surface Water Quality and Feedlot Programs can be found at www.state.sd.us/denr/DES/Surfacewater/feedlot.htm.

3.0 State Regulations Regarding AFOs/CAFOs

South Dakota has adopted water protection legislation similar to the federal Clean Water Act. The legislation is found in South Dakota Codified Law (SDCL) Section 34A-2-1 et seq. State regulations addressing point source discharges and CAFOs are found in Sections 74:52:01:05 through 74:52:02:30. Under the authority of SDCL 1-40-38, new rules regarding inspection of feedlots became effective in February 1998 and are being implemented using SDCL 1-40-38, 34A-2-45, and 34A-2-46. These rules are found in Chapter 74:57:01, Inspections of Concentrated Animal Feeding Operations.

A law passed in 1998 holds livestock owners liable for environmental pollution if they negligently entrust their livestock to someone else. Another law established an environmental cleanup fund for spills and releases from feeding operations (USEPA, 1998).

4.0 Types of Permits

NPDES

South Dakota issues NPDES permits, referred to in South Dakota as surface water discharge (SWD) permits, to regulate discharges of pollutants to surface water. The permits cover facilities that confine or feed animals 45 days or more during a 12-month period, and that do not grow crops at the facility during the growing season. CAFOs are defined in terms of the number of animal units (depending on type of animal), but South Dakota DENR may treat any facility as a CAFO if it significantly contributes to water pollution (DENR, 2000d; NASDA, 1997).

In 1997, DENR issued a state general permit for swine only. The permit includes surface water and ground water requirements. In February 1998, DENR issued a separate state permit for all other CAFOs (excluding swine operations). Like the swine permit, the CAFO permit contains requirements for surface water and ground water (DENR, 2000d). It incorporates design, storage, operational, and management requirements. Besides basic NPDES requirements for CAFOs, the general permits require mandatory producer training, inspection, ground water monitoring, and buffer zones to drainages and water sources (USEPA, 1998).

Other

Although smaller animal feeding operations that are not significant polluters of surface water are not required to obtain SWD permits, they may be required to obtain permits to discharge to ground water as part of the state's nonpoint source pollution programs. To fulfill state nonpoint source pollution program requirements, operators must seek DENR approval for installation, extension, addition, or operations of any waste disposal system or part of the system. DENR approval also is required for changes in volume or strength of discharge over an existing limit, any construction or modification of the waste disposal system that would result in a volume or discharge change, and construction or use of a new outlet for discharge into the state's water (Agena, 1994; NASDA, 1997).

Facilities seeking coverage under the general permit also must submit a nutrient management plan, operation and maintenance guidelines, and a Certification of Applicant Form (DENR, 2000e).

A Water Rights Permit is required for a private water supply if the water use by the feeding operation is more than 25,920 gallons per day or if the combined maximum pump capacity exceeds 25 gallons per minute (DENR, 2000e).

A Storm Water Construction Permit is required if 5 or more acres of land will be disturbed during construction of the animal feeding operation or the manure management system (DENR, 2000e).

5.0 Permit Coverage

Permits are required for all CAFO facilities as defined by federal regulation. Permits are not required for animal feeding operations with fewer than 1,000 AUs unless that facility (DENR, 2000e):

- Discharges through a man-made conveyance.
- Has water passing over, across, or through a facility.
- Has water that comes in contact with animals.
- Has continuous overflow watering or a liquid manure handling system for poultry facilities.

CAFOs that had previously obtained EPA authorization to operate under the NPDES program are considered as holding a state SWD permit.

Significant dischargers are always required to get a permit (usually an individual permit).

The Department of Environmental and Natural Resources allows local governments to decide if smaller operations not already permitted should be regulated in their counties (Pirner, 2000).

The two general permits are required for all new or expanding operations having more than 1,000 AUs, or where the county requires an operation to obtain coverage. Existing operations can seek coverage under the permits, but are primarily addressed on a complaint basis. The South Dakota state permit program contains public notice requirements for concentrated animal feeding operations and a 30-day comment period on applications for new and existing facilities (Pirner, 2000).

6.0 Permit Conditions

Approvals

South Dakota requires approval of construction of new confined animal feeding facilities, but requires no state operating permit (Agena, 1994).

South Dakota requires producers to submit the plan for their manure management system. The plans and specification for their system must meet DENR's design requirements and be approved by DENR's staff engineer (DENR, 2000b). If the lagoon system has not been previously approved by DENR and does not have a minimum of 180 days of manure storage and cannot contain the 25-year, 24-hour storm, additional storage will be required. Plans and specifications for the additional storage structure(s) need to be submitted to the DENR for approval and must meet the requirements of the general permit (DENR, 2000e).

Lagoon Design and Specifications

Containment structures should be constructed to store the 25-year, 24-hour storm event, plus all other process wastewater, liquid, and solid manure. The containment structures should be designed and constructed in accordance with good engineering and construction practices. The producer must incorporate these design characteristics into the containment structure (DENR, 2000e):

- The freeboard must not be less than 2 feet for any containment structure constructed with earthen materials.
- The freeboard must not be less than 1 foot for any containment structure constructed with concrete.
- A containment structure or lagoon for an open lot may be constructed with an emergency spillway or overflow channel to remove water in a controlled manner when the capacity of the containment facility is exceeded. If present, the emergency spillway should be designed to safely pass the flow expected from at least the 25-year, 24-hour storm event.
- Uncontaminated storm water runoff should be diverted away from the containment structure whenever possible.
- If applicable, permanent markers (measuring devices) should be maintained in the containment structure to show the volume required to contain a 25-year, 24-hour rainfall event.
- Manure holding ponds, waste storage ponds, or waste storage pits or tanks must be designed based on the minimum storage time of 270 days and include all sources of manure and process wastewater that will enter the containment structure.
- Anaerobic lagoons must be designed based on volatile solids loading. The loading rate for an anaerobic lagoon must not exceed 3.0 pounds of volatile solids per 1,000 cubic feet of pond volume. Loading rates less than 3.0 pounds are allowed. The minimum depth of liquid must be 6 feet.
- Naturally aerobic lagoons must be designed based on daily biochemical oxygen demand (BOD₅) loading per acre of lagoon. The loading rate for an aerobic lagoon must not exceed 25 pounds of BOD₅ per acre of lagoon per day. Loading rates less than 25 pounds are allowed. The maximum depth of liquid is 5 feet.
- For mechanically aerated lagoons, the aeration equipment must provide a minimum of 1 pound of oxygen for each pound of BOD₅ per day. The minimum depth of liquid should be 6 feet.
- Hydraulic conductivity should be equal to or less than 1×10^{-7} centimeters per second (cm/sec) or 1/16 inch per day at maximum operating depth.

Discharge Rules

DENR directs CAFOs to have no discharges from their manure management systems. Should chronic or catastrophic storm events occur, the general permit allows an overflow or discharge from containment structures that are designed, constructed, maintained, and operated at all times and in compliance with the terms and conditions set forth in the general permit. Should a discharge occur, the producer should keep rainfall records to document that a 25-year, 24-hour rainfall event has occurred. The producer may use an ordinary rain gauge to determine rainfall amounts (DENR, 2000e).

Waste Management Plans

The general permit requires the producer to develop, maintain, and follow a nutrient management plan to ensure safe disposal of manure and protection of surface water and ground water. The state's permit program requires the Department of Environmental and Natural Resources to approve all nutrient management plans (Pirner, 2000). The nutrient management plan should address these items (DENR, 2000e):

- Local requirements and whether the producer has complied with those requirements.
- Type or types of manure containment structures.
- Total number of days of storage in the manure containment structure(s).
- Method(s) of manure application.
- Maximum amount of livestock that will be confined and the average weight of the animals through the production cycle.
- Estimate of the daily and annual amount of manure produced in tons of wet manure.
- An estimate of the total nitrogen in pounds that will be available for crop production.
- Legal description of all fields to be used for land application, the crop to be planted on each field, the number of acres in each field, and whether the field is irrigated.
- Detailed map showing the outline of each field and all buffer zones and separation distances required by the permit
- Soils map for the land application fields and a description of the predominant soil type(s) for each field.
- Realistic yield goals for each field and crop listed.
- Determination of the total amount of nitrogen that can be applied to each field based on the crop planted in the field, the realistic yield goal, and any residual nitrogen left in the field from past agricultural practices or crops.
- Comparison of the total nitrogen requirement for each field to the total nitrogen available in the manure. If the nitrogen in the manure exceeds the field nitrogen requirements, the producer must identify additional land that can be used for the application of manure.
- The application rate of the manure to ensure that the nitrogen requirement of the crop(s) will not be exceeded.
- Copy of each written agreement executed with the owner of the land where manure will be applied. The written agreement must indicate the acres to which manure from the animal feeding operation may be applied and the length of the agreement. The producer should ensure that there is enough land to apply manure consistent with the approved nutrient management plan.
- Times of the year that land application is planned.

Separation Distances

Manure and wastewater containment structures should not be located within the 100-year flood plain, unless the structure is protected from inundation and the damage that may occur during flood events. The top of the lagoon or basin embankment must be constructed at least 1 foot above the elevation of the 100-year flood (DENR, 2000e).

Wastewater containment structures or the manure and wastewater disposal sites cannot be located closer than 1,000 feet from an existing public water well or drinking water source nor 250 feet from an existing private water well or drinking water source. Wastewater containment structures and the manure and wastewater disposal sites should not be located closer than 150 feet from a water well or drinking water source that is owned by the producer (DENR, 2000e).

Wastewater or manure containment structures should not be located in wetlands or over shallow aquifers (DENR, 2000e).

Land Application Requirements

The State's permit program requires documentation from each permitted facility demonstrating that it will have sufficient land to apply the manure generated at that operation over a long period. If this is not represented in the documentation, the facility cannot be covered under the state's permitting program (Pirner, 2000).

The state's current permit program holds the CAFO owner responsible for all the manure generated at the CAFO. The owner must have signed contracts if the manure is spread on land owned by someone other than the CAFO owner (Pirner, 2000).

Spray irrigation is allowed for land application of manure provided the producer incorporates the manure within 24 hours of application. The producer must maintain at least a 50-foot buffer zone to any natural or man-made drainage.

The producer must inject, or incorporate, any liquid manure or wastewater within 24 hours of application to nonvegetated cropland. The producer should inject, or incorporate, any solid or semisolid manure within 5 days of application to nonvegetated cropland. The producer must maintain at least a 50-foot buffer zone to any natural or man-made drainage. If the manure is surface broadcast to cropped fields, grass, alfalfa, or pasture land, incorporation is not required. However, the producer should maintain at least 200-foot-wide buffer zones between the disposal areas and any natural or man-made drainage (DENR, 2000e).

Other Requirements

South Dakota's general CAFO permits require mandatory producer training and ground water monitoring. By January 1, 1999, a producer who had obtained coverage under the general permit must have submitted verification that the producer had taken an environmental training course pertaining to proper operation and maintenance of a manure management system and proper natural resource management. After January 1, 1999, any producer who is required to obtain coverage under the general permit must submit verification before the DENR secretary will issue a certificate of compliance (DENR, 2000e).

Legislation in 1997 established an annual fee for all regulated CAFOs, authorized additional permitting requirements for CAFOs locating over shallow aquifers, and strengthened the state's existing "bad actor" law (USEPA, 1998).

The Operator Water and Wastewater Certification Program protects public health, environmental quality, and water/wastewater systems' investment in their facilities. A voluntary certification program was started in 1954. The mandatory certification law was passed by the South Dakota State Legislature in 1970. There are certifications in water treatment, water distribution, wastewater treatment, wastewater collection, stabilization ponds, and small water treatment systems (DENR, 2000f).

7.0 Enforcement Information

General Enforcement Information

Enforcement tools that may be used by the DENR secretary, as appropriate, include warning letters, notices of violations, orders, and civil and criminal penalties, as stated in SDCL 74:57:01:09. In accordance with SDCL 74:57:01:10, the secretary may also suspend, modify, or revoke a permit because of a violation (LRC, 2000). Additionally, violations of the state permit may result in civil and criminal fines, incarceration, civil suits, and revocation, suspension, or modification of the permit (NASDA, 1997). Criminal and civil penalties may not exceed \$10,000 per day of violation. Violators also are responsible for the costs of cleaning up or repairing environmental damage. Permit violators may have to pay the legal costs of enforcement. These penalties apply to people who make false statements or certifications or who tamper with monitoring equipment (Copeland et al., 1997).

General Inspection Information

Before 1998, South Dakota did not regularly inspect CAFOs, regardless of size. CAFOs were inspected only following a complaint. Before small feeding operations could apply for a permit, an onsite inspection had to be conducted to determine whether the operation should be regulated (NASDA, 1997). New feedlot inspection rules became effective on February 1, 1998 (DENR, 2000b).

Compliance inspections must be conducted annually for facilities with more than 2,000 AUs and once every 3 years for all other CAFOs. Construction inspections are also conducted, and complaint inspections will continue as needed (USEPA, 1998). Highlights of the new inspection rules include (LRC, 1998):

- During construction, DENR's secretary must be notified 30 days before placing animals in the facility. The secretary will inspect the facility within the 30-day period. No animals can be placed in the facility before the inspection is conducted.
- CAFOs with at least 2,000 AUs that are required to operate under a general or an individual permit will be inspected at least annually.
- Regardless of size, all CAFOs required to operate under a general or an individual permit will be inspected at least once every 3 years. New AFOs will be inspected within the first 18 months of operation.
- At facility closure, AFOs will be inspected before terminating coverage of a permit.
- All permit applications contain a notarized statement by the owner or operator granting the secretary permission to perform inspections.

8.0 Voluntary Programs

DENR, with a grant from EPA, has developed onsite assistance to wastewater operators. This

program targets facilities that are having difficulty meeting their Surface Water Discharge permit requirements or new operators who need hands-on assistance (DENR, 2000f).

9.0 Additional State-Specific Information

Cooperative Extension Service

Information regarding the South Dakota State University Cooperative Extension Service can be found at www.abs.sdstate.edu/CES/index2.htm.

Comprehensive Nutrient Management Plan (CNMP) Certification

South Dakota does not have a CNMP preparer certification program.

10.0 References

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Utah's CAFO Program

1.0 Background

Based on information provided to EPA by USDA, there are 160 AFOs with 300 to 1,000 animal units and 55 AFOs with more than 1,000 animal units in Utah. These are primarily in the dairy sector (USDA, 1999; USDA, 2000).

2.0 Lead Regulatory Agency

The lead regulatory agency for CAFOs is the Utah Department of Environmental Quality, Division of Water Quality. The CAFO program is administered by two agencies, the Utah Department of Environmental Quality (DEQ) and the Utah Water Quality Board (NASDA, 1997).

3.0 State Regulations Regarding AFO/CAFOs

The state of Utah defines CAFOs according to Utah Admin. R. R317-8-3.5. Utah has authority to issue discharge permits to CAFOs under Utah Code Ann. §19-5-101 et seq. (The Utah Water Quality Act is similar to the federal Clean Water Act.)

4.0 Types of Permits

NPDES

Utah is authorized to administer the federal NPDES program (NASDA, 1997). The state's NPDES CAFO regulations are consistent with existing federal regulations. State regulations provide for the use of the EPA feedlot effluent guideline or best professional judgment (or a combination) as effluent standards applicable to CAFOs (Utah Admin. R. R317-8-7.1(3)). In the past, some facilities were covered under general or individual permits, but Utah allowed the permits to lapse once a facility had achieved containment of storm water (zero discharge status). Utah does not require large corporate hog farms to seek coverage under NPDES permits because these facilities are all indoors. Utah's general CAFO permit went into effect on October 1, 2000, and apparently expires on September 30, 2005. The 5-year NPDES permit must be obtained from the Utah Water Quality Board (NASDA, 1997).

Other

The state issues ground water permits to many CAFOs and AFOs that have animal waste lagoons, including large corporate hog operations and many dairy operations (USEPA, 1998). Under state regulations, no person may construct, install, or operate any new facility or modify an existing or new facility, not permitted by rule, which discharges or would probably result in a discharge of pollutants that may move into ground water including, but not limited to land application of wastes, waste storage pits, waste storage piles, large feedlots, and other specified activities — without a ground water discharge permit from the Executive Secretary (Utah Admin. R. R317-6-6.1). State regulations also provide that the following operations are permitted by rule:

- The land application of livestock wastes, within expected crop nitrogen uptake, which is permitted by rule for purposes of state ground water permit requirements.

- Animal feeding operations, as defined in UAC R317-8-3.5(2), that are not located within Zone 1 (100 feet) for wells in a confined aquifer or Zone 2 (250-day time of travel) for wells and springs in unconfined aquifers, in accordance with the Public Drinking Water Rule R309-113, and that meet either of the following criteria:
 - Operations that incorporate low-volume liquid waste handling systems of less than 4 million gallons capacity, or
 - Operations with fewer than the following numbers of animals confined:
1,000 slaughter and feeder cattle; 700 mature dairy cattle, whether milked or dry cows; 2,500 swine each weighing more than 25 kilograms (approximately 55 pounds), for facilities without animal waste collection and treatment systems approved by the Executive Secretary; 1,000,000 pounds steady-state live animal weight of swine for facilities with animal waste collection and treatment systems for which a construction permit has been issued by the Executive Secretary; 500 horses; 10,000 sheep or lambs; 55,000 turkeys; 100,000 laying hens or broilers, if the facility has continuous overflow watering; 30,000 hens or broilers, if the facility has a liquid manure handling system; 5,000 ducks; or 1,000 animal units.
- Animal feeding operations that do not use liquid waste handling systems.

The Executive Secretary may require the submission of an application for a ground water discharge permit for any discharge permitted by rule under R317-6-6.2 if it is determined that the discharge may be causing or is likely to cause increases above the ground water quality standards or applicable class TDS limits under R317-6-3 or otherwise is interfering or may interfere with probable future beneficial use of the ground water.

No facility permitted by rule under R317- 6-6.2.A may cause ground water to exceed ground water quality standards or the applicable class TDS limits in R317-6-3.1 to R317- 6-3.7. If the background concentration for affected ground water exceeds the ground water quality standard, the facility may not cause an increase over background.

In addition, no person may construct a device for the treatment or discharge of wastewater without first receiving a permit to do so from the Water Quality Board or its authorized representative, except as provided in R317-1-2.5. Construction permits expire 1 year after issuance unless substantial and continuous construction is underway. Construction permits may be extended on an individual basis if application for the extension is made before the permit expiration date (Utah Admin. R. R317-1-2).

Construction plans and specifications for small animal waste lagoons as defined in R317-6 (permitted by rule for ground water permits) need not be submitted to the Division if the design is prepared or certified by the USDA Natural Resources Conservation Service (NRCS) in accordance with criteria provided for in the Memorandum of Agreement between the Division and the NRCS, and if the NRCS inspects the construction. Compliance with these rules is determined by onsite inspection by the NRCS. NRCS approval applies to lagoons located outside public drinking water source zone 1 or 2 (R309-113) with less than 4 million gallons operating capacity or fewer than 1,000 animal units.

5.0 Permit Coverage

The UPDES permit applies to any person or company that discharges pollutants from a point source to state waters (including underground water). CAFOs are defined as point sources, consistent with federal criteria. The state's list of regulated pollutants includes "agricultural wastes discharged into water."

6.0 Permit Conditions

Approvals

No information was found in publicly available sources.

Lagoon Design and Specifications

Ground water permits detail seepage limits and construction quality control requirements for lagoon liners (USEPA, 1998). Construction permits also include lagoon design specifications.

Discharge Rules

Individual ground water permits may be issued where the applicant demonstrates that the applicable class TDS limits, ground water quality standard protection levels, and permit limits established under R317-6-6.4E will be met; the applicant is using best available technology to minimize the discharge of any pollutant; and there is no impairment of present and future beneficial uses of the ground water (Utah Admin. R. R317-6-6.4). These permits can include monitoring requirements and require corrective action for violations.

Waste Management Plans

Ground water permits require nutrient management plans if land application is involved (USEPA, 1998).

Separation Distances

Utah does not have odor requirements (USEPA, 1998). Land application must be 50 feet from private wells, and lagoon impoundments must be 500 feet from water wells (Preliminary NSCL data, June 2000).

Land Application Requirements

The land application of livestock wastes, within expected crop nitrogen uptake, is permitted by rule for purposes of state ground water permit requirements. Smaller facilities that do not have a construction permit must have a waste management plan designed by NRCS. Under this plan, field application of livestock waste must balance nutrient application with soil and plant nutrient uptake rates.

Under the state AFO Strategy, comprehensive nutrient management plans (CNMPs) must be reviewed and approved by certified persons.

7.0 Enforcement Information

UPDES permits may be revoked, modified, or suspended for violation of the permit conditions, obtaining the permit through misrepresentation, or changes in conditions that require reduction or elimination of the permitted discharge (NASDA, 1997).

All ground water permitted facilities are inspected at least annually; if ground water monitoring is involved, the inspection also includes sampling (USEPA, 1998).

8.0 Voluntary Programs

Utah CAFO operators may go to the Utah State University Extension Service, Utah Department of Agriculture (UTDA), and Department of Environmental Quality for information about waste management and the environment. In addition, the extension service offers publications through its World Wide Web site, which includes several fact sheets on managing small farms (poultry, sheep, pig, etc.). Utah farmers are eligible to receive help from the regional Western Integrated Ranch/Farm Education (W.I.R.E.) program.

9.0 Additional State-Specific Information

Cooperative Extension Service

The Extension Water Quality Program at Utah State University offers up-to-date, unbiased, research-based information and assistance to Utah citizens about the quality of surface and ground water, best management practices to reduce water pollution, and the function and protection of watersheds. Information can be found at www.ext.usu.edu/natres/index.htm.

Comprehensive Nutrient Management Plan (CNMP) Certification

Utah does not have a CNMP preparer certification program. CAFOs with more than 1,000 animal units and designated CAFOs are required to have a CNMP.

In 1999, the Utah Department of Agriculture published a response to the 1999 USDA-EPA Unified National Strategy for AFOs. During 2000 Utah will determine the number and location of AFOs and CAFOs. The state DEQ, Division of Water Quality, will then develop a general permit covering all CAFOs with 1,000 animal units or greater. The state intends to provide a 5-year period during which producers may make voluntary improvements, which may allow CAFOs with fewer than 1,000 animal units to return to AFO status. Permitting on CAFOs will begin in 2000, with the initial focus on CAFOs in priority watersheds. Technical and financial assistance will be provided to assist operators in improving facilities and developing CNMPs. CNMPs must be reviewed and approved by certified persons (UTDA, 2000).

Memorandum of Agreement (MOA)

Utah DEQ and USDA NRCS entered a Memorandum of Agreement regarding requirements applicable to small animal waste manure lagoons (April 1995).

Other Information

In 1998 approximately 1.5 FTEs were used on CAFO regulation (USEPA, 1998). Funding is targeted to high-priority impaired watersheds. If CAFOs are a major source of impairment, considerable funding will be directed at that source. This funding includes section 319 and EQIP money, as well as a few other funding sources (USEPA, 1998).

Recently, Utah assembled a CAFO committee of various stakeholders to create, "A Utah Strategy to Address Animal Feeding Operations." This document identifies CAFOs with over 1,000 animal units that are in need of permits and identifies smaller AFOs with unacceptable conditions. The committee assist these operations to correct the problems before the facility is considered a CAFO. If the operation still fails to make acceptable progress, it is issued a NPDES permit and required to comply in a timely manner (Gessel, 2000).

Circle Four, the nation's 20th largest hog company, has met resistance and criticism from local citizens (including Citizens for Responsible and Sustainable Agriculture, or CRSA) since it began operating in southwestern Utah in 1995, but it has continued to publicize its ambition to become the nation's largest hog farm (Circle Four Farms, 1999; Marks and Knuffke, 1998). In 1998, Circle Four had 260,000 hogs onsite and generated about 600,000 market hogs per year.

There are worries that Circle Four cannot contain its hog waste. Circle Four was issued a ground water permit (the primary type of permit Utah offers CAFOs). At least once Circle Four did not meet its monitoring requirements, and there were suspicions that the plastic lagoon liners Circle Four uses might have been failing. CRSA appealed Circle Four's permits in fall 1997. Circle Four continued to expand in 1998, awaiting a decision on the appeal. In fall 1998, the Utah Water Quality Board prompted DWQ, Circle Four, and CRSA to begin a series of meetings. [NRDC (1998) wrote a more detailed case study highlighting the pollution and regulatory issues surrounding Circle Four's operation in Utah.]

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Wyoming's CAFO Program

1.0 Background

Based on information provided to EPA by the U.S. Department of Agriculture (USDA), it is estimated that there are 28 AFOs with 300 to 1,000 animal units (AUs) and 23 AFOs with more than 1,000 AUs in Wyoming. These are primarily in the beef sector (USDA, 1999; USDA, 2000). NPDES permits are issued to all CAFOs over the 1,000 animal unit limit except for swine facilities which are permitted under another comprehensive state rule (Hemmer, 2000).

2.0 Lead Regulatory Agency

CAFOs are permitted through Wyoming's Department of Environmental Quality, Water Quality Division, Water and Wastewater Section, Engineering and Technical Services Branch.

Information regarding the CAFO program can be found at

<http://deq.state.wy.us/wqd/w&ww/cafo.htm>

3.0 State Regulations Regarding AFOs/CAFOs

Chapter 2, Discharges/Permit Regulations for Wyoming from 1974, and Waste and Wastewater Facilities, Section 29 Feedlots, are both used to regulate CAFOs in the state of Wyoming.

In 1997, Wyoming passed the Enrolled Act 49 that regulates confined swine feeding operations. On May 26, 1999, the governor of Wyoming signed the Chapter 20 Permitting, Design and Operation Standards for confined swine feeding operations, which addresses odor, vectors, setbacks, and financial assurance (WDEQ, 2000a).

The Water Quality Division (WQD) determined that permitted confined swine feeding operations do not require an NPDES permit. The basis of this determination is that the Wyoming statutes and regulations require that confined swine feeding operations be nondischarging facilities (WDEQ, 2000a).

4.0 Types of Permits

NPDES

Individual NPDES permits are required for CAFOs with more than 1,000 AUs. The state does not have a general permit. Individual NPDES permits are required to discharge to surface water.

Other

Cattle feedlots and other CAFOs, with the exception of swine operations that construct any waste treatment facilities, are required to obtain a permit to construct, as required by Chapter 3 and Chapter 11 of the WQD regulations (WDEQ, 2000a).

Wyoming permits confined swine feeding operations separately (USEPA, 1998). The Wyoming WQD has determined that permitted confined swine feeding operations do not require an NPDES permit. The reason for this determination is that Wyoming statutes and regulations require that confined swine feeding operations be nondischarging facilities (WDEQ, 2000a).

Wyoming issues construction permits for wastewater treatment ponds constructed on AFOs (USEPA, 1998). Construction permits are used to protect ground water (NASDA, 1997).

5.0 Permit Coverage

Wyoming follows the federal definition of CAFOs. Individual NPDES permits are issued mostly to operations with more than 1,000 AUs. Smaller operations are permitted based upon complaints and inspection of conditions that pose threats to waters of the state (USEPA, 1998).

Chapter 20 applies to all swine feeding operations with 2,500 or more swine applying for a permit to construct a new facility or increasing the capacity of a presently permitted facility. Confined swine feeding operations that had or applied for a permit prior to February 27, 1997, continue to be regulated under the provisions of WQD Chapters 3 and 11.

Chapter 3, Permit to Construct, applies to all public water supplies; all private, municipal, commercial, and industrial (including mining) sewerage systems; treatment works; disposal facilities; biosolids management facilities; treated wastewater systems; and other facilities capable of causing or contributing to pollution (WDEQ, 2000d).

Confined swine feeding operations permitted under Chapter 20 are required to obtain a construction permit (WDEQ, 2000d). No person, except when authorized by a permit issued pursuant to Chapter 3 of the Act, will (WDEQ, 2000d):

- Construct, install, or modify any public water supply, sewerage system, treatment works, disposal system, or other facility capable of causing or contributing to pollution.
- Construct, install, or modify any facility in noncompliance with the terms and conditions of an issued permit.
- Construct, install, or modify a facility with a permit that has expired or has been suspended or revoked.
- Commence construction or modification of any industrial facility capable of causing or increasing water pollution in excess of standards established by the department before a permit is obtained pursuant to W.S. 35-11-801 (c).
- Discharge wastes into an exempted or permitted treatment works, sewerage system, or disposal system that are inconsistent with the type or quantity of wastes for which the facility is designed.
- Land apply or surface dispose of biosolids or domestic septage.
- Reuse treated wastewater.

6.0 Permit Conditions

Approvals

No appraisal is needed before development. Waste structure designs must be approved by the Department of Environmental Quality (NASDA, 1997).

All construction plans and specifications submitted must carry the seal and signature of the designing engineer in accordance with W.S. 33-29-114 through 33-29-139 (WDEQ, 2000b).

Lagoon Design and Specifications

The following sections of Chapter 20 outline requirements for swine animal feeding operations:

- Section 33 — Animal Waste Collection Systems
- Section 34 — Animal Waste Storage Facilities
- Section 35 — Animal Waste Treatment Facilities

Discharge Rules

No discharge is allowed into existing wetlands.

Waste Management Plans

The animal waste management plan for swine feeding operations contained in Chapter 20, Permitting, Design, and Operation Standards, addresses the following (WDEQ, 2000b):

- The amount of animal waste to be generated at the facility and a description of storage methods.
- The estimated time period that animal waste must be stored before land application.
- The total amount of the controlling constituents produced by the operation.
- The controlling constituents requirements or uptake values for the vegetation or crops to receive the animal waste.
- The acreage to receive the animal waste except when solid wastes are sold or given away.
- A description of the animal waste conveyance or transportation method to get the animal waste to the land application sites.
- A demonstration that adequate and suitable land is available upon which to land apply the animal waste in accordance with the requirements of these regulations.
- The estimated application rate in terms of tons of animal waste and controlling constituents per acre, including the following:
 - A description of animal waste and soil sampling and analysis procedures to determine application rates.
 - A description of record-keeping systems for location, dates, and rates of animal waste application and for animal waste and soil testing results.
- The planned method and time of application.
- Written agreements with landowners for land application that must be included in the plan if animal waste is to be applied on property not owned by the permittee:
 - Agreements with landowners for land application must allow the division to assume the agreement in the event that a facility is relinquished.
 - Agreements with landowners for land application must provide right of entry for the division for the life of the agreement to monitor for compliance with the permit.
- Procedures and methods to control odors from animal confinement areas, lagoons, animal waste storage facilities, and land application sites.
- Procedures and methods to control vectors associated with confined swine feeding operations.
- If the animal waste is to be utilized for uses other than land application, the animal waste management plan must demonstrate that the protection of waters of the state, public health and safety, and the environment is equal to or greater than that provided by land application conducted in accordance with these regulations.

Separation Distances

A confined swine feeding operation must comply with W.S. 35-11-302 (a) (ix) (C). Swine confinement areas, animal waste storage facilities, or animal waste treatment facilities must not be within (WDEQ, 2000b):

- One mile of an occupied dwelling without the written consent of the owner of the house.
- One mile of a public or private school without the written consent of the school's board of trustees or board of directors.
- One mile of the boundaries of any incorporated municipality without the resolution and consent of the governing body of the municipality.
- One-fourth mile of a water well permitted for current domestic purposes without the written consent of the owner of the well.
- One-fourth mile of a perennial stream unless it is proved to the division that potential adverse effects to the water quality of the stream can be avoided.

Land Application Requirements

Any solid waste transfer, treatment, storage, or disposal facility, as defined in Chapter 1 of the Wyoming Solid Waste Rules and Regulations, which is located within the boundaries of a confined swine feeding operation, must be permitted by WQD under the authority of Chapter 20 (WDEQ, 2000b).

All land application sites must be protected from upslope runoff by diversion ditches capable of intercepting the overland flow from a 25-year, 24-hour storm event. Diversion ditches are not required if it can be shown that a storm of this size will not have an impact on the site (WDEQ, 2000b).

Liquid animal waste should not leave the property where it is applied. Liquid animal waste must not be land applied within 200 feet of a perennial, intermittent, or ephemeral waterbody or water well permitted for current domestic purposes (WDEQ, 2000b).

Other Requirements

A management plan is a comprehensive plan for managing the animal wastes from a confined swine feeding operation. The management plan is a mandatory part of the application for a permit. It includes (WDEQ, 2000b):

- Construction plan
- Operation plan
- Animal waste management plan
- Financial assurance, closure, and corrective action plan

In instances where a ground water monitoring program is required as determined by the administrator, the application must also include a proposed monitoring program to satisfy the requirements of Section 15, Chapter 3, Wyoming Water Quality Division Rules and Regulations (WDEQ, 2000b).

7.0 Enforcement

Enforcement of air quality regulations is tied to formal complaints as a nuisance (NASDA, 1997).

Violators are identified through complaints and inspections. Routine onsite visits were not required (NASDA, 1997). All permitted facilities are now rotated through an inspection program where they are inspected at least once every 5 years, with many being inspected yearly. Hog operations may be inspected as frequently as quarterly during construction and start-up (USEPA, 1998).

8.0 Voluntary Programs

Wyoming Department of Agriculture (<http://wyagric.state.wy.us/>) is the lead voluntary agency for CAFOs. The Wyoming Department of Agriculture NRS encourages the voluntary efforts of CAFO operators to prevent pollution of natural resources. NRS works with other sections of the Department of Agriculture and the Department of Environmental Quality to develop voluntary, rather than regulatory, programs to address surface water and ground water contamination as a result of the migration of pollutants (WDA, 1997). The Wyoming Department of Environmental Quality and the University of Wyoming Cooperative Extension Service are also sources for educational, training, and technical assistance programs (NASDA, 1997).

The CAFO Information and Education Program is one of the statewide grant programs designed to give CAFO operators the information they need to avoid pollution and improve water quality for the state. The program is co-sponsored by the Wyoming Department of Agriculture NRS. Wyoming farmers may also receive aid from the Western Integrated Ranch/Farm Education (W.I.R.E.) Program. W.I.R.E. educates farmers on the management of physical, biological, financial, and human resources of agriculture.

Wyoming recently entered into a Memorandum of Understanding (MOU) with the Natural Resources Conservation Service (NRCS) whereby NRCS can assist small AFOs with design and construction of whole-farm waste management systems and Wyoming will accept their work and oversight in lieu of requiring a construction permit for wastewater treatment systems, if such systems are necessary (USEPA, 1998).

In priority watersheds where there are a concentration of AFOs, Wyoming is facilitating the development of local producer improvement groups to conduct self-assessments or independent assessments and develop compliance plans where problem areas exist. Wyoming also is working to help small AFOs find financial assistance to develop and implement BMPs. A significant percentage of the Clean Water Act, Section 319 funds are used for this purpose (USEPA, 1998).

The Wyoming Association of Conservation Districts (WACD), in partnership with the Wyoming Department of Agriculture, is implementing a grant program aimed at assisting agriculture producers to address water quality concerns caused by CAFOs. Eight demonstration sites are being established around Wyoming. The technical assistance for these projects is being provided in part by USDA-NRCS. This program is partly funded through a Section 319 grant from the USEPA and WDEQ. WACD developed a brochure aimed at educating producers on laws and liabilities, potential pollutants, best management practices, and other issues related to confined livestock operations. Included is a producer self-evaluation to determine whether the operation has the potential to affect water quality (WACD, 2000).

9.0 Additional State-Specific Information

Cooperative Extension Service

Information regarding the University of Wyoming's Cooperative Extension Service can be found at www.uwyo.edu/ag/ces/ceshome.htm.

Comprehensive Nutrient Management Plan (CNMP) Certification

Wyoming does not have a CNMP preparer certification program.

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