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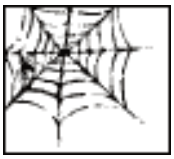

EPA promulgated regulations for Concentrated Animal Feeding Operations (CAFOs) in February 12, 2003 that expanded the number of operations covered by the CAFO regulations and included requirements to address the land application of manure from CAFOs. The rule became effective on April 14, 2003. NPDES-authorized states were required to modify their programs by February 2005 and develop state technical standards for nutrient management. On February 28, 2005, in response to litigation brought by various organizations, the Second Circuit court issued its decision in *Waterkeeper Alliance et al. v. EPA*, 399 F.3d 486 (2d Cir. 2005). EPA has updated the CAFO rule to reflect the changes requested by the Court. Visit www.epa.gov/npdes/caforule to view the 2008 CAFO Final Rule and supporting documents.

United States Environmental Protection Agency

NPDES PERMIT WRITERS' GUIDANCE MANUAL AND EXAMPLE NPDES PERMIT FOR CONCENTRATED ANIMAL FEEDING OPERATIONS

December 31, 2003

United States Environmental Protection Agency
Office of Water
Office Wastewater Management
Water Permits Division

EPA-833-B-04-001

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1.0 INTRODUCTION

1.1 Introduction

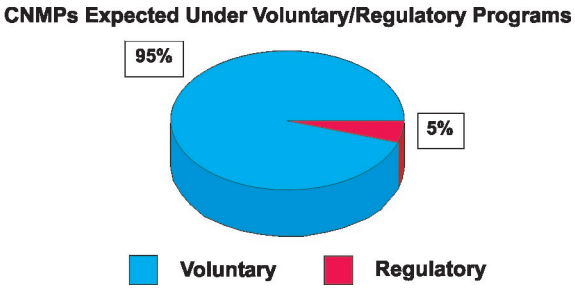
The *Permit Writers' Guidance Manual and Example NPDES Permit for Concentrated Animal Feeding Operations* provides information to National Pollutant Discharge Elimination System (NPDES) permit writers on permitting requirements for concentrated animal feeding operations (CAFOs). The Guidance reflects the revisions to the NPDES and Effluent Limitation Guidelines and Standards (ELG) for CAFO regulations (68 Federal Register (FR) 7176; February 12, 2003) that became effective on April 14, 2003, and replaces previous guidance, including the *Guide Manual on NPDES Regulations for Concentrated Animal Feeding Operations* issued in 1995.

Congress passed the Clean Water Act to "restore and maintain the chemical, physical, and biological integrity of the nation's waters." (33 U.S. Code (U.S.C.) 1251(a)). The Clean Water Act establishes a comprehensive program for protecting our nation's waters. Among its core provisions, the Act prohibits the discharge of pollutants from a point source to waters of the United States except as authorized by an NPDES permit. The Clean Water Act also directs the U. S. Environmental Protection Agency (EPA) to establish national technology-based effluent limitations guidelines and standards (ELGs) for different categories of sources. Section 502 of the Clean Water Act specifically defines the term "point source" to include CAFOs. In 1974 and 1976, EPA promulgated regulations that established ELGs for large feedlots (CAFOs) and established permitting regulations for CAFOs. The NPDES and ELG final rule for CAFOs, published February 12, 2003, revises the more than 25-year-old requirements that apply to CAFOs.

1.2 Background

Nationally, there are an estimated 1.3 million farms with livestock. About 257,000 of these farms are considered animal feeding operations (AFOs) where animals are kept and raised in confinement. AFOs annually produce more than 500 million tons of animal manure that, when improperly managed, can pose substantial risks to the environment and public health. The NPDES and ELG final rules for CAFOs (the revised rule), which were published in the Federal Register on February 12, 2003, ensure that the largest of these operations, CAFOs, are required to apply for an NPDES permit. Among other things, CAFOs will develop and implement a nutrient management plan as a condition of an NPDES permit. EPA expects that the requirement to develop and implement a nutrient management plan (NMP or plan) will generally be fulfilled where a CAFO has developed and is implementing a comprehensive nutrient management plan (CNMP) in accordance with U.S. Department of Agriculture (USDA) guidance, although this is not the only way to fulfill the NMP requirement. Plans developed and implemented as a condition of an NPDES permit will need to be based on the applicable nutrient management technical standard established by the permitting authority. Table 1-1 provides a consolidated time line for the implementation of the revised rule.

Table 1-1. Consolidated Time Line for Implementing the Revised Rule	
Milestone	**Time Frame**
• Effective date of regulation	• April 14, 2003
• Effective date of Effluent Guideline requirements for the production area (applicable to Large CAFOs)	• June 12, 2003
• Effective date of effluent guideline requirements for the land application area (applicable to Large CAFOs)	• By December 31, 2006
• Effective date for all CAFOs to develop and implement nutrient management plans	• By December 31, 2006. Except for new source Large CAFOs by date of commencing operations
Duty to Apply	
• Operations defined as CAFOs prior to April 14, 2003	• Must have applied by the date required in 40 CFR 122.21(c)
• Operations defined as CAFOs as of April 14, 2003, and that were not defined as CAFOs prior to that date	• As specified by the permitting authority, but no later than April 13, 2006
• Operations that become defined as CAFOs after April 14, 2003, but which are not new sources	• (a) Newly constructed operations: 180 days prior to the time that the CAFO commences operation (b) Other operations (e.g., increase in number of animals): As soon as possible but no later than 90 days after becoming defined as a CAFO, except that, if the operational change that causes the operation to be defined as a CAFO would not have caused it to be defined as a CAFO prior to April 13, 2003, the operation must apply no later than April 13, 2006, or 90 days after becoming defined as a CAFO, whichever is later.
• New Sources	• 180 days prior to the time the CAFO commences operation
• Designated CAFOs	• 90 days after receiving notice of designation
State Program Revision	
• No statutory changes needed to revise NPDES Program	• February 12, 2004
• Statutory changes needed to revise NPDES Program	• February 13, 2005



Focusing EPA's regulatory program on the largest operations that present the greatest potential risk to water quality is consistent with the final rule and the *Unified National Strategy for Animal Feeding Operations*. The strategy, jointly developed by EPA and USDA (USEPA/USDA, March 1999) specifies that most operations that confine animals are and will continue to be addressed through locally focused voluntary programs. The strategy defines a national objective for all AFOs to develop CNMPs to minimize their impacts on water quality and public health. EPA expects that the vast majority of CNMPs will be developed under voluntary programs. The requirement in the final rule that the largest of these operations develop and implement a nutrient management plan is also consistent with the objective of the strategy.

This improved regulatory program is also designed to support and complement the array of voluntary and other programs implemented by USDA, EPA, and States that are available to help the vast majority of AFOs not addressed by the CAFO regulations. These regulations are an integral part of an overall Federal strategy to support a vibrant agricultural economy while simultaneously ensuring that all animal feeding operations manage their manure properly and protect water quality.

EPA and USDA have worked collaboratively to ensure that USDA's voluntary programs and EPA's regulatory and voluntary programs complement each other and support effective nutrient management by all AFOs. EPA and USDA will continue to coordinate the development and implementation of tools to support agriculture in ways that reflect the different roles of the two agencies.

1.3 What Is the Purpose and Organization of this Guidance?

This guidance provides information to NPDES permitting authorities, owners and operators of animal feeding operations, and the general public on how to implement the Clean Water Act CAFO regulations.

This guidance focuses on permitting CAFOs by providing the following:

- Information that will help permitting authorities ensure that NPDES permits conform to the Clean Water Act and the NPDES and ELG CAFO regulations [40 CFR Part 122 and Part 412]; and
- General information on Clean Water Act and NPDES requirements that EPA will consider when reviewing the adequacy of State NPDES permits for CAFOs [40 CFR 123.44].

This guidance assumes that the reader has a working knowledge of how to develop NPDES permits. Permit writers should also be familiar with applicable State voluntary and regulatory programs, and how these programs relate to the Federal or State NPDES program. Appendix A lists a variety of potential sources that permit writers may wish to use as background for developing NPDES permits as well as increasing their understanding of agricultural practices related to AFOs. In addition, the guidance discusses the circumstances under which CAFO owners or operators should submit a Notice of Intent (NOI) to seek coverage under an NPDES general permit or apply for an NPDES individual permit.

While this guidance is limited to the development and issuance of NPDES permits for CAFOs, it is important for the permit writer to recognize that there are other NPDES program requirements that may be applicable to CAFOs. For example, discharges of storm water associated with *construction activity* at, or *construction* of, CAFOs that disturb one acre of land or more are subject to NPDES storm water permit requirements. These requirements address all activities associated with the construction of CAFOs, including clearing, grading, and excavation, but do not address discharges associated with the operation of the facility, which are addressed in the NPDES CAFO permit. Therefore, it is generally in the interest of both the permitting authority and the CAFO operator to administer storm water permits for construction separately from NPDES CAFO permits.

This guidance does not address holding areas at Meat and Poultry Processing (MPP) facilities to avoid any ambiguity about which permit requirements and effluent guidelines apply to discharges from the MPP animal holding areas. All meat and poultry slaughtering facilities have live animal receiving areas. EPA does not interpret the AFO definition to include animal holding areas at meat and poultry slaughtering facilities. Furthermore, the CAFO rules do not establish requirements for MPP animal holding areas. Wastes from animal holding areas at MPP facilities were identified during the original effluent guidelines rulemakings in the 1970s as being part of the MPP facilities process wastewater and the requirements at 40 CFR Part 432 apply to these wastes. NPDES permits have historically addressed the animal holding areas at processing facilities as part of the meat processing facility rather than as an animal

feeding operation. Given the effectiveness of this approach, EPA does not intend to change the applicability of the MPP rules to animal holding areas. Animal holding areas at meat and poultry slaughtering facilities are still subject to the requirements of the MPP rule codified at 40 CFR Part 432 and are not subject to the NPDES CAFO requirements codified at 40 CFR Part 122 or the CAFO effluent guidelines codified at 40 CFR Part 412.

This is a guidance manual and example permit, not a regulation. It does not change or substitute for any legal requirements. While EPA has made every effort to ensure the accuracy of the discussion in this guidance, the obligations of the regulated community are determined by the relevant statutes, regulations, or other legally binding requirements. This guidance manual and example permit is not a rule, is not legally enforceable, and does not confer legal rights or impose legal obligations upon any member of the public, EPA, States, or any other agency. In the event of a conflict between the discussion in this document and any statute or regulation, this document would not be controlling. The word "should" as used in this guidance manual and example permit does not connote a requirement, but does indicate EPA's strongly preferred approach to assure effective implementation of legal requirements. This guidance may not apply in a particular situation based upon the circumstances, and EPA, States and Tribes retain the discretion to adopt approaches on a case-by-case basis that differ from this guidance manual and example permit where appropriate. Permitting authorities will make each permitting decision on a case-by-case basis and will be guided by the applicable requirements of the CWA and implementing regulations, taking into account comments and information presented at that time by interested persons regarding the appropriateness of applying these recommendations to the particular situation. In addition, EPA may decide to revise this guidance manual and example permit without public notice to reflect changes in EPA's approach to implementing the regulations or to clarify and update text.

2.0 WHAT PERMITTING STRATEGIES ARE APPROPRIATE FOR CAFOS?

NPDES permitting authorities have two options in issuing NPDES permits to CAFOs: general permits and individual permits. This section describes the administrative process for both permitting options, as well as situations in which one or the other is appropriate.

2.1 NPDES General Permits for CAFOs

A general NPDES permit is written to cover a category of point sources with similar characteristics for a specific geographic area (e.g., watershed, county, region, State). The scope of the permit can also be limited to particular animal sectors or sizes of operations. It is expected that the majority of CAFOs may appropriately be covered under an NPDES general permit because CAFOs generally involve similar types of operations, require the same kinds of effluent limitations and permit conditions, and discharge the same types of pollutants. Section 4.2 discusses the circumstances where individual NPDES permits for CAFOs are more appropriate.

General permits offer a cost-effective approach for NPDES permitting authorities because they can cover a large number of facilities under a single permit. At the same time, the general permit can also provide the flexibility for the permittee to develop and implement pollution control measures that are tailored to the site-specific situation of the permittee. EPA strongly encourages NPDES permitting authorities to make ample provision for public involvement during the public notice and comment period required during the process of developing and issuing NPDES general permits [40 CFR 124.10].

2.1.1 Watershed-based NPDES permits

Watershed-based permits are NPDES permits that are issued to point sources on a geographic or watershed basis. They focus on watershed goals and consider the impact of multiple pollutant sources and stressors, including those from nonpoint sources. A watershed approach provides a framework for addressing all stressors within a hydrologically defined drainage basin instead of viewing individual pollutant sources in isolation. More than 20 States have implemented some form of the watershed approach and manage their resources on a rotating basin cycle.

Because of the recent emphasis on watershed-based permits and development of total maximum daily loads (TMDL) that focus on water quality impacts, EPA is looking at ways to use watershed-based permits to achieve watershed goals. The watershed-based permit is a tool that can assist with implementation of a watershed approach. The utility of this tool relies heavily on a detailed, integrated, and inclusive watershed planning process. Many of the actions necessary for a successful TMDL are also needed for a successful watershed approach. The process and data needs for developing a watershed-based permit and for developing a TMDL are very similar. In places where TMDLs have been developed, watershed permits may be useful tools for implementing TMDLs. For example, North Carolina's nutrient management strategy for the Neuse River Basin includes a watershed-based permit approach for TMDL implementation. The strategy recognizes the need for all groups to work together and includes an approach for permitted dischargers to work collectively to meet a combined nitrogen allocation, rather than be subject to individual allocations. A watershed permit approach was also used for municipal discharges in Connecticut contributing nutrients to the Long Island Sound. An approach similar to those used in North Carolina and Connecticut can be used for permitting CAFOs within a specific watershed.

2.1.2 How is an NPDES general permit for CAFOs developed and implemented?

EPA and the States have extensive information and experience in developing and implementing NPDES general permits. These general permits can be developed to cover one or several animal livestock sectors. This guidance will, therefore, highlight only some of the unique features of permitting CAFOs under NPDES general permits. The procedures and requirements for issuing NPDES general permits are contained in 40 CFR 122.28 and in the corresponding State regulations. At present (winter 2003), 45 States have been authorized to issue NPDES general permits.

In developing and issuing an NPDES general permit, the NPDES permitting authority develops a draft permit and a fact sheet that defines the following: the scope of the permit, the facilities that qualify for coverage under the permit, and the specific terms and conditions that apply to permittees. The permitting authority must then make the draft permit and fact sheet available for review through public notice and comment. After comments have been considered and a public hearing held, if appropriate, the final permit is issued, usually for a 5-year term. To seek coverage, facilities typically must submit a Notice of Intent (NOI) to be covered in accordance with a schedule established in the permit. When NOIs are received, the permitting authority should screen them for eligibility and post on their web site or in some other manner the facilities being considered for coverage under the general permit. An owner or operator eligible for a general permit may request to be excluded from coverage under the NPDES general permit by applying for an NPDES individual permit. Consistent with provisions in the NPDES regulations [40 CFR 122.28(b)(3)], any interested party may petition the Director of the NPDES permitting authority to require any specific facility to be covered under an individual permit.

EPA expects that States will use a number of different approaches for establishing their NPDES general CAFO permit program. In some cases a single general permit covering all of the CAFOs in a State may be appropriate. In other situations a specific permit for each animal sector may be the best approach. States may also elect to issue different general permits for existing and new sources. The sample permit included in Appendix J of this guidance has been set up to address all existing CAFOs that are subject to Subparts C and D of the ELG.

NPDES general permits should contain special provisions that identify facilities that are more appropriately covered under individual NPDES permits (see Section 4.2). For example, States may develop their NPDES general permits in a way that limits coverage to facilities of a certain size, thereby requiring CAFOs above a certain threshold to apply for an individual NPDES permit. Alternatively, States may choose to develop their NPDES general permits so that they identify certain facilities as a separate class of CAFOs (e.g., very large, impaired waters) that need to meet additional permit conditions identified in the general permit.

Given the significant public interest in the issue of animal waste management and the permitting of CAFOs, EPA strongly encourages early and effective outreach during the preparation and public notice of draft NPDES general permits for CAFOs. For example, New York State issued a draft NPDES general permit for CAFOs for public comment and then conducted four public information meetings to explain the content and procedures for its draft permit. This kind of outreach can help address questions and concerns, promote effective public input in this stage of the process, and reduce the number of challenges to general permits.

2.1.3 How do CAFOs seek permit coverage under an NPDES general permit?

NPDES general permits for CAFOs must specify the deadlines for submitting NOIs to be covered and the date(s) when a permittee is covered by the NPDES general permit. Any facility that seeks coverage under a general permit is required to submit a written NOI by a date certain (as identified in the final

general permit) unless otherwise notified by the permitting authority [40 CFR 122.28(b)(2)]. The information requirements for the NPDES CAFO general permit NOI and the NPDES CAFO permit application form, for an individual permit, are the same. The minimum requirements for both the NOI and application are defined in 40 CFR 122.21(i)(1) [also see 122.28(b)(2)(ii)]. The NOI/Permit Application for CAFOs is found in Appendix D. This form contains the minimum federal requirements. There may be additional State-specific requirements that need to be addressed.

A complete and timely NOI indicates the owner or operator's intent to abide by all the conditions of the permit and fulfills the requirements of a permit application. The contents of the NOI must be clearly specified in the general permit, and should include the requirement to submit adequate information to determine whether coverage under the general permit is appropriate.

2.1.4 How does the permitting authority manage NOIs?

The NOI serves as a permit application for CAFOs that seek coverage under the NPDES general permit. While the regulations allow several methods for providing coverage under a general permit, EPA recommends that the general permit specify that the facility is authorized to discharge in accordance with the permit after a specified waiting period of, for example, 30 days. The general permit should specify whether coverage is automatic unless notified by the permitting authority or whether it begins on receipt of notification of inclusion by the permitting authority. This will allow the permitting authority to provide for meaningful public involvement after NOIs are submitted.

Upon receipt of an NOI, the NPDES permitting authority should post the NOI or other information identifying who has applied for coverage under the general permit for public review prior to the effective date of coverage of the CAFO under the general permit. Permitting authorities may want to develop and use Internet-based sites as a supplemental and cost-effective means for providing ready public access to CAFO permit information, including NOIs. EPA encourages States to provide for electronic NOIs and posting of NOIs submitted by CAFOs so they are more easily accessible to the public. Some States have already made much of this information available on State-supported web sites. The NOI also provides essential compliance information, and the permitting authority should ensure that the information is entered into the Permit Compliance System.

The public would thus have the opportunity to be notified of CAFOs seeking coverage under the general permit before coverage takes effect for those facilities. Upon review of an NOI or other information identifying CAFOs seeking coverage under the permit, or any other document by the permitting authority (e.g., permit, annual report, State technical standards for nutrient management), the public would have an opportunity to seek more information, to raise concerns, to petition the permitting authority for individual permit coverage, or to request a hearing concerning CAFOs seeking coverage under the general permit. The permitting authority is encouraged to consider requests as it normally would and may choose to hold a public hearing for one or more operations who have submitted NOIs seeking coverage under the general permit

2.2 Individual NPDES Permits for CAFOs

The permitting authority may require any discharger authorized by a general permit to apply for and obtain an individual NPDES permit [40 CFR 122.28(b)(3)]. In addition, any interested person may petition the permitting authority to take such action [40 CFR 122.28(b)(3)]. This section describes the CAFOs that are most appropriately covered by individual NPDES permits, as well as additional permit conditions that should be imposed on certain facilities.

2.2.1 Which CAFOs should be covered by individual NPDES permits?

Whether a CAFO should be required to obtain an individual NPDES permit is a determination that remains within the discretion of the permitting authority. [40 CFR 122.28(b)(3)]. In making such a determination, the permitting authority may wish to consider factors such as whether the CAFO is an:

- Exceptionally large operation (existing and new)
- Operation that has historical compliance problems
- Operation that has significant environmental concerns
- Operation located in an area of significant environmental concern or with particular water quality impairment
- Operation subject to voluntary alternative performances standards for the production area
- Operation subject to additional State requirements that apply to specific areas or operations

2.2.2 How are individual NPDES permits developed?

An individual NPDES permit for a CAFO is developed in the same manner as an NPDES permit for a facility in any other sector. Upon receipt of the permit application, the permit writer develops a draft permit and fact sheet for a particular facility based on the information contained in the application submitted by the facility. The draft permit and fact sheet are made available for public review and comment and are subsequently issued in final form.

Table 2-1 lists the information that must be provided on Forms 1 and 2B. Appendix D includes a copy of Form 2B. The minimum information that is required to be submitted is the same for both individual and general NPDES permits. In addition, facility inspection report(s) may be used to supplement the development of permit conditions. Appendix A contains a list of possible references for the permit writer in support of NPDES permit development.

Given the potential water quality concerns associated with CAFOs to be covered under individual NPDES permits, the permitting authority should take special steps to ensure that it has the necessary information needed to prepare the draft permit and fact sheet. The permitting authority may use its Clean Water Act Section 308 authority or corresponding State authorities to obtain additional needed information or to conduct a site inspection while developing the draft permit.

Table 2-1. Information Required on NPDES Application Forms 1 and 2B	
Form 1 (all NPDES individual permit applicants) (40 CFR 122.21 (f))	Activities conducted by the applicant that require an NPDES permit
	Name, mailing address, and location of facility
	Up to four Standard Industrial Classification codes that best reflect the principal products or services provided
	Operator's name, address, and telephone number, and ownership status
	Whether the facility is located on Indian lands
	List of all other State and/or Federal permits or construction approvals received or applied for under Clean Water Act, Resource Conservation and Recovery Act (RCRA), Safe Drinking Water Act (SDWA), etc.
	Brief description of the nature of the business
Form 2B (CAFOs) (40 CFR 122.21 (i))	The name of the owner or operator
	Facility location and mailing address
	Latitude and longitude of the production area (entrance to production area)
	Topographic map of the geographic area in which the CAFO is located showing the specific location of the production area
	Specific information about the number and type of animals, whether in open confinement or housed under roof
	Type of containment and storage and total capacity for manure, litter, or process wastewater storage
	Total number of acres under control of the applicant available for land application of manure, litter, or process wastewater
	Estimated amounts of manure, litter, and process wastewater generated per year
	Estimated amounts of manure, litter, and process wastewater transferred to other persons per year
	For CAFOs that must seek coverage under a permit after December 31, 2006, a certification that a nutrient management plan has been completed and will be implemented upon the date of permit coverage.

3.0 WHICH FACILITIES ARE CAFOS AND NEED TO SEEK COVERAGE UNDER AN NPDES PERMIT?

The NPDES program regulates the discharge of pollutants from point sources to waters of the United States. CAFOs are point sources, as defined by the Clean Water Act, Section 502(14).

Permit writers should have a thorough understanding of the type of facility that EPA defines as a CAFO under the NPDES program. This section helps the permit writer determine whether a facility is a CAFO and explains who must apply for a permit under the NPDES CAFO regulation.

3.1 Which Operations Are Defined as Animal Feeding Operations?

A facility must first meet the animal feeding operation (AFO) definition before it can be considered a concentrated animal feeding operation (CAFO). AFOs are defined as operations where 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 and where vegetation is not sustained in the confinement area during the normal growing season. AFOs typically maintain animals, feed, and manure, and have production operations. EPA interprets "maintained" to mean that the animals are confined in the same area where waste is generated and/or concentrated. Areas where animals are "maintained" can also include areas where confined animals are watered, cleaned, groomed, or medicated. This interpretation gives the NPDES permitting authority the ability to regulate animal operations such as dairy farms, stockyards, fairgrounds, and auction houses where animals may not be fed, but are confined temporarily.

> ***Regulatory Citation*** –
>
> *Animal feeding operation* (AFO) means a lot or facility (other than an aquatic animal production facility) where the following conditions are met:
>
> 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.
>
> **AND**
>
> Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.
>
> [40 Code of Federal Regulations (CFR) Part 122.23(b)(1)]

The first part of the regulatory definition of an AFO means that animals must be kept on the lot or facility for a minimum of 45 days in a 12-month period. If an animal is confined on a facility for *any* portion of a day, it is considered to be on the facility for a full day. For example, dairy cows that are brought in for less than an hour to be milked would count as being on the facility for a portion of the day. However, this does not mean that the same animals must remain on the lot for 45 days or more in order for the operation to be defined as an AFO. It means that some animals are fed or maintained on the lot or facility for 45 days out of any 12-month period. The 45 days do not have to be consecutive, and the 12-month period does not have to correspond to the calendar year. For example, June 1 to the following May 31 would constitute a 12-month period.

The second part of the regulatory definition of an AFO distinguishes confinement areas from pasture or grazing land. This part of the definition relates to the portion of the facility where animals are confined and where natural forage or planted vegetation does not occur during the normal growing season. Confinement areas may have some growth along the edges while animals are present or during months when animals are kept elsewhere. If a facility maintains animals in an area without vegetation, including dirt

lots, the facility meets the second part of the AFO definition. For example, the following types of confinement areas meet the vegetation criteria of the AFO definition (the definition is not limited to these situations):

- Facilities with confinement houses with constructed floors or metal slots;
- Operations with animals confined in an area without vegetation, including dirt lots; and
- Facilities that have dirt lots with incidental vegetative growth while animals are present or during months when animals are kept elsewhere.

True pasture and rangeland operations are not considered AFOs because animals at these operations are generally maintained in areas that sustain crops or forage growth during the normal growing season. In some pasture-based operations, animals may freely wander in and out of particular areas for food or shelter; this is not considered confinement. However, pasture and grazing-based operations may also have confinement areas (e.g., feedlots, barns, milking parlors, pens) that meet the definition of an AFO. Incidental vegetation in a clear area of confinement would not exclude an operation from meeting the definition of an AFO.

In the case of a winter feedlot, the second part of the AFO definition (i.e., "no vegetation") is meant to be evaluated during the winter, when the animals are confined. Animals from a grazing operation may be confined during winter months in a confinement area that had vegetation during other parts of the year. If the animals are confined for more than 45 days but not year-round and vegetation emerges in the spring when animals are removed, the presence of vegetation does not prevent this feedlot from becoming defined as an AFO because vegetation is growing when animals are not present. In this example the feedlot will not sustain the vegetation that had emerged in spring once the animals are moved back into the feedlot. Therefore it would meet the definition of an AFO.

Is this animal production operation an AFO?

Example A: An operation confines its animals for 10-day intervals every month for 5 months. The animals are kept in an enclosure with slot floors. **Answer:** This operation meets the AFO definition because it confines animals for a total of 50 days in less than a 12-month period and the confinement area has slot floors.

Example B: An operation confines mature animals in pens of five animals each. It has 200 pens per building and 5 buildings. The animals are confined year round. **Answer:** This operation is an AFO because it confines animals for 45 days or more and does not sustain vegetation in the confinement area.

Example C: An operation raises beef cattle in a 5,000-acre pasture from April 1 through November 30 of each year. From December 1 through March 3, the cattle are confined by a fence to a 10-acre area. The animals are not free to move between the temporary confinement area and the pasture area. The growing season for the area in which the operation is located is from May 1 through October 15. A site visit is made to the operation during January, and the 10-acre area where the animals are confined has vegetation on roughly 5 percent or less of the ground; the other areas are barren soil or packed manure. The confinement area was completely covered by vegetation during a prior visit to the operation during August. **Answer:** While the operation is pasture-based for most of the year, it does meet the definition of an AFO. The animals are held in confinement for more than 45 days and the vegetation has been denuded to the point that it is incidental while the animals are in confinement. The fact that the vegetation reestablishes itself some time after the animals have been released from confinement does not change the fact that the winter confinement results in this operation meeting the definition of an AFO.

Example D: A beef cattle operation maintains the herd on pastures from March 15 through November 15. From November 16 through March 14, the herd is moved to a fenced field where crops were grown during the spring and summer months. During the winter, while the animals are confined to the field, the animals eat all of the post-harvest residue and other vegetation that remained in the field after the crops were harvested. Additional feed is also brought to the field to sustain the herd throughout the winter months. **Answer:** This operation meets the AFO definition. The animals are confined and fed for more than 45 days in a 12-month period (November through March of each year). Although the confinement area is used for crop production during times when the animals are grazing on pasture, the vegetation is not sustained during the period when the animals are confined there.

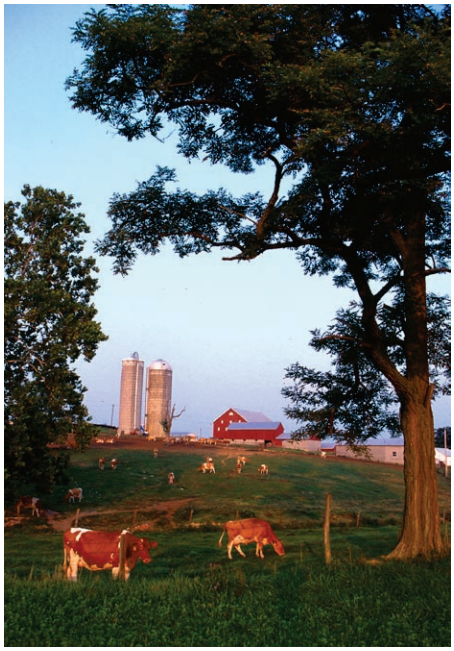
Example E: An operation raises beef cattle in a 10,000-acre pasture rangeland. In the winter, food is brought to various locations in the pasture rangeland to sustain the animals. The area immediately around the food supply is rendered barren of vegetation. However, the animals have full access to the pasture area. **Answer:** This operation is not an AFO because the animals are free to move within the entire pasture and the vegetation is sustained in pasture areas.

Example F: An operation raises beef cattle in a 2,000-acre pasture. In the winter, the animals congregate in a smaller area (e.g., 100 acres), and have access to a creek as their primary source of water. The area immediately around the creek is rendered barren of vegetation when the animals are present. This barren area constitutes approximately 10 percent of the 100-acre wintering area. The remainder of the 100 acres retains vegetative cover. **Answer:** This operation is not an AFO because vegetation is sustained in the confinement area while the animals are present. While the practices at this operation do not result in it meeting the definition of an AFO, the practices are not protective of water quality. EPA would encourage such an operation to provide an alternative water source to keep the animals out of the creek to reduce potential water quality impacts.

Example G: An operation raises cattle on pasture; however, a number of the cattle are confined for birthing each spring. The confinement area is a dirt floored pen that has only incidental vegetation present along the edges and in some small areas within the pen. The animals are in the pen for 90 days each spring. **Answer:** This operation meets the AFO definition. The animals are confined and fed for more than 45 days and there is only incidental vegetation in the confinement area.

Slotted floors facilitate waste handling and the recycling of wastewater.

Beef cattle raised on pasture can be confined to smaller temporary confinement areas for part of the year.



Waters of the United States should be protected from upslope animal confinement and manure storage areas.

Winter feeding of cattle.

A water tank in a pasture combined with fencing keeps cattle out of critical riparian areas.

Pasture rotation provides adequate cover to prevent runoff to surface waters.

3.2 Which AFOs Are Defined as Concentrated Animal Feeding Operations?

AFOs are CAFOs if they meet the regulatory definition [40 CFR 122.23 (b)(4) or (6)] of a Large or Medium CAFO or have been designated as a CAFO on a case-by-case basis [40 CFR 122.23 (c)] by the NPDES permitting authority or by EPA (see Section 3.2.7). This section provides the permit writer with guidance on the type of operations covered by the NPDES permit program for CAFOs, how to determine whether an AFO meets the CAFO regulatory definition, and whether an AFO can be designated as a CAFO. Note that some States have adopted regulatory definitions for CAFOs that are more inclusive than EPA's regulations, and NPDES permits in those States should reflect those definitions.

3.2.1 What types of animal operations are covered by the regulation?

The regulation defines a Large CAFO based on the number of animals confined. Medium CAFOs have other criteria associated with their definition, in addition to the number of animals confined, and these criteria are discussed in Sections 3.2.3, 3.2.4, and 3.3. The sectors specifically defined in the regulations are cattle, dairy cows, veal calves, swine, chickens, turkeys, ducks, horses, and sheep. A brief description of the animal sectors and their associated operations that are covered by the rule are provided in Appendix B. A small or medium AFO can be designated by the permitting authority as a CAFO if it is determined to be a significant contributor of pollutants to waters of the United States.

3.2.2 Which AFOs are defined as Large CAFOs?

An AFO is a Large CAFO if it stables or confines equal to or more than the number of animals specified in Table 3-1 for 45 days or more in a 12-month period. The definition of a Large CAFO is based solely on the number of animals confined.

Table 3-1. Large CAFOs

Number of Animals	Type of Animal
700	Mature dairy cows, whether milked or dry
1,000	Veal calves
1,000	Cattle, other than mature diary cows or veal calves (Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs.)
2,500	Swine, each weighing 55 pounds or more
10,000	Swine, each weighing less than 55 pounds
500	Horses
10,000	Sheep or lambs
55,000	Turkeys
30,000	Laying hens or broilers, if the AFO uses a liquid manure handling system
125,000	Chickens (other than laying hens), if the AFO uses other than a liquid manure handling system
82,000	Laying hens, if the AFO uses other than a liquid manure handling system
30,000	Ducks, if the AFO uses other than a liquid manure handling system
5,000	Ducks, if the AFO uses a liquid manure handling system

Source: 40 CFR Part 122.23(b)(4)

In determining whether the applicable Large CAFO threshold is satisfied, the number of animals actually maintained is considered, not the capacity of the operation.

Is this operation a Large CAFO?

Example A: An operation confines 2,800 mature swine (more than 55 pounds each) in six houses. The houses have a concrete floor with conveyances to capture manure. **Answer:** This operation meets the definition of an AFO; it confines animals for more than 45-days over a 12-month period and the confinement area does not sustain vegetation. The operation is a Large CAFO because it confines more than 2,500 mature swine, a number that exceeds the regulatory threshold for a Large CAFO.

Example B: A 1,000-head cow/calf operation evenly splits its calving between fall and spring. The animals are generally pastured with the exception of two 60-day periods when the cow/calf pairs are confined for weaning. Because the calving is split, only 500 cow/calves are confined in any one weaning session. **Answer:** This operation meets the definition of an AFO because animals are confined for 45 days in a 12-month period. Because the operation does not confine 1,000 or more animals or cow/calf pairs for more than 45 days, the operation is not defined as a Large CAFO. The operation could be a Medium CAFO if it meets one of the two discharge criteria for the Medium CAFO category, or is designated as a CAFO by the permitting authority.

Example C: A background yard (raises feeder cattle from time calves are weaned until they are on a finishing ration in the feedlot) has the capacity to hold 1,100 head of cattle. The facility operates year round (animals are confined 365 days a year) and has never confined more than 800 head at any one time. **Answer:** This operation meets the definition of an AFO because animals are confined for 45 days in a 12-month period. Because the operation does not confine 1,000 or more animals or cow/calves at any one time, the operation is not defined as a Large CAFO. The operation could be a Medium CAFO if it meets one of the two discharge criteria for the Medium CAFO category, or is designated as a CAFO by the permitting authority.

Hog parlor with a concrete floor and a conveyance that carries manure and wastewater to a lagoon.

Calves on pasture.

Beef cattle animal feeding operation.

3.2.3 What practices constitute a liquid manure handling system at poultry operations?

The thresholds for chicken and duck AFOs in the CAFO definition are based on the type of litter or manure handling system being used. The two systems are either a liquid manure handling system or other than a liquid manure handling system. A liquid manure handling system includes the use of pits, lagoons, flush systems (usually combined with lagoons), and holding ponds, as well as systems such as continuous overflow watering, where water comes into contact with manure and litter. In addition, operations that remove waste from confinement areas and stack or pile it in areas exposed to rainfall are considered to have a liquid manure handling system. This would include those operations that remove litter from the confinement area and stockpile or store it in remote locations. Permitting authorities may authorize some limited period of temporary storage of litter of no more than 15 days that would not result in the facility meeting the definition of a liquid manure handling system (e.g., where this limited time is needed to allow for contract hauling arrangements). Once the litter is stockpiled beyond this temporary period the uncovered stockpile would constitute a liquid manure handling system and the lower threshold for chickens at 30,000 birds and ducks at 5,000 birds would be applicable to these operations.

How are wet lot and dry lot operations distinguished for duck operations?

For ducks, there are two thresholds for defining an operation as a CAFO: (1) where the animals are raised outside with swimming areas or ponds, or with a stream running through an open lot, or (2) in confinement buildings where water is used to flush the manure to a lagoon, pond, or other liquid storage structure. These types of operations would be considered to be wet lots and to use a liquid manure handling system.

A duck operation using confinement buildings and handling manure and bedding exclusively as dry material; an operation using a building with a mesh or slatted floor over a concrete pit, where the manure is scraped into a waste storage facility; or an operation using dry bedding on a solid floor is referred to as a "dry" operation. These operations use other than a liquid manure handling system. However in the case of operations that stack litter see the discussion above.

3.2.4 Which AFOs are defined as Medium CAFOs?

An AFO is defined as a Medium CAFO if it meets both parts of a two-part definition. The first part of the definition addresses the number of animals confined and the second part of the definition includes specific discharge criteria. In addition, an AFO of medium size can be designated as a CAFO by the permitting authority or EPA (see Section 3.2.5). The range of animals that define an AFO as a Medium CAFO are listed in Table 3-2. If an AFO confines the number of animals listed in Table 3-2 for 45 days or more in a 12-month period, it meets the first part of the definition of a Medium CAFO.

Table 3-2. Medium CAFOs

Number of Animals	Type of Animal
200–699	Mature dairy cows, whether milked or dry
300–999	Veal calves
300–999	Cattle, other than mature diary cows or veal calves (Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs.)
750–2,499	Swine, each weighing 55 pounds or more
3,000–9,999	Swine, each weighing less than 55 pounds
150–499	Horses
3,000–9,999	Sheep or lambs
16,500–54,999	Turkeys
9,000–29,999	Laying hens or broilers, if the AFO uses a liquid manure handling system
37,500–124,999	Chickens (other than laying hens), if the AFO uses other than a liquid manure handling system
25,000–81,999	Laying hens, if the AFO uses other than a liquid manure handling system
10,000–29,999	Ducks, if the AFO uses other than a liquid manure handling system
1,500–4,999	Ducks, if the AFO uses a liquid manure handling system

Source: 40 CFR Part 122.23(b)(6)

Second, the facility must meet one of two discharge criteria. The criteria are applicable only to the production area of the AFO and are not applicable to land areas where manure and wastewater are applied. A facility meets the discharge criteria if pollutants are discharged in one of the following ways [40 CFR 122.23 (b)(6)]:

- Into waters of the United States through a man-made ditch, flushing system, or other similar man-made device, or
- Directly into waters of the United States that originate outside of the facility and pass over, across, or through the facility or otherwise come into direct contact with the confined animals.

If the facility does not discharge from its production area it is not defined as a Medium CAFO. Further, even though a facility is not defined as a Medium CAFO, if it discharges using a method other that the two listed above, it may still be designated as a CAFO (see Section 3.2.5).

Definition of Production Area

Production area means that part of an AFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities. [40 CFR 122.23(b)(8)]

A flushing system uses fresh or recycled water to move manure from the point of deposition or collection to another location. The term *man-made device* means a conveyance constructed by humans through which manure, litter, or process wastewater is transported. Man-made devices include, among other things, pipes, ditches, and channels. If human action was involved in the creation of the conveyance, it is man-made even if natural materials were used to form the conveyance.

The second criterion is met whenever there is a discharge to a stream, creek, wetland, or other water of the United States that begins outside a production area and passes over, across, or through the production area. This method of discharge criterion is also met if animals maintained at the facility can come into direct contact with waters of the United States. A stream running through the area where animals are confined indicates that there is a direct discharge of pollutants. An intermittent stream or a dry creek bed running through the production area also falls into this category.

Is this operation defined as a Medium CAFO?

Example A: A dairy with 600 cows confined year-round discharges parlor wash water through a floor drain that is connected to a tile which outlets to a stream. **Answer:** Yes. The pipe connecting the floor drain to the tile is a man-made device, as is the tile.

Example B: Runoff from an earthen lot with 850 beef cattle, confined for 6 months a year, passes through a settling basin, riser pipe, concrete channel, junction box, and distribution manifold before flowing by gravity to an area where it infiltrates into the soil. **Answer:** No. While the system described includes several man-made devices, the operation does not meet the definition of a Medium CAFO because the runoff does not enter waters of the United States.

Example C: A 400-head beef cattle AFO, operated year-round, has a properly designed grassed waterway installed adjacent to the production area that transports runoff to an open field. There is no surface water in the area where the runoff is transported. **Answer:** No. While a properly designed grassed waterway is a man-made device, the discharge in this case does not reach a water of the United States.

Piped discharges of barnyard and milkhouse wastewater could pollute surface water.

Grass filter strips can protect surface water from manure and effluent application.

3.2.5 Which AFOs can be designated as CAFOs?

The NPDES regulations for CAFOs set forth the standards and process for the NPDES permitting authority or, in some cases EPA, to designate, on a case-by-case basis, any AFO as a CAFO, upon determining that the facility is a significant contributor of pollutants to waters of the United States. Designation ensures protection of surface water quality while maintaining flexibility for States or other entities to assist small and medium operations in removing risk conditions before they become subject to NPDES requirements applicable to CAFOs.

Any AFO may be designated as a CAFO on a case-by-case basis if determined to be a significant contributor of pollutants to waters of the United States as specified in 40 CFR 122.23(c). However, given the structure of the CAFO definition, three types of AFO operations are typically considered for designation:

Medium CAFO Definition Discharge Criteria

- Pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or
- Pollutants are discharges directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with animals confined in the operation.

[40 CFR 122.23(b)(6)(ii)(A) and (B)]

- A medium-sized AFO that does not meet one of the specific discharge criteria and is determined to be a significant contributor of pollutants to waters of the United States;
- A small AFO (i.e., confines less than the number of animals defined in Table 3-2) if the facility meets one of the method of discharge criteria [122.23(c)(3)(i) and (ii)] and is determined to be a significant contributor of pollutants to waters of the United States;
- An AFO that raises animals other than species identified in the regulatory definition of a Medium CAFO and is determined to be a significant contributor of pollutants to waters of the United States. Examples of such AFOs include, geese, emus, ostriches, llamas, mink, bison, alligators, etc.

3.2.6 What are the factors to be considered and the process for designating an AFO as a CAFO?

For an AFO to be designated as a CAFO, it must be determined to be a significant contributor of pollutants to waters of the United States by the appropriate authority [40 CFR122.23(c)]. Once an operation is designated as a CAFO, it must seek coverage under an NPDES permit and, among other things, be required to develop and implement a nutrient management plan.

Under 40 CFR 122.23(c)(3), an AFO may not be designated as a CAFO until the NPDES permitting authority or EPA has conducted an on-site inspection of the operation and determined that the operation should and could be regulated under the permit program. In addition, a small AFO may not be designated as a CAFO unless it also meets the small AFO method of discharge criteria [122.23(c)(3)(i) and (ii)], and is determined to be a significant contributor of pollutants to waters of the United States.

The on-site inspection serves three primary objectives: (1) to confirm that the facility meets the AFO definition; (2) to collect information related to the CAFO designation factors; and (3) to provide a degree of notice to the AFO it may be designated as a CAFO. The requirement for an on-site inspection helps ensure that a reasoned assessment of the situation has been performed and makes the operation aware that it may be designated as a CAFO. EPA recommends that the designation process be conducted as soon as possible following the inspection. Regardless of when an inspection takes place, the designation should be based on current information.

In determining whether an AFO is a significant contributor of pollutants to waters of the United States, the permitting authority or EPA Regional Administrator (see Section 3.2.7) shall consider the factors specified in 40 CFR 122.23(c)(2), which are listed in the left-hand column of Table 3-3, below. The right-hand column in Table 3-3 gives examples of case-by-case designation factors that can be assessed during the designation inspection. The assessment of regulatory factors may be based on visual observations, as well as water quality monitoring and other sources of relevant information.

Table 3-3. Example Factors for Case-by-Case CAFO Designation	
Designation Factor	**Example Factors for Inspection Focus**
❑ Size of the Operation and Amount of Wastes Reaching Waters of the United States	• Number of animals • Type of feedlot surface • Feedlot design capacity • Waste handling/storage system design capacity
❑ Location of the Operation Relative to Waters of the United States	• Location of waterbodies • Location of floodplain • Proximity of production area and land application area to waters of the United States • Depth to ground water, direct hydrologic connection to waters of the United States • Located in an impaired watershed
❑ Means of Conveyance of Animal Wastes and Process Wastewaters into Waters of the United States	• Identify existing or potential man-made (includes natural and artificial materials) structures that may convey waste • Direct contact between animals and waters of the U.S.
❑ Slope, Vegetation, Rainfall, and Other Factors Affecting the Likelihood or Frequency of Discharge of Animal Wastes, Manure, and Process Wastewaters into Waters of the United States	• Slope of feedlot and surrounding land • Type of feedlot (concrete, soil) • Climate (e.g., arid or wet) • Type and condition of soils (e.g., sand, karst, etc.) • Drainage controls • Storage structures • Amount of rainfall • Volume and quantity of runoff • High water table • Buffers
❑ Other Relevant Factors	• History of non-compliance • Use of conservation practices to minimize nutrient transport to waters of the United States • Working with USDA or Soil and Water Conservation District to improve operation

Following the on-site inspection for designation, the NPDES permitting authority should prepare a brief report that (1) identifies findings and any follow-up actions, (2) determines whether the facility should or should not be designated as a CAFO, and (3) documents the reasons for that determination. Regardless of the outcome, a letter should be prepared and sent to inform the facility of the results of the inspection. If the permitting authority has made a decision to designate an AFO as a CAFO, the letter should specify that the operation must obtain an NPDES permit. The letter should indicate whether a general permit is available or whether an individual permit application is to be submitted by a specific date. In those cases where a facility has not been designated as a CAFO but the NPDES permitting authority has identified areas of concern, these areas should be noted in the letter. The letter should state that if these concerns are not corrected, the facility may be designated in the future. It should also include a date for a follow-up inspection to determine whether the concerns have been adequately addressed. Samples of letters that would be used at the conclusion of a designation inspection are included in Appendix C.

The following are examples of situations that may warrant designation:

- An AFO that maintains 350 cattle is located adjacent to a river that is impaired as a result of nutrient loading. The operator routinely piles the waste next to the enclosure where it remains until a

contract hauler picks it up. The waste is removed monthly; but rainfall occurs several times a month and runoff from the stockpiled manure flows through naturally occurring channels in the ground to the river. This facility would be a candidate for inspection and designation as a CAFO (the permitting authority also could recommend site modification). Note that an AFO that confines the number of animals specified in 40 CFR 122.23(b)(6) (Medium CAFO) does not need to meet the discharge criteria specified in 40 CFR 122.23(c)(3)(i) or (ii) to be designated as a CAFO.

- An AFO with 650 swine is crossed by a stream that originates outside of the facility and flows through its open lot, where the animals are confined, and continues on to connect with other waters of the United States beyond the facility. This facility would be a candidate for inspection and designation as a CAFO. Because the facility is a small AFO, it must meet the discharge criteria in 40 CFR 122.23(c)(3)(i) or (ii).

Runoff from unprotected stockpiles could pollute surface water.

Uncontrolled manure that enters surface waters constitutes a point source discharge.

3.2.7 Can EPA designate an AFO as a CAFO in NPDES authorized States?

The CAFO regulations explicitly authorize the EPA Regional Administrator to designate AFOs as CAFOs in NPDES-authorized States and Tribes where the Regional Administrator has determined that one or more pollutants in an AFO's discharge contributes to an impairment in a downstream or adjacent State or Indian country water that is impaired by that pollutant. Such designation is based on assessment of the factors in 40 CFR 122.23(c)(2), and also requires an on-site inspection. Upon designation by EPA, the operation would be required to apply to the permitting authority for permit coverage. EPA designation in NPDES-authorized States is intended to ensure consistent implementation of designation requirements across State or Tribal boundaries where there are serious water quality concerns. It is not EPA's intention to make such designations without close coordination with affected States and Tribes.

3.2.8 What is the relationship of State or Tribal voluntary and non-NPDES programs to designation?

Medium-sized and small AFOs that have conditions that may warrant designation or meet the regulatory definition of a CAFO can often be effectively addressed by USDA voluntary programs, State or Tribal voluntary programs or by State non-NPDES regulatory programs focused on the elimination of the conditions that result in a discharge to waters of the United States. Implementing these voluntary or regulatory State or Tribal programs can help to ensure that medium and small operations implement proper practices and are not defined or designated as CAFOs. If documented discharges to waters of the United States are not addressed by the owner or operator of particular AFOs, the NPDES CAFO regulations provide authorized States and Tribes with appropriate flexibility to use designation as an effective mechanism to address these operations. Once designated as a CAFO, or when the facility meets the definition, the operation is subject to permitting requirements.

3.2.9 What if an operation has multiple animal types?

An AFO is defined as a CAFO if any one animal type in confinement meets the threshold for either a Large or Medium CAFO. An operation that meets the threshold for a Medium CAFO also must meet one of the discharge criteria to be defined as a Medium CAFO. Under the revised NPDES CAFO regulation, multiple types of animals are no longer counted together to determine the type and size of a CAFO.

Is this AFO a CAFO?

Example A: A dairy operation confines year-round 275 dry mature dairy cows, 500 lactating mature dairy cows, and 800 heifers. **Answer:** This operation meets the definition of a Large CAFO because it confines more than 700 (in this case 775) mature dairy cows, milked or dry for more than 45-days. The 800 heifers alone would not meet the threshold for a Large CAFO. Once the operation meets the definition of a CAFO, the manure from all of the animals confined, including the heifers, would be subject to the ELG and would need to be addressed in the nutrient management plan developed and implemented at the operation.

Example B: A swine nursery operation has 15,000 piglets that range in weight from 40 to 60 pounds. The operation also has a farrowing house with 2,200 sows and approximately 13,000 piglets that are not weaned. The operation maintains this number of animals year-round. **Answer:** This operation would meet the definition of a Large CAFO if it has at least 10,000 piglets that weigh under 55 pounds confined for more than 45-days. Once the operation meets the definition of a CAFO, the manure from all of the animals confined would be subject to the ELG and would need to be addressed in the nutrient management plan developed and implemented at the operation.

Example C: An operation confines for more than 45-days 250 beef cattle, 20 horses, and 22,000 chickens (does not use a liquid manure handling system). **Answer:** This operation does not meet the definition of a CAFO. The number of animals of any one animal type that are confined for 45-days in a 12-month period does not exceed the thresholds for a Large or Medium CAFO. Given that there are not sufficient animals confined, there is no need to determine whether the AFO meets one of the two discharge criteria to be defined as a Medium CAFO. However, this operation could still be designated as a CAFO if a determination is made by the appropriate authority that the operation is a significant contributor of pollutants to waters of the United States.

Dairy cattle animal feeding operation.

Swine AFOs could house animals of a single age class or mixed age classes (i.e., swine weighing both greater and less than 55 pounds).

Leaking waterers complicates litter management.

However, once a given operation is defined as a CAFO, regardless of animal type, the regulations apply to all of the manure, litter, and wastewater generated by all animals confined at the operation. In the event that waste streams from multiple livestock species are commingled and the regulatory requirements for each species are not the same, the permit must include the more stringent ELG requirements.

In situations where immature animals (e.g., heifers and swine (weighing less than 55 lbs)) are confined along with mature animals, the determination of whether the operation is a CAFO depends on whether the mature or immature animals separately meet the applicable threshold. Operations that specialize in raising only immature animals (heifers, swine (weighing less than 55 lbs), and veal calves) have specific thresholds under the regulations. However, once an AFO is defined as a CAFO, manure, litter, and process wastewater generated by all of the animals in confinement would be subject to NPDES permit requirements.

An operation that confines multiple animal types, where no one type meets the Large or Medium CAFO threshold, can be designated as a CAFO if it is found to be a significant contributor of pollutants to waters of the United States. See Section 3.2.5 for additional discussion of designated CAFOs.

3.2.10 How are operations under common ownership defined?

Under the NPDES regulations for CAFOs, two or more AFOs under common ownership are considered one operation if, among other things, they adjoin each other, including facilities that are separated by a right-of-way or public road, or if they use a common area or system for the disposal of wastes. For example, operations generally meet this criterion where they have a common manure and wastewater storage and handling system in which the manure, litter, or process wastewater are commingled (e.g., stored in the same pond, lagoon, or pile or land applied on common fields). Whether the common ownership operation meets the definition of a Large or Medium CAFO depends on the cumulative number of animals confined.

3.2.11 How are AFOs with animal types not listed in the regulation defined?

An operation confining any other animal type (e.g., geese, emus, ostriches, bison, mink, alligators, etc.) that is not explicitly mentioned in the NPDES and effluent guidelines regulations is still subject to NPDES permitting requirements if it meets the definition of an AFO and if the permitting authority designates it as a CAFO. See Section 3.2.5 for a discussion of designation.

3.3 Who Must Apply for a Permit?

3.3.1 Which CAFOs have a duty to apply for a permit?

The CAFO regulations at 40 CFR 122.23(d) require all CAFO owners or operators to apply for an NPDES permit. An exception to this requirement is that Large CAFOs need not apply for a permit if they can successfully demonstrate that they have “no potential to discharge” (see Section 3.3.5). EPA expects only limited numbers of Large CAFOs to be able to show “no potential to discharge”; therefore, nearly all will need to apply for an NPDES permit. In addition, all medium-sized and small AFOs that are defined or designated as CAFOs have a “duty to apply.” The regulations do not provide any exception for Medium and Small CAFOs that have “no potential to discharge”, since the criteria for becoming a Medium or Small CAFO are based upon the existence of a discharge. Some States and Tribes may want to work with AFOs that meet the definition of a Medium or Small CAFO to eliminate the discharge conditions that define the operation as a CAFO or make it a candidate for designation (see Section

3.2.8). EPA encourages States to maximize the use of voluntary and other non-NPDES programs to support the efforts by medium and small operations to implement appropriate measures and correct problems that cause them to be defined or might cause them to be designated as CAFOs and thus be subject to permitting.

3.3.2 What information is required in an NPDES CAFO Permit Application or Notice of Intent?

CAFO owners or operators must either submit an application for an individual permit or submit a Notice of Intent (NOI) (or the permitting authority's comparable form) for coverage under a general permit, if a general permit is available.

The revised CAFO regulations amend the information requirements for seeking coverage under an NPDES permit for CAFOs. The regulations revise the NPDES individual permit application (Form 2B) and general permit NOI form for CAFOs, and specify the information required for coverage under either type of CAFO permit [40 CFR 122.21(i)(1) and 122.28(b)(2)(ii)]. Form 2B can be used by the permitting authority for both NPDES CAFO permit applications and NOIs. EPA requires applicants for coverage under either individual or general CAFO permits to provide the same minimum information that consists of the items listed in Table 3-4.

Table 3-4. NPDES CAFO Permit Required Application Information

Required Information	
• The name of the owner or operator	• The type of containment and storage (anaerobic lagoon, roofed storage shed, storage ponds, underfloor pits, above ground storage tanks, below ground storage tanks, concrete pad, impervious soil pad, other) and total capacity for manure, litter, and process wastewater storage (tons/gallons)
• The facility location or mailing address	• The total number of acres under control of the applicant available for land application of manure, litter, or process wastewater
• Latitude and longitude of the production area (entrance to production area)	• Estimated amount of manure, litter, and process wastewater generated per year (tons/gallons)
• A topographic map of the geographic area in which the CAFO is located showing the specific location of the production area, in lieu of the requirements of 40 CFR 122.21(f)(7)	• Estimated amount of manure, litter, and process wastewater transferred to other persons per year (tons/gallons)
• Specific information about the number and type of animals, whether in open confinement or housed under roof (beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other)	• For CAFOs that must seek coverage under a permit after December 31, 2006, certification that a nutrient management plan has been completed and will be implemented upon the date of permit coverage.

The complete revised Form 2B is included in Appendix D to this guidance.

To the extent that a permitting authority needs additional information to support a permit application, the NPDES permitting authority may request additional information and use other Clean Water Act information-gathering authorities (e.g., § 308) to obtain such information.

3.3.3 Which CAFOs are new sources?

The revised CAFO regulations do not change the definitions of new source or new discharger, which are found at 40 CFR 122.2 and 122.29. Whether a facility is a new source affects the applicable time-frame for compliance and the applicability of the feedlot new source performance standards.

Table 3-5 outlines the applicability of new source performance standards (NSPS) to four groups of Large CAFOs covered by Part 412 Subparts C and D following promulgation (February 12, 2003) of the revised CAFO NPDES regulations and Effluent Limitations Guidelines. Two of these groups (1 and 3) are not subject to NSPS under either the "old" (1974) or "new" (2003) ELGs. One group (2) is subject to NSPS under the 1974 ELGs, but only so long as they are subject to the 10-year protection period of 40 CFR 122.29(d). The remaining group (4) is subject to NSPS under the 2003 ELGs. Where NSPS is not applicable, Large CAFOs are subject to the BAT requirements of the newly revised ELGs.

Table 3-5. Applicability of New Source Performance Standards (NSPS) for NPDES Permits Issued to CAFOs in Subparts C and D Following Promulgation of the Revised CAFO Regulations

Time period that the Large CAFO commenced construction (consistent with the new source criteria in 40 CFR 122.29(b))	Do the 1974 NSPS for CAFOs apply?	Do the February 12, 2003 NSPS for Large CAFOs apply?
(1) Large CAFOs formerly defined as CAFOs under the 1976 NPDES regulations that commenced construction prior to April 1993	No	No
(2) Large CAFOs formerly defined as CAFOs under the 1976 NPDES regulations that commenced construction between April 1993 and April 14, 2003	Yes - During the 10-year protection period established by 40 CFR 122.29(d). Once this period expires, the CAFO is subject to BAT under the newly promulgated guideline.	No
(3) Existing AFOs newly defined as Large CAFOs under the 2003 NPDES regulations that commenced construction prior to April 14, 2003	No	No
(4) AFOs defined as Large CAFOs under the 2003 NPDES regulations that commenced construction after April 14, 2003	Not Applicable	Yes

The following is a discussion of each group of facilities listed in the Table 3-5:

(1) Large CAFOs formerly defined as CAFOs under the 1976 NPDES regulations that commenced construction prior to April 1993.

These facilities would have been required to have a permit under the 1976 NPDES CAFO requirements. CAFOs constructed after the 1976 CAFO NPDES regulations were new sources subject to NSPS under the 1974 CAFO ELGs because construction of the source commenced after the applicable new source date. With the promulgation of the new ELGs, these facilities are not new sources subject to the 2003 NSPS because construction of these facilities did not commence after the applicable new source date for the NSPS. Moreover, they are no longer entitled to the 10-year protection

period in 40 CFR 122.29(d) because that time period has expired. They must meet the BAT requirements of the new ELGs.

(2) Large CAFOs formerly defined as CAFOs under the 1976 NPDES regulations that commenced construction between April 1993 and April 14, 2003.

These facilities would have been required to have a permit under the 1976 NPDES CAFO requirements. Because construction of these facilities commenced after the applicable new source date for the 1974 NSPS, they were subject to NSPS under the 1974 CAFO ELGs. These facilities are not new sources under the 2003 NSPS because construction of the facilities did not commence after the applicable 2003 new source date. They may or may not still be subject to the 10-year protection period in 40 CFR 122.29(d), depending, generally speaking, upon the sooner of either the date that construction was completed or the date that a discharge occurred (there is a third consideration relating to the period of depreciation or amortization of the facility). Permits for these facilities should include a provision indicating that they are subject to the 1974 NSPS requirements until their 10-year protection period expires. The permit should state that, after the 10-year period expires, they are immediately subject to BAT under the new 2003 ELGs. Of course, even where new permits include the "old" NSPS because of the 10-year protection period, they will still include the new NPDES best management practices required as conditions in 40 CFR 122.42(e) (once State NPDES authorities have been revised), which would take effect immediately for these facilities. New permits could also include requirements for such sources based on water quality standards, where applicable.

(3) Existing AFOs newly defined as Large CAFOs under the 2003 NPDES regulations that commenced construction prior to April 14, 2003.

These facilities were not defined as CAFOs under the 1976 NPDES CAFO provisions (whether or not they were included as feedlots by the 1974 ELGs). They include facilities that appropriately qualified for the 25-year/24-hour storm exemption and facility types, such as dry litter chicken operations, that were not included in the definitions. These AFOs would be defined as CAFOs by the new requirements, they are new dischargers (not new sources) and subject to BAT (not NSPS) under the new ELGs.

(4) AFOs defined as Large CAFOs under the 2003 NPDES regulations that commenced construction after April 14, 2003.

Any facility defined as a Large CAFO under the 2003 NPDES regulations that commenced construction after April 14, 2003, is subject to NSPS under the new ELGs.

3.3.4 Which operations are considered newly defined and new dischargers?

The NPDES regulation establishes different time frames during which operations must seek coverage under an NPDES permit based upon their status when the regulations became effective. Newly defined CAFOs are those operations that are defined as CAFOs as of April 14, 2003, but were not defined as CAFOs prior to that date. These existing operations have not made changes that resulted in the operation being defined as a CAFO; rather, they have become defined as CAFOs by virtue of the rule changes that became effective on April 14, 2003. Such operations include:

- Dry chicken operations (operations that did not use a liquid manure handling or a continuous overflow watering system)
- Stand-alone immature swine and heifer operations
- AFOs that appropriately claimed the 25-year, 24-hour storm permit exemption before April 14, 2003.

New discharger CAFOs are those operations that become defined as CAFOs after April 14, 2003, but that are not defined as "new sources" in accordance with the new source criteria. Such operations may be new, but not subject to NSPS and therefore not "new sources," or may have changed some aspect of their operations after April 14, 2003, such that they become defined as CAFOs. The following are examples of such operations:

- A newly constructed Medium CAFO operation (constructed after April 14, 2003), because the CAFO NSPS apply only to Large CAFOs
- An existing operation that increases the number of animals confined and thus meets the threshold of a CAFO, but does not meet the definition of a new source.

Existing CAFOs as of April 14, 2003, are those operations that met the definition of a CAFO under the CAFO regulations in place at that time or any operation that otherwise met the CAFO definition, but erroneously claimed the 25-year, 24-hour storm event exemption that existed prior to April 14, 2003.

3.3.5 What is the "no potential to discharge" determination?

The NPDES CAFO regulations require all CAFOs to apply for a permit. An exception is that in lieu of a permit application, Large CAFOs can request a "no potential to discharge" determination from the permitting authority where there is no potential for any CAFO manure, litter, or process wastewater to be added to waters of the United States under any circumstances or climatic condition. If the permitting authority makes a determination that the CAFO has "no potential to discharge", the operation would not need to apply for an NPDES permit. The "no potential to discharge" determination is not relevant to small or medium operations because these operations are defined or designated as CAFOs based on the existence of a discharge. It is important to note that the "no potential to discharge" determination applies to both the production area and land application areas under the control of the CAFO. The "no potential to discharge" determination process may include a site visit to verify the information submitted by the CAFO operator or to gather additional information necessary to make the determination.

3.3.5.1 What information needs to be provided by the CAFO to support a request for a "no potential to discharge" determination?

If a Large CAFO chooses to make a request for a "no potential to discharge" determination, it must submit to the permitting authority sufficient documentation to support the claim. The documentation submitted by the CAFO requesting the determination must include the information required for a permit application, as specified in 40 CFR 122.21(f) and (i)(1)(i) through (ix). Appendix E provides an example of a "no potential to discharge" determination request form that can be used by the permitting authority. This information will serve as the primary basis for determining whether the facility meets the "no potential to discharge" standard. In many cases this information will be sufficient to make the determination. The permitting authority may request a written justification, supported by the information that has been submitted, documenting the technical basis for granting a "no potential to discharge" determination. In making such a determination, the Director of the permitting authority may wish to request additional information to ensure the operation meets the "no potential to discharge" standard (e.g., regional rainfall; soil; hydrological conditions; supplemental, site-specific information, including use of an on-site inspection).

3.3.5.2 What is the timing of a "no potential to discharge" request?

The owner or operator must request a "no potential to discharge" determination by the applicable permit application date specified in 40 CFR 122.23(g). Within 90 days of receiving the request, the Director will inform the CAFO whether or not the request has been granted. During this review period, a CAFO that has submitted a request for a "no potential to discharge" determination does not have a duty to seek coverage under an NPDES permit. The 90-day period begins once the permitting authority has all of the information necessary to make a determination. The permitting authority may need to request additional information from the operation and conduct a site visit to verify submitted information or gather additional information. If the "no potential to discharge" request is denied, the CAFO must seek permit coverage within 30 days following the denial (i.e., submit a completed NOI or permit application, as directed by the permitting authority). Appendix F presents an example of a tracking form that can be used by the permitting authority to facilitate the review and processing of these requests.

3.3.5.3 What are the criteria to be used in making a "no potential to discharge" determination?

EPA's intention is that the term "no potential to discharge" is to be narrowly applied by permitting authorities. This provision is intended to be a protective standard that does not require an NPDES permit only where the Large CAFO can demonstrate to a degree of certainty that it has "no potential to discharge" to the waters of the United States from either its production or land application areas. The "no potential to discharge" status is intended to provide relief where there truly is no potential for a CAFO's manure or wastewater to reach waters of the United States under any circumstance or climatic condition. In particular, the fact that an operation has developed and is implementing a site-specific nutrient management plan addressing the land application areas of the CAFO does not by itself provide a basis for making a "no potential to discharge" determination. To the contrary, land application of manure and wastewater would, in most cases, be enough by itself to indicate that a CAFO does have the potential to discharge (although conceivably "no potential to discharge" could be shown based on the physical features of the site, such as a lack of proximity to waters of the United States).

The specific criteria to be used in making a determination of "no potential to discharge" are established at the discretion of the permitting authority. This guidance provides examples of some sector-specific operational characteristics that may result in a determination of "no potential to discharge" (see Exhibit 3-1). Provided below are recommended criteria for any "no potential to discharge" determination. These recommended criteria are

- All manure and wastewater within the production area, including solids, liquids, and litter, are protected from contact with rainfall, regardless of the severity of the event.
- Provisions are made for adequate storage of manure and process wastewater and the storage area is protected such that the potential for rainfall runoff is eliminated.
- Manure and wastewater are not land applied (except in arid climates and where runoff will not reach waters of the United States).
- All manure and wastewater generated by the operation will be transferred to other persons.
- All operations, including mixed animal operations, will need to address the potential to discharge from all production and land application areas.
- The operation is not located in a 100-year floodplain.
- The operation is not located in a watershed impaired by nutrients or pathogens.

Exhibit 3-1. Generic Sector-Specific Example NPTD Operations

Dairy Cattle Sector - Example NPTD Operation

- All cows are housed under roof at all times
- Manure and wastewater are not land applied
- Manure and wastewater will be transferred to other persons
- Not located in floodplain
- No potential to discharge under any circumstance or climatic condition

Swine Sector - Example NPTD Operation

- All hogs are housed under roof at all times
- Manure and wastewater storage is provided under the barn
- Manure and wastewater are not land applied
- Manure and wastewater will be transferred to other persons
- Not located in floodplain
- No potential to discharge under any circumstance or climatic condition

Poultry Sector - Example NPTD Operation

- Poultry are confined to enclosed houses
- No pollutants are exhausted from houses that may come into contact with stormwater
- All litter is stored under roof and properly protected from rainfall
- Litter is not land applied
- Litter will be transferred to other persons
- Not located in floodplain
- No potential to discharge under any circumstance or climatic condition

Mixed Animal Operation* - Example NPTD Operation

- All animals are housed under roof at all times
- Manure and wastewater storage is provided underneath the barn
- Manure and wastewater are not land applied
- Manure and wastewater will be transferred to other persons
- Not located in floodplain
- No potential to discharge under any circumstance or climatic condition

* Where at least one animal type meets the threshold of a Large CAFO

Beef Cattle Sector - Example NPTD Operation

- Based upon existing industry practices most beef cattle operations will probably not qualify for an NPTD determination. This is based on the following factors:
- Beef cattle are generally not housed in roofed facilities
- It is difficult to provide storage adequate to prevent discharge, although discharge may be unlikely in arid conditions
- In most cases liquid effluent is land applied
- Only manure solids can be sent to regulated compost facilities or other processing operations

3.3.5.4 What are the public notice requirements associated with a "no potential to discharge" determination?

Once all of the information necessary for the permitting authority to make a "no potential to discharge" determination has been submitted, and before making a final decision to grant a "no potential to discharge" determination, the permitting authority must issue a public notice stating that a "no potential to discharge" request has been received. This public notice must be accompanied by a fact sheet which includes, when applicable: (1) a brief description of the location and type of facility or activity which is the subject of the "no potential to discharge" determination; (2) a brief summary of the factual basis upon which the request is based, for granting the "no potential to discharge" determination; and (3) a description of the procedures for reaching a final decision on the "no potential to discharge" determination. The decision to grant a "no potential to discharge" determination must be based on the administrative record, which includes all information submitted in support of a "no potential to discharge" determination and any other supporting data gathered by the permitting authority.

3.3.5.5 What is the effect of a "no potential to discharge" determination?

If a permitting authority issues a "no potential to discharge" determination the operation remains defined as a CAFO, but the CAFO is exempted from the duty to apply requirements. However, the issuance of a determination by the permitting authority does not provide any relief from potential penalties under the Clean Water Act if the operation has a discharge in the future. A discharge from the operation would be a discharge from a point source without a permit, which is a violation of the Clean Water Act. Permitting authorities may elect to follow up with the facility to determine whether the basis for the "no potential to discharge" determination has changed and the facility should apply for an NPDES permit. When issuing a "no potential to discharge" determination, the notice to the facility operator should state that the permitting authority retains the right to collect additional information and conduct on-site inspections to verify the operational status of the facility.

4.0 WHAT ARE THE ELEMENTS OF AN NPDES PERMIT FOR A CAFO?

The elements of an NPDES permit for a CAFO are the same as those issued to other point sources. These elements consist of a cover page, effluent limitations, monitoring and reporting requirements, record keeping requirements, special conditions, and standard conditions (see Table 4-1). For additional details on the elements of an NPDES permit, refer to the *U.S. EPA NPDES Permit Writers' Manual* (EPA-833-B-96-003).

Table 4-1. Elements of an NPDES Permit

Element	Description
Cover Page	Serves as the legal notice of the applicability of the permit, provides the authority under which it is issued, and contains appropriate dates and signature(s).
Effluent Limitations and Standards	Serves as the primary mechanism for controlling discharges of pollutants to receiving waters (e.g., the specific narrative or numeric limitations applied to the facility and the point of application of these limits).
Monitoring and Reporting Requirements	Identifies all of the specific conditions related to the types of monitoring to be performed, the frequencies for collecting samples or data, and how to record, maintain, and transmit the data and information to the permitting authority. Section 4.3 of this guidance addresses monitoring and reporting requirements for NPDES permits for CAFOs.
Record Keeping Requirements	Specifies the types of records to be kept on-site at the permitted facility (e.g., inspection and monitoring records; waste and soil sampling results; time, amount, and duration of land application activities; precipitation records; records of recipients of waste intended for application on land outside the operational control of the CAFO facility, etc.).
Special Conditions	In NPDES permits for CAFOs, special conditions must include (1) the requirement to develop and fully implement a nutrient management plan, and (2) the requirement that the nutrient management plan address nine minimum practices defined in the regulation. In addition, NPDES permits for CAFOs may include other special conditions as determined necessary by the permitting authority.
Standard Conditions	Conditions that apply to all NPDES permits, such as the requirement to properly operate and maintain all facilities and systems of treatment and control, as specified in 40 CFR 122.41.

4.1 What Are the Effluent Limitations and Standards for CAFOs?

Section 301 of the Clean Water Act prohibits the discharge of pollutants from a point source into waters of the United States except in accordance with an NPDES permit. Effluent limitations serve as the primary mechanism in NPDES permits for controlling discharges of pollutants to receiving waters. When developing effluent limitations for an NPDES permit, a permit writer must consider limits based on both the technology available to control the pollutants (i.e., technology-based effluent limits) and limits that are protective of the water quality standards of the receiving water (i.e., water quality-based effluent limits).

The intent of technology-based effluent limits in NPDES permits is to achieve a minimum level of treatment of pollutants for point source discharges based on available treatment technologies. For Large CAFOs the technology-based effluent limitations are defined in 40 CFR Part 412.

In those cases where it is determined that technology-based effluent limits are not sufficient to ensure that water quality standards, designed to protect the water quality, will be attained in the receiving water, the Clean Water Act [Section 303(b)(1)(c)] and NPDES regulations [40 CFR 122.44(d)] require that the permit writer develop more stringent, water quality-based effluent limits. Additional information on

water quality-based effluent limits can be found in Chapter 6 of the *U.S. EPA NPDES Permit Writer's Manual* (http://www.epa.gov/npdes/pubs/chapt_06.pdf). Section 4.1.5 describes an exception to the requirement for CAFO land application areas.

4.1.1 What are the applicable technology standards for CAFOs[1]?

The CAFO ELG, published on February 12, 2003, is applicable only to those operations that meet the regulatory definition of a Large CAFO (See section 3.2.2). The CAFO ELG establishes the technology-based effluent limitations and standards for Large CAFOs. Table 4-2 provides a summary of the ELG applicable to each animal sector. In the case of Medium and Small CAFOs the permit writer will need to develop effluent limitations (including the technology-based limitations and standards) on a case-by-case basis. The authority to issue case-by-case based permit limitations comes from Section 402(a)(1) of the Clean Water Act and 40 CFR 122.44(a) and 125.3. These case-by-case effluent limits are referred to as best professional judgement (BPJ) permit limitations.

> ***Regulatory Citation*** –
>
> Section 301 of the Clean Water Act prohibits the discharge of pollutants from a point source into waters of the United States except in accordance with an NPDES permit.
>
> The NPDES permit regulations at 40 CFR Part 122.44 implement Section 301 by requiring that each NPDES permit issued under Section 402 include conditions that meet technology-based effluent limitations and standards, as well as water quality-based effluent limitations and State requirements.
>
> The ELG for Large CAFOs is defined at 40 CFR Part 412.

Permit limitations are based on BPJ when national effluent limitations guidelines that apply to the appropriate industrial category, or to the particular process involved, have not been issued. For example, there is no ELG for Small or Medium CAFOs or for "exotic" animal species, and there is no applicable ELG for the land application areas at large horse, sheep, or duck CAFOs. Given the similarity in the operational characteristics of CAFOs, in many cases permit writers may find that it is appropriate to develop BPJ effluent limitations for Medium and Small CAFOs that are the same as or similar to the effluent limitations for Large CAFOs. Permit writers may also establish different technology-based limitations for Medium and Small CAFOs based on BPJ. For example, in some cases permit writers may find it appropriate to develop BPJ technology-based limitations that focus on the site-specific circumstances that resulted in the small or medium-sized AFO being defined or designated as a CAFO in the first place.[2]

4.1.2 What are the technology-based effluent limitations for Large CAFOs?

ELG regulations for feedlots [40 CFR Part 412] establish the technology-based effluent limitations applicable to NPDES permits for Large CAFOs (see Table 3-1). The ELG is broken into the following subparts addressing specific animal sectors:

- Subpart A: Horses and Sheep
- Subpart B: Ducks

[1]The NPDES permit regulations require that all permits issued after June 30, 1981 include best conventional pollutant control technology (BCT) and best available technology economically achievable (BAT) technology-based effluent limitations based on national guidelines and standards, or on a case-by-case determination of appropriate effluent limitations, or a combination of the two. The CAFO ELG was originally promulgated in 1974 and was revised in 2003.

[2]There are other circumstances where a permit writer can use BPJ or special permit conditions to address specific discharges at a CAFO. For example, the CAFO ELG does not address plate chiller water, filter backwash water, pollutants (such as manure, feathers, and feed) which have fallen to the ground immediately downwind from confinement building exhaust ducts and ventilation fans and are carried by storm water runoff to waters of the United States; and certain uses of disinfectants in the production area.

- Subpart C: Dairy Cows and Cattle other than Veal Calves
- Subpart D: Swine, Poultry, and Veal Calves

Table 4-2. Effluent Limitations Summary

Animal Sector	ELG Technology-Based Limits
Large CAFOs	40 CFR Part 412
Subpart A - Horses and sheep	40 CFR 412.13
Subpart B - Ducks	40 CFR 412.22
Subpart C - Dairy cows and cattle other than veal calves	40 CFR 412.33 and 412.37
Subpart D - Swine, poultry, and veal calves	40 CFR 412.45 and 412.47
Medium CAFOs - Horses, sheep, duck, dairy cows, cattle, swine, poultry, and veal calves	BPJ
Small CAFOs - Horses, sheep, duck, dairy cows, cattle, swine, poultry, and veal calves	BPJ
Other CAFOs - Alligators, geese, emus, ostriches, mink, bison, etc.	BPJ

All four subparts include specific discharge limitations. Subparts A and B contain requirements only for the production area. Requirements for land application areas under the control of the CAFO operator at these operations would be established by the permitting authority using BPJ. Subparts C and D include specific requirements for both the production areas and land application areas under the control of the CAFO owner or operator. Land application under the control of the CAFO includes situations where the CAFO owns, rents, or leases the land to which manure, litter, or process wastewater from the production area is applied. This may also include situations where a farmer releases control over the land application area and the CAFO determines when and how much manure is applied to fields not otherwise owned, rented, or leased by the CAFO.

Regulatory Citation –

Production area means that part of an AFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities. [40 CFR 412.2(h)]

Land application area means land under the control of an AFO owner or operator, whether it is owned, rented, or leased, to which manure, litter, or process wastewater from the production area is or may be applied. [40 CFR 412.2(e)]

4.1.2.1 What are the ELG[3] requirements for operations covered by Subpart A - Horses and Sheep?

What are the production area ELG requirements?

All Operations. Large horse and sheep CAFOs may not discharge manure or process wastewater pollutants to waters of the United States from the CAFO (i.e., "no discharge"). Whenever rainfall events,

[3]These requirements reflect BAT.

either chronic or catastrophic, cause an overflow of process wastewater from a facility designed, constructed, and operated to contain all process generated wastewater plus the runoff from a 25-year, 24-hour rainfall event for the location of the CAFO, any process wastewater pollutants in the overflow may be discharged into waters of the United States.

4.1.2.2 What are the ELG Requirements for Operations Covered by Subpart B - Ducks?

All Operations. All duck operations that meet the applicability requirements of the ELG must meet specific discharge limitations established by 40 CFR 412.22. Subcategory B is the only subcategory of the CAFO ELG that includes numeric discharge limitations for the production area.

Regulated parameter	Maximum daily[1]	Maximum monthly average[1]	Maximum daily[2]	Maximum monthly average[2]
BOD_5	3.66	2.0	1.66	0.91
Fecal coliform	([3])	([3])	([3])	([3])

[1]Pounds per 1000 ducks
[2]Kilograms per 1000 ducks
[3]Not to exceed MPN of 400 per 100 mL at any time

4.1.2.3 What are the ELG requirements for operations covered by Subparts C and D - Large Beef, Dairy, Heifer, Poultry, Swine, and Veal Calf CAFOs?

What are the production area ELG requirements?

Existing Sources. Large beef, dairy, heifer, swine, poultry, and veal calf CAFOs that are not new sources may not discharge manure or process wastewater pollutants from the production area. An exception is that whenever precipitation causes an overflow of manure, litter, or process wastewater, pollutants in the overflow may be discharged provided (1) the production area is designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater including the runoff and direct precipitation from the 25-year, 24-hour rainfall event; and (2) the production area is operated in accordance with the additional measures and record keeping requirements as specified in 40 CFR 412.37(a) and (b). No discharges are allowed in the absence of a properly designed, constructed, operated, and maintained storage structure.

Regulatory Citation –

Process wastewater means water directly or indirectly used in the operation of the CAFO for any or all of the following:spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing pens; barns, manure pits, or other CAFO facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Process wastewater also includes any water which comes into contact with any raw materials, products, or byproducts, including manure, litter, feed, milk, eggs, or bedding. [40 CFR 412.2(g)]

Overflow means the discharge of manure or process wastewater resulting from the filling of wastewater or manure storage structures beyond the point at which no more manure, process wastewater, or storm water can be contained by the structure. [40 CFR 412.2(g)]

The requirement concerning a properly designed, constructed, operated, and maintained storage structure applies to manure, litter, and process wastewater whether stored close to or far away from the animal confinement area. Properly designed storage structures should reflect the maximum length of time anticipated between emptying events. The frequency of emptying events (or “dewatering”) may vary based on the total available storage capacity, the hydraulic limitations of the land application areas, the nutrient content and concentration in the storage structure, the appropriate timing of application as specified in the applicable technical standards for nutrient management, and the extent to which the stor-

age structure is used for irrigation water. The design storage volume should reflect all wastes accumulated during the storage period; normal precipitation less evaporation during the storage period; normal runoff during the storage period; the direct precipitation from a 25-year, 24-hour storm event; the runoff from the 25-year, 24-hour storm event; residual solids after liquid has been removed; necessary freeboard to maintain structural integrity; in the case of treatment lagoons, a minimum treatment volume; and additional storage to meet management goals or other regulatory requirements.

If the storage structure is properly designed, constructed, operated, and maintained, an overflow may occur and be in compliance with effluent limitations based on 40 CFR Part 412. To be in compliance, the storage structure must be properly designed, which includes a storage volume that should reflect the maximum length of time anticipated between emptying events and other factors described above. This storage volume should also accommodate wastes, precipitation, and runoff for this period of time. Therefore, properly designed systems should already account for the "rainy season" or the non-growing season typical of the CAFO's location. When a series of rainfall events (such as chronic rainfalls) precludes dewatering, the capacity of the storage structure is reduced. Even so, it is highly unlikely that any given series of storms would result in an overflow, unless the series of storms occurs so close to the end of the design storage period that the storage structure is already filled close to capacity. When dewatering is not possible, a rainfall event of any size, both smaller and larger than the 25-year, 24-hour storm event, could result in an overflow that is in compliance with effluent limitations based on 40 CFR Part 412. The permissible overflow should be limited to that necessary to maintain the structural integrity of the storage structure. The nutrients from these dewatering events would need to be reflected in the nutrient management plan developed and implemented by the CAFO. CAFOs that do not actively maintain the capacity of the storage structure, such as CAFOs with minimal capacity and that start dewatering only when the storage structure is completely full, are not entitled to this overflow allowance.

Proper operation and maintenance

Proper operation and maintenance (O&M) is a standard condition in all NPDES permits [40 CFR 122.41(e)]. Proper O&M of storage structures includes activities such as periodic solids removal to maintain storage capacity, maintenance of berms and sidewalls, prompt repair of any deficiencies, and appropriate dewatering activities. CAFOs must actively manage storage structures to maintain the appropriate capacity (e.g., the capacity to contain the runoff and precipitation from the 25-year, 24-hour storm event).

Freeboard

The term *freeboard* is not used in the regulation, and is not defined by EPA. EPA encourages the use of Natural Resources Conservation Service (NRCS) and American Society of Agricultural Engineers (ASAE) standards that use freeboard to describe a safety feature designed to protect the integrity of the lagoon. As described in this guidance, freeboard is not treated as volume for additional storage capacity.

Runoff from raw material storage such as silos and feed bunkers is included in the definition of process wastewater and is included in the ELG production area requirements. Production area discharges are allowed only when they consist of weather-related overflows, and only in those cases where a storage structure has been designed, constructed, operated, and maintained in accordance with ELG requirements. In the absence of a properly designed, constructed, operated, and maintained storage structure no discharge is allowed from the production area, including raw material storage areas.

The definition of process wastewater includes, among other things, water used for direct contact washing, and any water that comes into contact with or is a constituent of any raw materials, products, or byproducts, including feed, milk, eggs, or bedding as well as manure and litter. Therefore process wastewater may include, for example, water that comes into contact with spilled feed, contaminated milk, spent foot bath water, and other trace quantities of chemicals used at the operation. CAFOs should minimize the use of potentially harmful chemicals and contaminants and ensure that these products are used according to label instructions and disposed of properly. For example, it may not be consistent with

What are the additional measures and record keeping requirements for the production area [40 CFR 412.37 (a) and (b)]?

The NPDES permit must include the following additional measures as set forth in the CAFO ELG:

- Routine visual inspections of the CAFO production area. At a minimum the following must be visually inspected:
  - Weekly visual inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the wastewater and manure storage and containment structure
  - Daily visual inspections of all water lines, including drinking water or cooling water lines
  - Weekly inspections of the manure, litter, and process wastewater impoundments; the inspection will note the level in liquid impoundments as indicated by the depth marker
- Any deficiencies found as a result of these inspections must be corrected as soon as possible.
- Installation of depth markers in all open surface liquid impoundments (for example the depth marker is not required in under-house pits) that clearly indicate the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event or the 100-year, 24-hour rainfall event, whichever is applicable.
- No disposal of animal mortalities in any liquid manure or process wastewater systems and the handling of animal mortalities so as to prevent discharge of pollutants to waters of the United States, unless alternative technologies pursuant to 40 CFR 412.31(a)(2) and approved by the Director are designed to handle mortalities.
- Complete on-site records documenting implementation of all required additional measures and any other records specified by the permitting authority. Table 4-6 provides an integrated list of the specific records required by the NPDES and ELG regulations for Large CAFOs.

chemical labels to dispose of rinse water from spent chemical containers in the storage structure. The permit writer should place additional restrictions in the permit where necessary.

New Sources. Large beef and dairy operations that are new sources have the same production area requirements as existing operations.[4] Large swine, poultry, and veal calf CAFOs that are new sources may not discharge manure, litter, or process wastewater into waters of the United States from the production area. Waste management and storage facilities designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater, including the runoff and direct precipitation from a 100-year, 24-hour rainfall event and operated in accordance with the additional measures and records required by the ELG are deemed to meet this requirement.

What are the land application area ELG requirements?

Each CAFO subject to the ELG requirements in subparts C and D that land applies must do so in accordance with certain practices. A general description of these practices is as follows (see the regulations for further details):

- Develop and implement a nutrient management plan;
- Land apply manure, litter, and process wastewater at application rates that minimize phosphorus and nitrogen transport from the field to waters of the United States in compliance with the technical standards for nutrient management established by the permitting authority. The technical standard for nutrient management must include a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to waters of the United States and address the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals while minimizing nitrogen and phosphorus movement to waters of the United States. The standard

[4]These include the additional measures and record keeping requirements specified in 40 CFR 412.37 (a) and (b).

shall also include appropriate flexibility for any CAFO to implement nutrient management practices to comply with the standard such as consideration of multi-year phosphorus application on fields that do not have a high potential for phosphorus runoff to waters of the United States and phased implementation of phosphorus-based nutrient management, as determined appropriate by the Director;

- Analyze manure at least once a year for nitrogen and phosphorus content, and analyze soil at least once every 5 years for phosphorus content. The results of these analyses are to be used in determining application rates for manure, litter, and other process wastewater;
- Periodically inspect equipment used for land application of manure, litter, or process wastewater for leaks;
- Do not apply manure, litter, and process wastewater closer than 100 feet to any down-gradient waters of the U.S., open tile line intake structures, sinkholes, agricultural well heads, or other conduits to waters of the United States. Instead of the 100-foot setback the CAFO can either use a 35-foot vegetated buffer or demonstrate implementation of alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions that would be achieved by the 100-foot setback. Where an operation elects to implement conservation practices or field-specific conditions to provide equivalent pollutant reductions, the permitting authority should require the operation to be covered under an individual permit to account for the site-specific nature of the conditions and practices being employed; and
- Complete on-site records documenting implementation of all required best management practices (BMPs) and any additional records specified by the permitting authority (see Section 4.2 and Table 4-6 for additional information).

ELG Requirements Summary - Subparts C and D		
	Subpart C	**Subpart D**
Existing Sources	40 CFR 412.4, 412.30 - 412.33, and 412.37	40 CFR 412.4, 412.40 - 412.45, and 412.47
New Sources	40 CFR 412.4, 412.35, and 412.37	40 CFR 412.4, 412.46, and 412.47

4.1.2.4 What must the technical standards for nutrient management address?

The ELG determination of appropriate application practices for manure, litter, and process wastewater must be done in accordance with the technical standards established by the Director. These technical standards must include a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to waters of the United States. In addition, the standards must address the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to waters of the United States.

Technical standards for nutrient management should appropriately balance the nutrient needs of crops and potential adverse water quality impacts in establishing methods and criteria for determining appropriate application rates. The field-specific assessment provides CAFOs with the information needed to determine whether manure nutrients should be applied at a nitrogen or phosphorus rate, or if no manure application is appropriate. CAFOs may apply conservation practices, best management practices, or management activities to their land application areas, which in aggregate may reduce field vulnerability to off-site phosphorus transport to waters of the United States.

There are certain instances in which there may be an increased likelihood that runoff from CAFO land application areas may reach waters of the United States. The times include when the ground is saturated

with water, when rain falls during or soon after (e.g., within 24 hours) application, and when the ground is frozen or covered with snow or ice. The ELG does not establish national requirements prohibiting manure application to frozen, snow-covered, or saturated ground because runoff associated with such applications depends on a number of site-specific variables, including climate and topographic variability, distance to waters of the United States, and the slope of the land. States are better able to tailor their technical standards to reflect the site-specific conditions that warrant prohibitions or limitations on manure applications to frozen, snow-covered, or saturated ground. The Director should address these factors in a manner similar to that described below when establishing the State nutrient management technical standard.

To minimize movement of nutrients to waters of the United States, technical standards for nutrient management should prohibit application of manure and process wastewater to saturated ground where appropriate. The technical standards should prohibit surface application of manure and process wastewater during rainfall and when rainfall is expected soon after a planned application, if the rainfall may produce runoff and the runoff may enter waters of the United States. The standards should either prohibit application of manure and process wastewater on snow, ice, and frozen ground, or include specific protocols that CAFO owners or operators, nutrient management planners, and inspectors will use to conclude whether or not application to a frozen or snow- or ice-covered field (or a portion thereof) poses a reasonable risk of runoff. Where there is a reasonable risk, the standards should prohibit application to the field or relevant portion thereof during times when the risk exists or may arise.

Protocols for land application in the winter should account for the form of the material that would be applied (e.g., liquid, semi-solid, or dry manure or process wastewater). In addition, they should address the time at which the material would be applied relative to periods when runoff may occur, the fraction of precipitation that runs off the land in meltwater and in response to winter rains (as affected, in part, by whether soil is frozen or not), the time it takes runoff to travel to waters of the United States (as affected by the slope of the land, distance to waters, roughness of the land surface, and whether or not runoff is in contact with the land surface), and other relevant factors, as appropriate. Manure, litter, and process wastewater storage structures need to include adequate capacity to store material that accumulates during those times when, under the technical standards for nutrient management, land application would be prohibited.

The technical standards for nutrient management shall also include appropriate flexibilities for any CAFO to implement nutrient management practices to comply with the standards. Flexibilities should include consideration of multi-year phosphorus application (also called phosphorus banking) on fields that do not have a high potential for phosphorus runoff to waters of the United States, implementation of phosphorus-based management phased in over time, and other components as determined appropriate by the Director.

Phosphorus banking is a multi-year approach that allows a single application of phosphorus applied as manure at a rate equal to the recommended phosphorus application rate or estimated phosphorus removal in harvested plant biomass for the crop rotation or multiple years in the crop sequence. The field would not receive additional phosphorus until the amount applied in the single year had been removed through plant uptake and harvest. In practice, multi-year phosphorus applications would be based on application rates achievable with a CAFO's application equipment. Under any multi-year application, the rate at which manure nutrients are applied would not exceed the annual nitrogen recommendation of the year of application or would application be made on sites determined inappropriate based on a high potential for phosphorus runoff to waters of the United States.

4.1.2.5 What are voluntary alternative performance standards?

The voluntary alternative performance standards provision in 40 CFR 412.31(a)(2) applies to new and existing Large CAFOs subject to 40 CFR Part 412, Subpart C (dairy cows and cattle other than veal calves), and existing Large CAFOs subject to Subpart D (swine, poultry, and veal calves). This provision applies only to discharges from the production area. The alternative performance standard provides that any Large CAFO may request from the Director NPDES permit effluent limitations based on site-specific alternative technologies where the CAFO can establish that the alternative technologies would achieve a quantity of pollutants discharged from the production area equal to or less than the quantity of pollutants that would be discharged under the applicable baseline effluent guidelines performance standards. For example, the production area baseline for existing Large swine, poultry, and veal calf CAFOs and for new source and existing Large beef, dairy and heifer CAFOs prohibits the discharge of manure, litter, or process wastewater except when rainfall events cause an overflow from a storage structure designed, constructed, operated, and maintained to contain all manure, litter, and process wastewater plus the runoff from a 25-year, 24-hour rainfall event.

Thus, a Large CAFO seeking permit conditions based on the voluntary alternative performance standard would have to establish, by submitting technical analyses and other relevant information and data specified in the regulation, first, the predicted discharge based on the baseline effluent guidelines, and second, that its technologies and management practices result in equivalent or improved pollutant reductions for the production area. Land application requirements remain unchanged. Since the production area baseline provides for no discharge except in specified circumstances, the alternative standard should take into account those circumstances where discharges do occur under the baseline (i.e., extreme rainfall events). The regulations accomplish this primarily by requiring calculation of the median annual overflow volume based on an extended period (25 years) of actual rainfall data (and subsequently calculation of a predicted average annual discharge of pollutants). Note that under the alternative standard, the management practices and additional measures specified in the effluent guidelines (e.g., 40 CFR 412.4, 412.37, 412.47) and that apply to the production area and/or land application areas at Large CAFOs remain applicable to all Large CAFOs (existing and new sources) regardless of whether a CAFO's NPDES permit limitations are based on the baseline effluent guidelines or the alternative performance standards. In some cases specific requirements may no longer be applicable based on the alternative performance standard; for example, if under an alternative performance standard the operation did not have a liquid storage structure, the depth marker requirement would no longer be applicable. Also note that Large CAFOs seeking permit conditions based on the voluntary alternative performance standards must still meet water quality standards and any other applicable federal, State, and local requirements.

4.1.2.6 What are the voluntary superior environmental performance standards for new Large swine, poultry, and veal calf CAFOs?

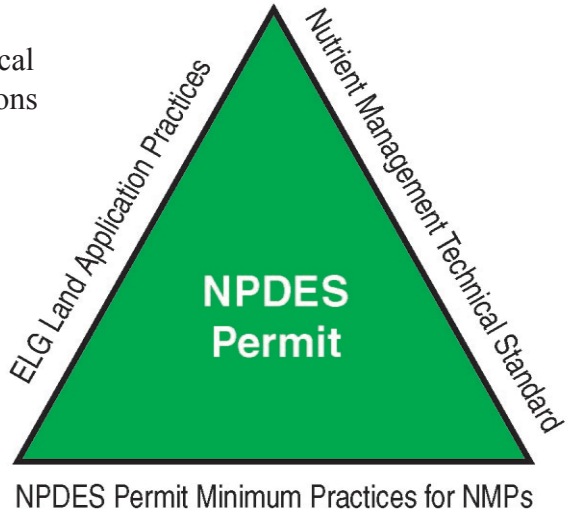
The voluntary superior environmental performance standards provision in 40 CFR 412.46(d) is available to new source Large CAFOs subject to 40 CFR Part 412, Subpart D (swine, poultry and veal calves). This provision provides that these CAFOs may request from the Director alternative NPDES permit effluent limitations based upon a demonstration by the CAFO that site-specific innovative technologies will achieve overall environmental performance across all media that is equal to or superior to the reductions achieved by the baseline standards as provided by §412.46(a), which contains the Subpart D, new source CAFO production area standards. In effect, an operation must determine the quantity of production area pollutant discharges under the baseline ELG and compare this with the quantity of pollutants released to all media under alternative effluent limitations, including releases and discharges from the production area, land application area, and off-site management.

4.1.3 What is the relationship between the ELG, the State nutrient management technical standard, and the permit?

The ELG, the NPDES CAFO regulations, and the technical standards for nutrient management are the three sets of requirements that must be included in NPDES permits for Large CAFOs to address all nutrient management plan requirements under the revised CAFO regulations. Permits for CAFOs not covered by the ELGs (e.g., Medium CAFOs) must also contain nutrient management requirements developed using BPJ and the NPDES nutrient management requirements in 40 CFR 122.42(e) that are applicable to all CAFOs (see Section 4.2).

> ***Regulatory Citation –***
>
> *Establishment of Technical Standards for Concentrated Animal Feeding Operations*
>
> If the State has not already established technical standards for nutrient management that are consistent with 40 CFR 412.4(c)(2), the Director shall establish such standards by the date specified in 123.62(e). [40 CFR 123.36]

As illustrated, the ELG land application practices, the technical standards for nutrient management, and the NPDES regulations minimum requirements for nutrient management plans all contribute to the nutrient management plan requirements in NPDES permits for Large CAFOs. The ELG land application practices are found in 40 CFR 412.4, 412.37, and 412.47 and discussed in Section 4.1.2 of this manual. The NPDES minimum requirements for nutrient management plans are found in 40 CFR 122.42(e) and discussed in Section 4.2.2 of the manual. Permit writers must ensure that the permit is consistent with the requirements contained in both sets of regulations (ELG and NPDES regulations).



The NPDES regulations provide that the permitting authority must establish technical standards for nutrient management that are consistent with the requirements in 40 CFR 412.4(c)(2) [See 40 CFR 123.36]. The permitting authority must include in the technical standard, at a minimum, the methodologies necessary to address the following components of a nutrient management plan:

- a field-specific assessment of the potential for nitrogen and phosphorus transport from the field to waters of the United States
- the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to waters of the United States
- appropriate flexibility for CAFOs to implement the standard (e.g., multi-year phosphorus banking [40 CFR 412.4(c)(2)(ii)]).

EPA strongly encourages States, when establishing their technical standards for nutrient management, to address water quality protection issues when determining appropriate land application practices.

In addition to these minimum components that must be addressed in the technical standards for nutrient management, it is likely that these standards will include additional information, such as soil and manure sampling and analysis protocols, application methods, and plan content requirements. These State technical standards provide additional specificity to key nutrient management provisions in the ELG.

EPA expects that the State and Tribal technical standards for nutrient management will be developed collaboratively among the respective State departments of agriculture, Tribes, NRCS State conservationists, State land grant universities, and NPDES permitting authorities. Many technical standards for nutrient management have already been developed as part of implementing USDA's National Nutrient Management policy. NRCS developed a national nutrient management technical practice standard (Code 590) that serves as the basis for each State NRCS office to develop its own tailored standard. EPA expects that in many cases these NRCS standards would form the basis for the standard established by the permitting authority. The Director may use his or her discretion in establishing the technical standards (e.g., as law, regulation, or policy).

4.1.4 What are the water quality-based effluent limitations for the production area?

When developing effluent limitations for NPDES permits for CAFOs, EPA recommends that applicable technology-based effluent limits be properly evaluated for their water quality protection benefits in the course of deciding whether to establish water quality-based limitations. The permit writer must ensure that the permit includes effluent limitations based on applicable technology-based requirements and any more stringent effluent limitations necessary to meet water quality standards. A water quality-based effluent limitation is designed to protect the quality of the receiving water by ensuring that State or Tribal water quality standards are met. Federal regulations [40 CFR 122.44(d)] require permit limitations to control all pollutants that may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard.

For example, the permit writer may determine the need to establish more restrictive requirements for the production area particularly for instances when the discharge is to 303(d) waterbodies listed for nutrients, dissolved oxygen or bacteria, or when an analysis of frequency, duration and magnitude of the anticipated discharge (consisting of potential overflows of manure, litter, or process wastewater) indicates the reasonable potential to violate applicable water quality standards. With respect to the production area, the imposition of a more restrictive water quality-based effluent limitation may include the establishment of more restrictive requirements such as the imposition of a higher design standard or the inclusion of additional management practices.

4.1.5 Do water quality-based effluent limitations apply to the land application area?

If a CAFO develops and implements a nutrient management plan in accordance with the permit requirements for land application described above in Section 4.1.3 any remaining discharges of manure or process wastewater from the land application areas resulting from precipitation are considered agricultural storm water. For facilities subject to the ELG, this means that their NMP must comply with permit requirements that implement the ELG, State technical standards for nutrient management, and the requirements of 40 CFR 122.42(e). For facilities not subject to the ELG this means that their NMP must comply with permit requirements that implement 40 CFR 122.42(e) and any additional nutrient management requirements developed by BPJ.

EPA encourages States to address water quality protection issues in their technical standards for determining appropriate land application practices. These could include requiring incorporation of land applied manure and wastewater, additional timing restrictions, additional mandatory setbacks or buffers, ground water monitoring requirements, prohibiting phosphorus banking, or prohibiting any land application of manure, litter, or process wastewater.

The development and implementation of an NMP such that runoff from a CAFO's land application areas would be considered agricultural storm water does not affect the requirement for a CAFO to apply for an

NPDES permit. The only way to ensure that non-permitted point source discharges of manure, litter or process wastewaters from CAFOs do not occur is to require that CAFOs apply for NPDES permits that will establish requirements that ensure that manure, litter, and process wastewater are applied only to CAFO land application areas in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater.

4.2 What Are the Special Conditions to Be Included in all NPDES Permits for CAFOs?

The regulation requires all NPDES permits for CAFOs to include certain special conditions. These special conditions are (1) the requirement to develop and fully implement an NMP, (2) the requirement that the site-specific NMP address nine minimum practices defined in the regulation (see Section 4.2.2), and (3) specific closure requirements (see Section 4.2.3.1). In addition, Large CAFOs are required to maintain records of off site manure transfers (see Section 4.2.3.3).

NPDES permits for CAFOs may include other special conditions as determined necessary by the permitting authority (see section 4.2.3.4). The special conditions would also include some of the narrative requirements found in the ELG for Large CAFOs.

4.2.1 Nutrient management plan

> ***Regulatory Citation –***
>
> Requirements to develop and implement a nutrient management plan. At a minimum, a nutrient management plan must include best management practices and procedures necessary to implement applicable effluent limitations and standards. Permitted CAFOs must have their nutrient management plans developed and implemented by December 31, 2006. CAFOs that seek to obtain coverage under a permit after December 31, 2006 must have a nutrient management plan developed and implemented upon the date of permit coverage. [40 CFR122.42(e)(1)]

NPDES permits for all CAFOs must include a requirement for development and implementation of an NMP. Permitted CAFOs must have their nutrient management plans developed and implemented by December 31, 2006. An NMP is a document that addresses the implementation of best management practices, including those defined in the EPA CAFO regulations, to minimize the contribution of nutrients to waters of the United States. In the case of Large CAFOs, the NMP must be developed consistent with the technical standard for nutrient management that has been established by the Director as required by the ELG. All other CAFOs would develop their NMPs in accordance with permit requirements which may reference the same technical standard for nutrient management established by the Director. The NMP must address the effluent limitations that are specified in the permit and, to the extent they are applicable, each of the nine minimum practices specified in 40 CFR 122.42(e)(1)(i-ix).

The NMP must address land application of manure and wastewater on all land under the control of the CAFO operator or owner. Operational control of land includes ownership, rental agreements, leases, and access agreements.

The regulations do not require the NMP to be submitted as part of the permit application. The permitting authority may establish within the permit what information relative to the nutrient management plan must be submitted. The NMP must be maintained on-site and provided to the permitting authority upon request. This requirement should be specified in the permit. The permit should require that the NMP be revised as necessary to reflect the current practices and characteristics of the operation. CAFOs that are new sources or become defined as CAFOs after December 31, 2006, would be required to have their NMP developed and implemented as of the date of permit coverage.

4.2.1.1 What is the role of certified specialists in developing NMPs?

Although EPA's CAFO regulations do not require the development of the required site-specific NMP by a certified specialist or technical service provider, permitting authorities should encourage and support the use of these specialists. A nutrient management plan preparer certification program is one mechanism that a State could use to determine that a plan has been prepared in accordance with the nutrient management technical standard established by the Director. States have the discretion to require their use to prepare or approve plans. A certified specialist is a person who has a demonstrated capability to develop NMPs in accordance with applicable USDA or State standards and is certified by USDA or a USDA-sanctioned organization. Certified specialists include qualified persons who have received certifications through a State or local agency, personnel from NRCS, and persons who have completed certification programs recognized as technical service providers, or other programs recognized by States. In addition, USDA has developed agreements with technical service providers to provide certified nutrient management plan development services. Third-party vendor certification programs may include, but are not limited to, (1) American Society of Agronomy's certification programs, including Certified Crop Advisors (CCA) and Certified Professional Agronomists (CPAg), Certified Professional Crop Scientists (CPCSc), and Certified Professional Soil Scientists (CPSSc); (2) Land Grant University certification programs; (3) National Alliance of Independent Crop Consultants (NAICC); and (4) State certification programs. The value of using certified specialists is to ensure that NMPs are developed, reviewed, and approved by persons who have the appropriate knowledge and expertise to ensure that plans fully and effectively address the applicable ELG requirements, the minimum practices, the applicable State nutrient management technical standard and are appropriately tailored to the site-specific needs and conditions of the CAFO. Because of the multi-disciplinary nature of NMPs, it is likely that a range of expertise will be needed to develop an effective NMP (e.g., professional engineer, crop specialist, soil specialist, nutritionist). EPA recognizes that some States may require NMPs to be certified under State requirements.

4.2.1.2 What technical assistance and guidance is available to prepare NMPs?

EPA expects that permitting authorities will prepare guidance in coordination with their State agricultural agency partners concerning the implementation of the established State nutrient management technical standard that is to guide the development of the site-specific NMP required by the permit. In addition, EPA believes that a well-prepared Comprehensive Nutrient Management Plan (CNMP) prepared in accordance with the CNMP Technical Guidance issued by USDA's NRCS should in most instances meet the NMP and minimum practice requirements of the permit.

CAFO owners and operators should seek technical assistance for developing NMPs from integrators, industry associations, and private consultants. In addition Federal agencies, such as the NRCS, as well as State and Tribal agricultural and conservation agency staff, Cooperative Extension Service agents and specialists, Soil and Water Conservation Districts, and land grant universities may be able to provide technical assistance. A number of computer-based tools are being developed to facilitate the development and implementation of NMPs.

Nutrient Management Planning Tools

Many States, universities, and private sector companies have developed nutrient management tools that can be used (generally within a specific State) to assist livestock and poultry producers develop site-specific nutrient management plans. One example of such tools is:

Manure Management Planner (MMP): Developed at Purdue University; a manure utilization planning tool to help develop nutrient management plans. You may access MMP at http://www.agry.purdue.edu/mmp/.

Appendix A provides additional references and tools for the NPDES permit writer.

4.2.1.3 What are the requirements for updating NMPs?

EPA recognizes that CAFOs are dynamic operations where changes are made on an ongoing basis to the operational practices. The site-specific NMP needs to reflect the current operational practices of the CAFO and for that reason will need to be modified and updated. At a minimum NPDES permits for CAFOs should require that NMPs be reviewed and updated at the time of permit renewal. It is recommended that NPDES permits for CAFOs also specify that the NMP be updated (1) when they make a substantive change in how they manage their operations, including the location, method, timing, or frequency of land application, and significant changes to crop rotations or yearly cropping patterns; or (2) when a discharge occurs in violation of their NPDES permit.

4.2.1.4 What is the public availability of NMPs?

NPDES permits for CAFOs should specify that the permittee must maintain the NMP on-site and make the NMP available to the permitting authority on request, including during any on-site inspection of the CAFO. CAFOs may request that certain information be declared confidential and protected from release to the public by procedures in EPA's regulations [see 40 CFR 122.7] in nonauthorized States, or under similar regulations that may be in place in authorized States.

The NPDES CAFO regulation also contains a requirement for the submission of an annual report to the permitting authority. The annual report, which will be publicly available, contains key information concerning the operation of the CAFO (See Section 4.3.2.1). It is expected that the annual report will address many of the public information concerns associated with the implementation of the NPDES CAFO permit program and avoid increased burden on permitting authorities to request and make available NMPs. EPA encourages States to make it possible for CAFOs to submit annual reports electronically and for the reports to be made available to the public.

4.2.2 What are the nutrient management plan minimum practices?

The NMP at a minimum must include best management practices and procedures necessary to implement the applicable effluent limitations and standards. The NMP must also include, to the extent applicable, a set of nine minimum practices [see 40 CFR 122.42(e)(1)(i-ix)]. These nine minimum practices are as follows:

- Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;
- Ensure proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;
- Ensure that clean water is diverted, as appropriate, from the production area;
- Prevent the direct contact of confined animals with waters of the United States;
- Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals or contaminants;
- Identify appropriate site-specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States;
- Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;

- Establish protocols to land apply manure, litter, or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater; and
- Identify specific records that will be maintained to document the implementation and management of the minimum elements described above

Permitting authorities should include these nine minimum practices in the NPDES permit as stand-alone enforceable special conditions, to help ensure these requirements are ultimately met [see CWA 402(a)(1) and (2)]. The permit should state that CAFOs must fully implement these practices as soon as possible, but no later than December 31, 2006.

Table 4-3 sets forth recommended permit conditions to achieve each of these practices. The permit should require these recommended practices, where applicable.

Table 4-3. NPDES CAFO Permit Minimum Practices (To be implemented as soon as possible, but no later than December 31, 2006.)
Ensure Adequate Storage[1] Capacity Develop and implement specific practices and associated structures to ensure adequate storage capacity to achieve permit limitations including: - Maintain sufficient capacity in liquid manure, wastewater, or storm water storage structures to ensure compliance with all permit requirements. - Store dry manure in production buildings or in storage facilities or otherwise storing it in such a way as to prevent polluted runoff. - Provide adequate storage capacity to ensure compliance with the nutrient management technical standard approved by the permitting authority. - Ensure proper operation and maintenance of all manure, wastewater, and storm water storage facilities. [1] Storage includes but is not limited to waste ponds and lagoons and other structures such as tanks (above and below ground) and staking facilities (concrete pad, walls, and a roof).
Ensure Proper Management of Mortalities Handle and dispose of dead animals in a manner that prevents contamination of waters of the United States.
Diversion of Clean Water Develop and implement management practices to divert clean water from the production area. Clean water includes rain falling on the roofs of facilities, runoff from adjacent land, and other sources. If clean water is not diverted from coming into contact with manure or process wastewater it must be collected in accordance with permit requirements.
Prevention of Direct Contact of Animals with Waters of the United States Develop and implement appropriate controls to prevent access of animals to waters of the United States in the production area.
Chemical Handling Develop and implement controls to prevent the inappropriate introduction of chemicals into the manure, wastewater, and storm water storage and handling system. Examples include pesticides, hazardous and toxic chemicals, and petroleum products and by-products.
Conservation Practices to Control Nutrient Loss For land application areas under the control of the CAFO operator develop and implement practices that are sufficient to minimize the discharge of pollutants to waters of the United States. These practices may include, but are not limited to residue management, conservation crop rotation, grassed waterways, strip cropping, vegetated buffers, riparian buffers, setbacks, terracing, and diversions.

Table 4-3. NPDES CAFO Permit Minimum Practices (To be implemented as soon as possible, but no later than December 31, 2006.) (cont.)
Protocols for Manure and Soil Testing
Identify and implement specific manure, wastewater and soil sample collection and analysis protocols to be used in developing and implementing the nutrient management plan. At a minimum the protocol is to specify the collection and analysis of manure, litter, and other process wastewaters annually for nutrient content, including nitrogen and phosphorus. The protocol is to specify the collection and analysis of soil samples for phosphorus content at least once every 5 years for all fields under the control of the CAFO operator where manure and wastewater may be applied. In all cases the sampling frequency for both manure, litter and wastewater and soil is to be consistent with the technical standard for nutrient management established by the Director.
Protocols for the Land Application of Manure and Process Wastewater
Develop and implement protocols to apply manure, litter, and process wastewater in accordance with the technical standard for nutrient management established by the Director.
Record Keeping
Maintain all records necessary to document the development and implementation of the nutrient management plan and compliance with the minimum practices defined in the permit. In addition, records must be maintained that document compliance with the effluent limitations specified in the permit.

4.2.2.1 What is the relationship between USDA's Comprehensive Nutrient Management Plan and the NPDES permit for CAFOs Nutrient Management Plan minimum practices?

The NPDES NMP minimum practices were developed to be consistent with the content of a CNMP as defined by USDA in the *CNMP Technical Guidance*. These NMP minimum practices represent a subset of the management practices and activities that would generally be included in a USDA-defined CNMP. The content of a USDA-defined CNMP is described in the USDA *CNMP Technical Guidance*. Table 4-4 identifies each of the six elements of a CNMP and indicates which of the NMP minimum practices for CAFOs would typically be addressed under that element during the development and implementation of a CNMP.

There are some situations where the CNMP may not fully address all of the EPA NPDES minimum practices. For example, USDA's technical guidance includes reference under the CNMP element number 1– Manure and Wastewater Handling and Storage – the need to address animal mortality; however, no specific actions are identified and the guidance defers to State, Tribal, or local requirements. The EPA minimum standard to ensure proper chemical handling is the only minimum standard not identified at all in the USDA guidance. However, where appropriate, USDA's Conservation Practice Standards call for the use of all chemicals in accordance with applicable regulatory requirements. An additional difference is that the *CNMP Technical Guidance* does not specifically include the prevention of direct contact of animals with waters of the United States within the elements of a CNMP. However, the prevention of direct contact is generally considered to be a component of the conservation planning process. The CNMP is defined by USDA as a part of the conservation planning process focused on livestock and poultry operations.

EPA's NPDES NMP minimum practices do not address two of the six elements of USDA's CNMP – Feed Management and Other Utilization Options. Although these are important issues that EPA believes should be considered in the development of a site-specific CNMP or NMP for CAFOs, they do not have to be addressed, as a regulatory requirement, in NMPs developed as a condition of a CAFO's NPDES permit.

Table 4-4. USDA CNMP Elements/NPDES NMP Minimum Practices Comparison	
USDA CNMP Elements	**NPDES NMP Minimum Practices**
Manure and Wastewater Handling and Storage	Adequate storage capacity Animal mortality Diversion of clean water
Land Treatment Practices	Conservation practices to control nutrient loss
Nutrient Management	Protocols for the land application of manure and wastewater Protocols for manure and soil testing
Record Keeping	Record keeping
Feed Management	
Other Utilization Options	
	Chemical handling Prevention of direct contact of animals with waters of the United States

4.2.2.2 What is the basis for each minimum practice and how are they related to USDA's Conservation Practice Standards?

For Large CAFOs, the minimum practices will be addressed in site-specific nutrient management plans using specific practices identified in each State's nutrient management technical standard. For nutrient management plans developed and implemented by other CAFOs, it is expected that the minimum practices may also be addressed based on the State nutrient management technical standard. In some cases the minimum practices will be addressed in the site-specific nutrient management plan using existing State or NRCS conservation practice standards. NRCS's standards are identified in USDA's *CNMP Technical Guidance*. The practice standards are also included in each State NRCS Field Office Technical Guidance which are available electronically at http://www.ftw.nrcs.usda.gov/nhcp_st.html. In addition EPA has issued a document entitled *National Management Measures to Control Nonpoint Source Pollution from Agriculture* (http://www.epa.gov/owow/nps/agmm/index.html), which includes information on the selection and implementation of BMPs to control the contribution of pollutants to waters of the United States. This document can provide assistance to permit writers in determining the type and effectiveness of BMPs available to CAFO operators to minimize the runoff of pollutants from land application areas. Table 4-5 identifies each of the EPA minimum practices, the technical basis for the standard, and the NRCS conservation practices that may address the relevant activity.

Table 4-5. EPA Minimum Practice/NRCS Conservation Practice Comparison		
NPDES Minimum Practices	**Technical Basis**	**Associated NRCS Conservation Practice Standards**
Ensure adequate storage	Maintaining sufficient storage capacity is critical if a CAFO is going to be able to properly store manure, wastewater, and storm water for those periods of time when land application is not appropriate. The ability of a CAFO to meet the applicable nutrient management technical standard is dependent upon proper storage practices. Insufficient storage capacity increases the risk of runoff from manure piles and spills from lagoons and other containment structures. It also increases the possibility that an operation will have to land apply during periods of increased risk to surfaces water (i.e., during rainfall events).	Waste Storage Facility - NRCS Practice Standard Code 313 Composting Facility - NRCS Practice Standard Code 317 Waste Treatment Lagoon - NRCS Practice Standard Code 359 Anaerobic Digester Ambient Temperature - NRCS Practice Standard Code 365 Anaerobic Digester Controlled Temperature - NRCS Practice Standard Code 366 Waste Facility Cover - NRCS Practice Standard Code 359
Ensure proper management of mortalities	Improper disposal of dead animals can result in contamination of waters of the United States. Nutrients and other contaminants released from decomposing animals can be transported to waters of the United States in runoff.	Animal Mortality Facility - NRCS Practice Code 316
Diversion of clean water	Clean water that comes into contact with manure and wastewater has the potential to contaminate waters of the United States. Water that is not diverted is to be collected and properly handled and stored.	Diversion - NRCS Practice Standard Code 362 Roof Runoff Structure - NRCS Practice Standard Code 558
Prevention of direct contact of animals with waters of the United States	The installation of fences, barriers, or other control devices in the production area to prevent animals from entering waters of the United States reduces erosion and prevents the direct deposition of manure into waters of the United States.	Fence - NRCS Practice Standard Code 382 Use Exclusion - NRCS Practice Standard Code 472
Chemical handling	The improper handling, storage, or disposal of chemicals at the CAFO can result in their inappropriate introduction into the manure, litter, or process wastewater handling and storage system. The land application or accidental releases of manure and wastewater can result in contamination of waters of the United States. Proper handling practices incorporated into the nutrient management plan demonstrate that the CAFO is taking the necessary actions to prevent contamination and protect water resources.	There are a number of NRCS State Offices that have an interim NRCS practice standard entitled: Agrichemical Handling Facility. Also, chemical handling is addressed in the operation and maintenance section of the Nutrient Management (Code 590) and Pest Management (Code 595) practices.
Conservation practices to control nutrient loss	The implementation of conservation practices reduces the velocity of runoff, traps sediment, absorbs nutrients and promotes infiltration of runoff to prevent it from entering waters of the United States.	Conservation Crop Rotation - NRCS Practice Standard Code 328 Contour Buffer Strips - NRCS Practice Standard Code 332 Contour Strip cropping - NRCS Practice Standard Code 585 Strip cropping - NRCS Practice Standard Code 586 Filter Strip - NRCS Practice Standard Code 393 Grassed Waterway - NRCS Practice Standard Code 412 Riparian Forest Buffer - NRCS Practice Standard Code 391 Terrace - NRCS Practice Standard Code 600 Cover Crop - NRCS Practice Standard Code 340 Irrigation Water Management - NRCS Practice Standard Code 449 Residue Management - NRCS Practice Standard Code 329

Table 4-5. EPA Minimum Practice/NRCS Conservation Practice Comparison (cont.)		
Protocols for manure and soil testing	The development of a site-specific nutrient management plan is a critical component of the NPDES CAFO permit to ensure the protection of water quality. The development of this plan is dependent on having accurate information concerning the nutrient content of the manure that is to be land applied and the nutrient content of the soil to which the manure will be applied.	Protocols are developed by each State generally in conjunction with the land grant university.
Protocols for the land application of manure and wastewater	Ensures that the site-specific nutrient management plan minimizes the movement of nutrients to waters of the United States. For Large CAFOs, this practice must be in compliance with the land application requirements of the applicable technical standard for nutrient management established by the permitting authority. Protocols will prevent the application of manure and wastewater at rates that exceed the needs of the crops. They will also minimize the risk to waters of the United States by requiring land application consistent with the appropriate agricultural utilization of manure and wastewater. The protocols will also address the timing and method of application aspects of minimizing nutrient transport to waters of the United States. Manure, litter, and process wastewater applied in excess of crop needs will likely result in an increased contribution of nutrients to waters of the United States. Increased nutrient loadings to a waterbody has been determined to be a contributor to water quality impairment.	Nutrient Management - NRCS Practice Standard Code 590 Waste Utilization - NRCS Practice Standard Code 633
Record Keeping	Specific records are necessary to document whether a CAFO is implementing practices in accordance with its site-specific nutrient management plan. The specific record keeping requirements are defined in the NPDES permit.	USDA identifies that maintaining records is an important part of the overall conservation planning process.

4.2.3 What additional special conditions are applicable to NPDES permits for CAFOs?

Under the revised regulations, every CAFO permittee must maintain permit coverage until the CAFO is properly closed. In addition, NPDES permits issued to Large CAFOs must include a special condition that requires the operator to collect and maintain information concerning the transfer of manure to other persons. Permitting authorities have the discretion to add special conditions to NPDES permits to address site-specific conditions at the CAFO to minimize the movement of nutrients to waters of the United States.

4.2.3.1 Duty to maintain permit coverage until the CAFO is properly closed

Under the revised regulations, permit coverage must be maintained until the facility has ceased operation or is no longer a CAFO and the permittee has demonstrated to the satisfaction of the permitting authority that there is no remaining potential for a discharge of manure, litter, or process wastewater that was generated while the operation was a CAFO, other than agricultural stormwater from land application areas.

Once an operation is issued an NPDES permit, that permit remains in place for the entire permit term independent of the specific number of animals confined at any one time until the permit is modified or terminated in accordance with applicable NPDES regulations. For example, a beef operation with 1,200 cattle meets the definition of a Large CAFO and is subject to regulation. It applies for and is issued an NPDES permit. Following issuance of the permit, 400 cows are transported off the operation, resulting in the operation having 800 cattle. The permit remains in place and the operation must continue to

comply with its requirements. If the operation has taken the steps to permanently reduce the number of animals confined to a number less than the regulatory threshold, and it would not meet the definition of a Medium CAFO, it can request that the permitting authority terminate the permit.

Below are three generic scenarios of the application of this provision to permitted operations:

Scenario A A permitted CAFO notifies the permitting authority that it has ceased operation. The operator should submit documentation to the permitting authority demonstrating that the CAFO has been closed and that all of the manure and wastewater stored at the operation has either been used in accordance with a site-specific nutrient management plan or has been transferred to other persons. In this case, if the permitting authority agrees that the facility has been properly closed, the permit would be terminated.

Scenario B A permitted operation notifies the permitting authority that it continues to operate; however, it has reduced the number of animals confined to the point where it no longer meets the definition of a Large CAFO and has no plans to increase herd/flock size. Prior to the expiration of the current permit term, documentation is provided to the permitting authority that all the manure and wastewater generated while the operation met the definition of a CAFO has been, or will be, used in accordance with a site-specific nutrient management plan or transferred off-site. In addition if the operation is claiming that it also does not meet the definition of a Medium CAFO, the permitting authority should require documentation to verify that the operation does not meet either of the two discharge criteria to be defined as a Medium CAFO. If the permitting authority agrees that the operation is no longer a CAFO, then no renewal of the permit would be required. It is important to note that even if a permitted operation reduces the number of animals or corrects site conditions so that it no longer meets the Large or Medium CAFO definitions during the term of the permit, the permit remains in effect for the full 5-year term unless and until it is modified or terminated.

Scenario C A designated operation has been issued a permit, but has subsequently addressed the conditions that resulted in its being designated. In this case, at least 180 days prior to the expiration of the permit, the operator should submit a permit application along with sufficient documentation to the permitting authority to justify that the operation should no longer be designated as a CAFO. Based upon a review of this information, the permit authority would either issue a new permit or inform the CAFO that it is no longer considered a CAFO and does not need to be covered by an NPDES permit.

4.2.3.2 What information should be submitted to the permitting authority to document that an operation has been properly closed?

The specific information that would need to be submitted in order to document proper closure would be established at the discretion of the permitting authority. Given the variation in site management practices, it is unlikely that there will be a standard package of documentation that addresses whether an operation has been properly closed or no longer meets the definition of a CAFO and has no potential for the discharge of manure generated while it was a CAFO to waters of the United States. The key information to be submitted by the permittee to document such change should focus on that which establishes a permanent change to the number of animals held in confinement and the necessary changes to the manure and wastewater storage and utilization practices. In those cases where a permitted CAFO has ceased operation, the documentation may include records of sale for the animals confined specifying the date at which no animals remained in confinement. In addition the land application or transfer records

should document the disposition of all the manure and wastewater associated with these animals, either in accordance with a site-specific nutrient management plan or transferred off site, for the period up to and including the date at which the operation no longer met the definition of a CAFO. This information could include the submission of a certification, prepared by a professional engineer licensed in the respective State, that any liquid storage structure has been properly closed and that pollutants associated with manure, litter, and process wastewater will not migrate from the closed structure to waters of the United States. Permitting authorities should also be aware that NRCS has established a Conservation Practice Standard addressing the closure of these facilities. The standard is entitled "Closure of Waste Impoundments" and is identified as Practice Code 360.

In cases where a permitted CAFO claims that it no longer meets the definition of a CAFO or has addressed the factors that resulted in its being designated as a CAFO, the permitting authority should request information that documents the permanent reduction in the number of animals confined and that the amount of wastewater being generated and stored at the operation is consistent with this reduction. Permitting authorities may wish to conduct an inspection of the operation to confirm that it has been properly closed. With respect to designated operations, the CAFO should submit documentation as to how the conditions were addressed and why the operation is no longer a significant contributor of pollutants to waters of the United States. In those cases where there is a significant reduction in the number of animals being confined the permitting authority should request records that document the proper disposition of any stored manure and wastewater based on the permitted capacity of the operation.

4.2.3.3 Manure transfer requirements for Large CAFOs

NPDES permits for Large CAFOs must include specific requirements concerning the transfer of manure, litter, or process wastewater to other persons. The permit must require the operator to provide all recipients of manure and wastewater generated by the CAFO with the most current manure nutrient analysis. The nutrient analysis must be consistent with the CAFO ELG [40 CFR Part 412]. The ELG for Large CAFOs requires that manure be sampled for nitrogen and phosphorus at least annually. In addition, the permit must require Large CAFOs to retain records of the date of the transfer, the name and address of the recipient, and the approximate amount of manure, litter, or process wastewater transferred (tons/gallons). These records are to be maintained for a period of 5 years from the date the manure, litter, or process wastewater is transferred. See Appendix G for an example of a manure, litter, and wastewater transfer record form.

4.2.3.4 Additional special conditions as determined by the permitting authority

The permitting authority has the discretion to include additional special conditions in NPDES permits for CAFOs beyond those required by the NPDES CAFO regulations where it has determined that they are necessary to achieve effluent limitations and standards or carry out the intent and purpose of the Clean Water Act. For example, such additional requirements may address emergency discharge impact abatement, extended storage periods, irrigation control, spills, discharges from drain tiles, measurement of rainfall, protection for endangered species and migratory birds, employee training, and ground water monitoring or the use of liners in areas where there is the potential for a discharge to ground water that has a direct hydrologic connection to waters of the United States. In addition, States concerned with ground water may require monitoring, liners, or other requirements based on appropriate State authority.

4.3 What are the Monitoring, Reporting, and Record Keeping Requirements of NPDES Permits for CAFOs?

The NPDES regulations identify record keeping, monitoring, and reporting requirements that are applicable to all CAFOs [40 CFR 122.41 and 122.42(e)(2) through (4)]. The record keeping requirements associated with the off-site transfer of manure are only applicable to Large CAFOs but could be considered in all NPDES permits for CAFOs. The CAFO ELG regulations identify specific record keeping and monitoring requirements that are applicable only to Large CAFOs. For Medium and Small CAFOs, additional monitoring and record keeping requirements may be established by the permitting authority on a case-by-case basis.

4.3.1 Record keeping requirements

All CAFO operators must maintain on-site a copy of the current site-specific nutrient management plan that reflects existing operational characteristics, along with records documenting the implementation of the best management practices and procedures identified in the nutrient management plan. CAFO operators should also maintain in their records a copy of the current NPDES permit.

The ELG requires Large CAFOs to maintain operation and maintenance records that document (1) visual inspections, inspection findings, and preventive maintenance needed or undertaken in response to the findings; (2) the date, rate, location, and methods used to apply manure or litter and wastewater to land under the control of the CAFO operator; (3) the results of annual manure or litter and wastewater sampling and analysis to determine nitrogen and phosphorus content; and (4) the results of representative soil sampling and analyses conducted at least every 5 years to determine nutrient content.

In addition the CAFO ELG specifies that Large CAFOs maintain land application records that document the date the land application takes place, the land application method; the weather conditions at the time the manure, litter, or wastewater is land applied; and the weather conditions 24 hours before and following application. The total amount of nitrogen and phosphorus applied is to be recorded and the permitting authority may require the recording of the percent solids and liquids applied during each application. The permit is to also require that any land application records necessary to demonstrate compliance with the State nutrient management technical standard be maintained. This would include the basis for the phosphorus application rate being used during land application.

Large CAFOs must also maintain records of manure transferred to other persons that document the amount of manure and/or wastewater that leaves the operation and the date, name, and address of the recipient(s).

Permits should specify that all CAFOs be required to maintain a written record of all required documentation. In addition permits should require that the records be organized in a manner that facilitates their review during a compliance inspection, such as the use of a dedicated logbook. Records are to be maintained for a period of 5 years. Table 4-6 is an integrated list of the specific records required by the NPDES and ELG CAFO regulations for Large CAFOs.

For Medium and Small CAFOs, the monitoring and record keeping requirement for the effluent limitations would be established by the permitting authority on a case-by-case basis. In addition, the inclusion of additional record keeping requirements in the permit for Large CAFOs would be at the discretion of the permitting authority. The specific record keeping requirements for other CAFOs would be established by the permitting authority.

Appendix H includes some examples of record keeping forms that the permitting authority can provide to the permittee. These example forms would assist the operation in meeting some of the record keeping requirements specified in the NPDES and ELG CAFO regulations.

Table 4-6. NPDES Large CAFO Permit Record Keeping Requirements		
Parameter	**Units**	**Frequency**
Nutrient Management Plan *(Note: Required by the NPDES CAFO Regulation — applicable to all CAFOs)*		
The CAFO must maintain on-site a current site-specific NMP that reflects existing operational characteristics. The operation must also maintain on-site all necessary records to document that the NMP is being properly implemented with respect to manure and wastewater generation, storage and handling, and land application. In addition records are to be maintained that the development and implementation of the NMP is in accordance with the minimum practices defined in 40 CFR 122.42(e).	N/A	Maintain at all times
Soil and Manure/Wastewater Nutrient Analysis *(Note: Required by the CAFO ELG – applicable to Large CAFOs)*		
Analysis of manure, litter, and process wastewater to determine nitrogen and phosphorus content.[1]	ppm Pounds/ton	Conduct initial sampling, then at least annually.
Analysis of soil in all fields where land application activities are conducted to determine phosphorus content.[1]	ppm	Conduct initial sampling, then at least once every 5 years.
Operation and Maintenance *(Note: Required by the CAFO ELG – applicable to Large CAFOs)*		
Visual inspection of all water lines	N/A	Daily[2]
Documentation of depth of manure and process wastewater in all liquid impoundments	Feet	Weekly
Documentation of all corrective actions taken	N/A	As necessary
Documentation of animal mortality handling practices	N/A	As necessary
Design documentation for all manure, litter, and wastewater storage structures including the following information:		
• Volume for solids accumulation	Cubic yards/gallons	Once in the permit term unless revised
• Design treatment volume	Cubic yards/gallons	
• Total design storage volume[3]	Cubic yards/gallons	
• Days of storage capacity	Days	
Documentation of all overflows from all manure and wastewater storage structures including: ***(Note: Required by the NPDES Regulation – applicable to all CAFOs)***		
• Date and time of overflow	Month/day/year	Per event
• Estimated volume of overflow	Total gallons	Per event
• Analysis of overflow (as required by the permitting authority)	TBD	Per event
Documentation of manure application equipment inspection	N/A	Seasonally
Land Application *(Note: Required by the CAFO ELG – applicable to Large CAFOs)*		
For each application event where manure, litter, or process wastewater is applied, documentation of the following by field:		
• Date of application	Month/day/year	Daily
• Method of application	N/A	Daily
• Weather conditions at the time of application and for 24 hours prior to and following application	N/A	Daily
• Total amount of nitrogen and phosphorus applied[4]	Pounds/acre	Daily
Documentation of the crop and expected yield for each field	Bushel/acre	Seasonally
Documentation of test methods and sampling protocols used to sample and analyze manure, litter, and wastewater and soil.	N/A	Once in the permit term unless revised

Table 4-6. NPDES Large CAFO Permit Record Keeping Requirements (cont.)		
Documentation of the basis for the application rates used for each field where manure, litter, or wastewater is applied.	N/A	Once in the permit term unless revised
Documentation showing the total nitrogen and phosphorus to be applied to each field including nutrients from the application of manure, litter, and wastewater and other sources	Pounds/Acre	Once in the permit term unless revised
Manure Transfer *(Note: Required by the NPDES CAFO Regulation – applicable to Large CAFOs)*		
For all manure transfers the CAFO must maintain the following records:		
• Date of transfer	N/A	As necessary
• Name and address of recipient	N/A	As necessary
• Approximate amount of manure, litter, or wastewater transferred	Tons/gallons	As necessary

[1] Refer to the State nutrient management technical standard for the specific analyses to be used.
[2] Visual inspections should take place daily during the course of normal operations. The completion of such inspection should be documented in a manner appropriate to the operation. Some operations may wish to maintain a daily log. Other operations may choose to make a weekly entry, when they update other weekly records, that required daily inspections have been completed.
[3] Total design volume includes normal precipitation less evaporation on the surface of the structure for the storage period, normal runoff from the production area for the storage period, 25-year, 24-hour precipitation on the surface of the structure, 25-year, 24-hour runoff from the production area, and residual solids.
[4] Including quantity/volume of manure, litter, or process wastewater applied and the basis for the rate of phosphorus application.

4.3.2 Monitoring and reporting

Reporting requirements are generally linked to monitoring requirements and may include periodic reports, emergency reports for overflow events, and special reports. When developing the monitoring and reporting requirements for the NPDES permit, the permit writer should address the routine operational characteristics of the facility and the minimum reporting requirements at 40 CFR Part 122.41(l). The permit also should include monitoring and reporting requirements that address nonroutine activities. For example, discharges at a CAFO can occur because of an overflow during a catastrophic storm event (which can be an allowable discharge under the terms of the permit) or a leak, breach, overflow, or other structural failure of a storage facility due to improper operation, design, or maintenance (which would be an unauthorized discharge). Unauthorized discharges may also occur due to manure releases related to the improper storage or handling of liquid or solid manure, or improper land application. The permit must require immediate notification of the permitting authority, specific data collection activities, and a follow-up report describing such discharges. The monitoring and reporting requirements must ensure that the permittee provides a description; identifies the time and duration of the event, as well as the cause(s); and presents an analysis (if required to determine compliance by the permitting authority) of the discharge. At a minimum, the analysis should include total nitrogen, ammonia nitrogen, phosphorus, pH, temperature, *Escherichia coli* or fecal coliform, 5-day biochemical oxygen demand (BOD_5), and total suspended solids. The analysis is to be performed in accordance with approved EPA methods for wastewater analysis listed in 40 CFR Part 136. The permitting authority may wish to specify additional parameters at its discretion.

4.3.2.1 Annual Report

All NPDES permits for CAFOs must include a requirement that the permittee submit an annual report with specific information defined in the regulation [40 CFR 122.42(e)(4)]. In addition to the information required by the NPDES regulations, State permitting authorities can require additional information to be included with the annual report. As with NOIs, EPA will promote electronic submission of annual reports and immediate posting on publicly available locations. Appendix I provides an example of a NPDES CAFO permit annual report form that includes all of the information specified in the NPDES CAFO regulation.

5.0 OTHER CONSIDERATIONS

This chapter discusses several other important considerations for NPDES permitting authorities when developing and implementing NPDES permits for CAFOs.

5.1 Coordination with Total Maximum Daily Load (TMDL) Programs

The TMDL provisions of the Clean Water Act are intended to be the second line of defense for protecting the quality of surface water resources. When technology-based controls on point sources are inadequate for water to meet State water quality standards, Section 303(d) of the Clean Water Act requires States to identify those waters and to develop TMDLs. A TMDL is defined as

- The maximum amount of a pollutant that a waterbody can receive without violating water quality standards, and
- The sum of the waste load allocations for point sources and load allocations for nonpoint sources and natural background plus a margin of safety (considers seasonal variation).

A TMDL study must be conducted for each pollutant that causes a waterbody to fail to meet State water quality standards. More than 20,000 waters are identified nationally as being impaired and possibly requiring a TMDL. The top impairments in 1998 were sediment, nutrients, and pathogens. AFOs and CAFOs can be sources of all three pollutants.

A TMDL is a calculation of the greatest amount of a pollutant that a waterbody can receive without exceeding water quality standards. A TMDL allocates the amount of the pollutant that can be contributed by the pollutant's sources. A TMDL study identifies both point and nonpoint sources of each pollutant that cause a water to fail to meet water quality standards. Water quality sampling, biological and habitat monitoring, and computer modeling help the TMDL writer determine how much each pollutant source must reduce its contribution to ensure that the water quality standard is met. Through the TMDL process, pollutant loads are allocated to all sources. Waste load allocations for point sources are implemented through NPDES discharge permits. Load allocations for nonpoint sources are not federally enforceable, but can be met through voluntary approaches or State or local regulations. In some impaired watersheds, AFOs and CAFOs may be affected by TMDLs since improved management practices may be necessary to restore water quality. In the case of CAFOs, any necessary pollutant loading reductions would be achieved through the use of NPDES permits issued in accordance with the NPDES CAFO regulations.

5.2 CZARA Management Measures

In the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), Congress required States with federally approved coastal zone management programs to develop and implement coastal nonpoint pollution control programs. Thirty-three States and Territories currently have federally approved Coastal Zone Management programs. Section 6217(g) of CZARA called for EPA, in consultation with other federal agencies, to develop guidance on "management measures" for sources of nonpoint source pollution in coastal waters. In January 1993 EPA issued its *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, which addresses five major source categories of nonpoint pollution: urban runoff, agriculture runoff, forestry runoff, marinas and recreational boating, and hydromodification. Within the agriculture runoff nonpoint source category, the EPA guidance specifically included management measures applicable to all new and existing "confined animal facilities." The guidance identifies the facilities that constitute large and small confined animal facilities based solely on the number of animals confined. The manner of discharge is not considered. Under the CZARA guidance a large beef feedlot contains 300 head or more, a small feedlot between 50 and 299 head; a large

dairy contains 70 head or more, a small dairy between 20 and 69 head; a large layer or broiler facility contains 15,000 head or more, a small layer or broiler facility between 5,000 and 14,999 head; a large turkey facility contains 13,750 head or more, a small turkey facility between 5,000 and 13,749 head; and a large swine facility contains 200 head or more, a small swine facility between 100 and 199 head.

The thresholds in the CZARA guidance for identifying large and small confined animal facilities are lower than those established in the NPDES CAFO regulations. Thus, in coastal States the CZARA management measures potentially apply to a greater number of small facilities than the NPDES CAFO regulations. Despite the fact that both the CZARA management measures for confined animal facilities and the NPDES CAFO regulations address similar operations, these programs do not overlap or conflict with each other. EPA's CZARA guidance states that any facility with an NPDES permit for CAFOs is exempt from CZARA management measures; CZARA applies to nonpoint source dischargers. Any CAFO facility, as defined by 40 CFR Part 122, that has an NPDES permit, is a point source discharger and thus not subject to CZARA. Similarly, if an AFO subject to CZARA management measures later becomes a CAFO (by definition or designation), that facility is no longer subject to the CZARA management measures. This means that an AFO will never be subject to both an NPDES permit and CZARA at the same time. EPA's CZARA guidance provides that new confined animal facilities and existing large confined animal facilities should limit the discharge of wastewater and runoff to waters of the U.S. by storing such wastewater and runoff during storms up to and including discharge caused by a 25-year, 24-hour storm. Storage structures should have an earthen or plastic lining, be constructed with concrete, or be an above ground tank. All existing small facilities should design and implement systems that will collect solids, reduce contaminant concentrations, and reduce runoff to minimize the discharge of contaminants in both wastewater and runoff caused by storms up to and including a 25-year, 24-hour storm. Existing small facilities should substantially reduce pollutant loadings to ground water. Both large and small facilities should also manage accumulated solids in an appropriate waste utilization system. In addition to the confined animal facility management measures, the CZARA guidance includes a nutrient management measure intended to be applied by States to activities associated with the application of nutrients to agricultural lands (including the application of manure). The goal of this management measure is to minimize edge-of-field delivery of nutrients and minimize the leaching of nutrients from the root zone. The nutrient management measures also provide for the development, implementation, and periodic updating of a nutrient management plan.

5.3 Section 319

Congress amended the Clean Water Act in 1987 to establish the Section 319 Nonpoint Source Management Program because it recognized the need for greater federal leadership to help focus State and local nonpoint source efforts. Under Section 319, States, territories, and Indian Tribes receive grants to implement their approved management programs for controlling non-point source pollution, which may include a wide variety of activities, including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects. More than 40 percent of Section 319 Clean Water Act grants have been used for activities to control and reduce agricultural nonpoint source pollution. Also, several USDA- and State-funded programs provide cost-share, technical assistance, and economic incentives to implement nonpoint source pollution management practices.

5.4 Source Water Protection Programs

Although many States, water systems, and localities have established watershed and wellhead protection programs, the 1996 Safe Drinking Water Act Amendments placed a new focus on source water quality.

States have been given access to funding and required to develop Source Water Assessment Programs to assess the areas serving as public sources of drinking water in order to identify potential threats and initiate protection efforts. The Source Water Assessment Programs created by States differ because they are tailored to each State's water resources and drinking water priorities. However, each assessment must include four major elements: delineating (or mapping) the source water assessment area, conducting an inventory of potential sources of contamination in the delineated area, determining the susceptibility of the water supply to those contamination sources, and releasing the results of the determinations to the public.

Although a number of measures are in place to protect and retain the high quality of the nation's drinking water, drinking water sources are subject to a number of threats, including growing population, chemical use, and animal wastes. Improper disposal of chemicals, animal wastes, pesticides, and human wastes, as well as the persistence of naturally occurring minerals, can contaminate drinking water sources. Like human wastes, animal wastes contain pathogens, such as *E. coli*, that can sicken hundreds of people and kill the very young and old and people with weakened immune systems. These wastes can enter drinking water supplies in runoff from feedlots and pastures.

In addition to these State efforts, EPA is working with a broad spectrum of stakeholders to develop a national strategy to prevent source water contamination. When it is complete, the strategy will reflect what EPA's water program can do to further source water contamination prevention nationwide. Depending on the results of the strategy development process, CAFOs located in source water protection areas may need to implement additional controls to prevent source water contamination beyond those specified in the NPDES CAFO regulation.

5.5 Coordination with Voluntary Environmental Management Systems

EPA supports the voluntary adoption of environmental management systems (EMSs) by CAFOs; however, the adoption of an EMS by an operation does not change any applicable NPDES permitting requirements. On May 15, 2002, the Administrator announced EPA's Position Statement on environmental management systems. This statement outlines the policy and principles by which the Agency will work with industry to promote the use of EMSs to improve environmental protection. EPA promotes the widespread use of EMSs that are consistent with ISO 14001, across a range of organizations and settings, with particular emphasis on adoption of EMSs to achieve improved environmental performance and compliance, and pollution prevention through source reduction. EPA encourages organizations to implement EMSs based on the plan-do-check-act framework, with the goal of continual improvement. An organization's EMS should address its entire environmental footprint (everywhere it interacts with the environment both negatively and positively), including both regulated and unregulated impacts, such as energy and water consumption, dust, noise, and odor. EPA supports EMSs that are appropriate to the needs and characteristics of specific sectors and facilities.

An operation could choose to implement an EMS that could include a nutrient management plan, but would also include policies and practices designed to address other significant environmental aspects. EPA, as part of its overall policy on EMSs, supports adoption of these systems in a variety of sectors, including agriculture. EPA has worked with specific agricultural producer groups like the United Egg Producers to develop a voluntary EMS program. USDA is also funding a major effort through the University of Wisconsin called Partnerships for Livestock Environmental Assessment Management Systems. This project is designed to provide information and other guidance on ways to use EMSs effectively in a variety of agricultural settings. EPA serves on the Advisory Committee for this effort, along with USDA and other federal agencies.

EPA supports the use of EMS by States, as appropriate. CAFOs may want to consider implementation of nutrient management plans as part of a broader EMS to manage the specific impacts of excess nutrients. The CAFO's EMS would be broader than just a nutrient management plan, however, and would cover all media and both regulated and unregulated aspects.

More information on EPA's EMS policy, along with sector-specific EMS templates and guidance is provided at www.epa.gov/ems.

5.6 USDA Funding Programs for CAFOs

The 2002 Farm Bill offers several voluntary conservation programs that can be used by livestock and poultry producers to help them comply with the revised CAFO Rule. Under the 1996 Act, a producer who owned or operated a large confined livestock operation was not eligible for cost-share payments to construct an animal waste management facility. The 2002 Act removed that prohibition. In addition, the 2002 Act states that 60 percent of the funds made available for cost-share and incentive payments are to be targeted at practices related to livestock production rather than the 50 percent that was specified in the 1996 Act. NRCS provides technical assistance to CAFO operators through conservation planning, design, and implementation. Producers also may obtain assistance from technical service providers. Financial assistance to implement practices and systems is available through the following:

Environmental Quality Incentives Program (EQIP) provides up to 75 percent (up to 90 percent for beginning or limited resource farmers or ranchers) in cost-share funds to construct certain conservation practices, such as grassed waterways, filter strips, manure management facilities, capping abandoned wells, and other practices important to improving and maintaining the health of natural resources in the area. EQIP funds can be used to develop CNMPs, which generally will satisfy the CAFO Rule's nutrient management plan requirement. At least 60 percent of EQIP financial assistance funds are required by statute to be used on a nationwide basis for livestock and poultry operations, both confined and grazing. All livestock producers can receive EQIP cost-share for waste storage facilities regardless of the size of the operation but only if they implement a CNMP. Each EQIP contract has a payment limitation of $450,000 per individual or entity for the period from fiscal year 2002 - fiscal year 2007.

USDA's National Funding Allocation Process is used to distribute program funds to the States and Territories. The national funding priorities for EQIP under the 2002 Farm Bill are as follows:

- Reductions of nonpoint source pollution, such as nutrients, sediment, pesticides, or excess salinity in impaired watersheds consistent with TMDLs where available, as well as the reduction of ground water contamination and the conservation of ground and water resources;
- Reduction of emissions, such as particulate matter, nitrogen oxides, volatile organic compounds, and ozone precursors and depleters that contribute to air quality impairment violations of National Ambient Air Quality Standards;
- Reduction in soil erosion and sedimentation from unacceptable levels on agricultural land; and
- Promotion of at-risk species habitat conservation.

Local work groups are used by NRCS at the State level to implement these national priorities. These local work groups–convened by local conservation districts–conduct a conservation needs assessment and, based on these assessments, develop proposals for priority areas. These proposals are submitted to the NRCS State Conservationist, who selects those areas within the State based on the recommendations from the State Technical Committee.

The local work groups are made up of representatives from conservation district board members and key staff; NRCS; Farm Service Agency (FSA); FSA county committees and key staffs; the Cooperative State Research, Education, and Extension Service; and other Federal, State, and local agencies interested in natural resource conservation. Their recommendations go to the NRCS-designated conservationist for the local area and then to the State Conservationist, who sets priorities with the advice of the State Technical Committee. The recommendations are integrated into regional and national strategic plans. These strategic plans provide a basis for funding decisions.

Agricultural Management Assistance Program (AMA) provides cost-share funds to assist producers in implementing conservation systems and addressing regulatory requirements. Program funds may be used by CAFO operators to develop and implement a CNMP. AMA funding is limited to producers in the following 15 States: Connecticut, Delaware, Maine, Maryland, Massachusetts, Nevada, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Utah, Vermont, West Virginia, and Wyoming.

Conservation Reserve Program (CRP) provides participants with rental payments and cost-share assistance to take agricultural land out of production. Environmentally desirable land devoted to certain conservation practices including riparian buffers, wetland buffers, and filter strips may be enrolled in CRP at any time under continuous sign-up. Offers are automatically accepted provided the land and producer meet certain eligibility requirements. Offers for continuous sign-up are not subject to competitive bidding. Continuous sign-up contracts are 10 to 15 years in duration.

Other Farm Bill Programs: Other conservation programs may support CAFO operators in their efforts to implement a well-rounded conservation plan. These programs include

- Conservation Reserve Enhancement Program (CREP)
- Wetlands Reserve Program (WRP)
- Wildlife Habitat Improvement Program (WHIP).

In addition to financial assistance programs under the 2002 Farm Bill, there may be State and local cost share programs available to support CAFO operators. Permit writers should determine whether such programs exist within the State or region for which they are responsible.

The information presented in this section was obtained from the following USDA Web site, which summarizes funding opportunities for animal feeding operations: http://www.nrcs.usda.gov/programs/afo/2003pdf/CAFO%20Rule%20Fact%20Sheet.pdf.

5.7 USDA and EPA Livestock and Poultry Environmental Stewardship Curriculum

The Livestock and Poultry Environmental Stewardship (LPES) curriculum is a nationally developed and regionally piloted training program. The curriculum was developed by a national team of more than 30 experts from 15 land-grant universities, USDA's NRCS, and USDA's Agricultural Research Service (ARS) who prepared, peer reviewed, and pilot tested the LPES curriculum with assistance from Mid-West Plan Service (MWPS) and guidance from EPA's National Agriculture Compliance Center (Ag Center). The LPES curriculum development effort was funded by a grant from the EPA's Ag Center with program oversight through the USDA. The goal of the LPES program is to provide producers, industry stakeholders, and educators with access to the latest science-based information. Instructional materials are available for each of the 26 lessons that make up the curriculum. This material can be ordered from the MWPS, which is an organization of extension and research agricultural engineers from 12 universities plus representatives of the USDA (http://www.mwpshq.org).

APPENDIX A

REFERENCES FOR AN NPDES PERMIT WRITER

APPENDIX A. REFERENCES FOR AN NPDES PERMIT WRITER

EPA Programs and Information

Unified National Strategy for Animal Feeding Operations

U.S. Department of Agriculture/U.S. Environmental Protection Agency Unified National Strategy for Animal Feeding Operations, March 9, 1999.
http://www.epa.gov/npdes/pubs/finafost.pdf

CAFO Final Rule Web Page

This Web site provides access to the text of the rule and preamble, outreach brochures, supporting documents, and guidance documents.
http://www.epa.gov/npdes/caforule

Clean Water Act Section 319 Nonpoint Source Management Program

EPA Office of Wetlands, Oceans and Watersheds, Clean Water Act Section 319
http://www.epa.gov/owow/nps/cwact.html

EMS Resources

This Web site provides information and resources related to Environmental Management Systems (EMSs) for businesses, associations, the public, and state and federal agencies.
http://www.epa.gov/ems

EPA's Position Statement on Environmental Management Systems (May 15, 2002)

http://www.epa.gov/ems/policy/EMS_PositionStatementFinal.pdf

NPDES Permit Writers' Manual

U.S. EPA NPDES Permit Writers' Manual, EPA 833-B-96-003, December 1, 1996.

To download individual chapters or the entire document, go to EPA's NPDES Permit Writers' Manual page at
http://cfpub.epa.gov/npdes/writermanual.cfm?program_id=45.

NPDES Permit Program Basics

This Web site provides basic permitting tools and information.
http://cfpub.epa.gov/npdes/home.cfm?program_id=45.

National Agriculture Compliance Assistance Center (Ag Center)

http://www.epa.gov/agriculture/

National Management Measures to Control Nonpoint Source Pollution from Agriculture

EPA 841-B-03-004, 2003

Includes information on the selection and implementation of BMPs to control the contribution of pollutants to surface water.
http://www.epa.gov/owow/nps/agmm/index.html

Permit Compliance System

http://www.epa.gov/compliance/planning/data/water/pcssys.html

Source Water Protection Programs

EPA Office of Groundwater and Drinking Water, Source Water Protection
http://www.epa.gov/safewater/protect.html

TMDL Programs

EPA Office of Wetlands, Oceans and Watersheds, TMDL Program
http://www.epa.gov/OWOW/tmdl/index.html

USDA and EPA Livestock and Poultry Environmental Stewardship Curriculum

http://www.lpes.org/

United Egg Producers voluntary EMS program

EPA Project XL, United Egg Producers.
http://www.epa.gov/projectxl/uep/

USDA Programs and Information

2002 Farm Bill

USDA's online gateway to information about the 2002 Farm Bill.
http://www.usda.gov/farmbill/index.html

Cooperative Extension Service agents and specialists

Directory of State Extension Service Directors and Administrators.
http://www.reeusda.gov/hrd/statedir.htm

Land Grant Universities

This CSREES web site provides directory of land-grant universities. Click on a state to link to a list of land-grant university web sites.
http://www.reeusda.gov/1700/statepartners/usa.htm

NRCS Nutrient Management Technical Practice Standard 590

USDA NRCS Nutrient Management Technical Resources, Code 590.
http://www.nrcs.usda.gov/technical/ECS/nutrient/590.html

NRCS Nutrient Management Technical Resources
This Web site provides computer-based tools to facilitate the development and implementation of NMPs.
http://www.nrcs.usda.gov/technical/nutrient.html

State NRCS Field Office Technical Guidance

Click on the map to find available technical guidance for states and counties.
http://www.nrcs.usda.gov/technical/efotg/

State technical standards for nutrient management

Use these links to NRCS State offices to search for state nutrient management standards.
http://www.nrcs.usda.gov/about/organization/regions.html#stat

Financial & Technical Assistance Available to Concentrated Animal Feeding Operation Owners and Operators

Downloadable pdf document from USDA/NRCS (2003).
http://www.nrcs.usda.gov/programs/afo/2003pdf/CAFO%20Rule%20Fact%20Sheet.pdf

USDA Agricultural Research Service

http://www.ars.usda.gov

USDA Cooperative State Research, Education, and Extension Service

http://www.reeusda.gov/

USDA Farm Service Agency

http://www.fsa.usda.gov/

USDA Farm Service Agency, Conservation Reserve Program

http://www.fsa.usda.gov/dafp/cepd/crp.htm

USDA Farm Service Agency, Conservation Reserve Enhancement Program

http://www.fsa.usda.gov/dafp/cepd/crep.htm

USDA Natural Resources Conservation Service (NRCS)

http://www.nrcs.usda.gov

USDA NRCS Conservation Programs

Environmental Quality Incentives Program, Agricultural Management Assistance Program, Wetlands Reserve Program, Wildlife Habitat Incentives Program.

http://www.nrcs.usda.gov/programs/

USDA NRCS's CNMP Technical Guidance

Draft Comprehensive Nutrient Management Planning Technical Guidance, National Planning Procedures Handbook, Subpart E, Parts 600.50-600.54 and Subpart F, Part 600.75.

http://www.nrcs.usda.gov/programs/afo/cnmp_guide_index.html

USDA National Nutrient Management Policy

NRCS Online Directives Management System, General Manual, Title 190, Part 402 - Nutrient Management, May 1999.
http://www.nrcs.usda.gov/technical/ecs/nutrient/gm-190.html

Associations and Trade Groups

American Society of Agronomy (ASA)

http://www.agronomy.org/

Certified Crop Advisors (CCA)

http://www.agronomy.org/cca/

Certified Professional Agronomists (CPAg)

http://www.agronomy.org/certification/agronomy.html

Certified Professional Crop Scientists (CPCSc)

http://www.agronomy.org/certification/crops.html

Certified Professional Soil Scientists (CPSSc)

http://www.agronomy.org/certification/soils.html

ISO 14001

This Web site provides information on ISO 14001 and other standards from the International Standards Organization.

http://www.iso.org/iso/en/ISOOnline.frontpage

National Alliance of Independent Crop Consultants (NAICC)

http://www.naicc.org/

National Association of Conservation Districts (NACD)

http://www.nacdnet.org

National Association of State Departments of Agriculture (NASDA)

http://www.nasda.org

National Cattleman's Beef Association (NCBA)

http://www.beef.org

National Milk Producers Federation (NMPF)

http://www.nmpf.org

National Pork Producers Council (NPPC)

http://www.nppc.org

National Turkey Federation (NTF)

http://www.turkeyfed.org

United States Poultry and Egg Association

http://www.poultryegg.org

APPENDIX B

ANIMAL SECTOR DESCRIPTIONS

APPENDIX B. ANIMAL SECTOR DESCRIPTIONS

The poultry, swine, dairy, and beef industries constitute the principal sectors of animal agriculture in the United States. The majority of animal feeding operations (AFOs) that are defined as concentrated animal feeding operations (CAFOs) are in one of these four sectors. In addition to operations in these four principal sectors, there are also a number of veal calf, sheep, duck, and horse animal feeding operations that may meet the definition of a CAFO and be subject to NPDES permit requirements. The text that follows provides a general overview of the principal sectors, including descriptions of production and waste management practices to provide a general understanding of the nature of each of these sectors. The production and waste management practices described are those most likely to be encountered on CAFO-size operations. It is not intended for this document to describe all the possible practices and combinations of practices that may be encountered, since that number is sizable.

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Beef Cattle B-13

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Poultry

The poultry sector has three principal segments: chickens - broilers, chickens - laying hens, and turkeys. In each of these segments, production and waste management practices are probably more uniform than in the swine, dairy, and beef industries.

Chickens - Broilers

Broiler refers to a meat-type chicken typically slaughtered at about 7 weeks of age at a live weight of about 5 pounds. This size of bird is the principal product of the broiler sector within the poultry industry. However, there is also some production of younger birds, identified as squab broilers, Cornish game hens or Rock-Cornish crosses, as well as older birds known as roasters. Squab broilers are typically slaughtered at about 4 weeks of age at a live weight of about 2.25 to 2.5 pounds. Roasters are generally slaughtered at about 8 to 10 weeks of age at a live weight of 6 to 8 pounds. Typically, 5 to 6 flocks of broiler chickens will be produced annually. Because squab broilers and roaster boilers differ in the length of their grow-out cycle (the time to reach slaughter weight), more flocks of squab broilers and fewer flocks of roasters are produced annually. All broilers are typically fed corn-soybean-based diets, which may also include various cereal grains and a variety of other ingredients. Grain sorghum may be substituted for corn. Essentially all broiler-type chicken production is vertically integrated; that is under contract with the grower, the integrator supplies the birds, the feed, and any pharmaceuticals required. The grower supplies the production facility and labor. With vertical integration, the integrator retains ownership of the live birds, but disposal of the manure and dead birds generated is the responsibility of the grower.

Confinement Facilities

Almost all broiler chicken production occurs in either totally or partially enclosed structures. Partially enclosed structures have partially open side walls that can be covered by curtains during periods of cold weather. A combination of natural and mechanical ventilation is used to remove heat and moisture from partially enclosed facilities. Mechanical ventilation is used with totally enclosed structures, known as controlled environment housing, or, more commonly, tunnel-type housing.

Broiler houses are normally divided into three chambers. One chamber, referred to as the brood chamber, is used to house day-old chicks (biddies). Until the age of about 2 to 3 weeks, chickens are unable to maintain a constant body temperature and require supplemental heat. Thus, brood chambers are heated at the beginning of the grow-out cycle. As the birds grow and heating requirements are reduced, the second and third chambers are opened sequentially to provide more floor space per bird. In cold weather, broiler houses are heated throughout the grow-out cycle to maximize feed conversion efficiency and the rate of weight gain.

Manure Management

All broiler-type chickens are raised unconfined within the production facility on litter, which has the primary function of absorbing the moisture in the excreted manure. Litter materials vary depending on availability and cost, but they are usually sawdust, wood shavings, peanut hulls, or rice hulls.

Normally, litter and accumulated manure, also commonly called litter, are only removed from the entire house every 1 to 3 years after 5 to 15 or more flocks of birds have been produced. The industry refers to this as a total clean-out. When total clean-outs do not occur on a yearly basis, litter and accumulated manure may be removed annually from the brood chamber. This is known as a brood chamber clean-out. Following both total and brood chamber clean-outs, the litter is replaced.

During each production or grow-out cycle, a material known as crust or cake will form along feeder and waterer lines. In these areas, the amount of manure excreted is higher than in other areas of the house, and moisture from the manure and waters tends to bind the mixture of litter and manure together, forming large clumps. As watering systems have improved, the amount of crust formed during each grow-out cycle has decreased. Crust is usually removed after every flock of birds produced. The remaining litter and accumulated manure may be covered (top dressed) with a relatively thin layer of new litter if the amount of crust removed is high.

Historically, total and brood chamber clean-out litter and crust have been either applied to crop land immediately, if crop production activities permitted, or stored in uncovered piles until land was available for disposal. Over the last several years, structures have occasionally been used to store crust. However, construction cost has generally precluded the use of such storage structures for litter generated by total and brood chamber clean-outs some producers use. The timing of these clean-outs has shifted somewhat from late fall and early winter, as the industry has become more sensitive to the impact on water quality of litter stored in uncovered piles. It is acceptable for litter to be stored under a tarp as long as rain and runoff is diverted around the pile in lieu of constructing covered storage facilities. Temporary short-term stacking of litter (i.e., 2 weeks) on or near a field where it will be applied may also be an acceptable handling provided manure is applied in a timely manner. For example, Maryland Agriculture Extension allows litter stacked at the field for no longer than two weeks.

Mortality Management

With broilers, the highest rate of mortality normally occurs during the first 2 weeks of the grow-out cycle, but continues at a lesser rate throughout the rest of the cycle. Typically, about 4.5 to 5 percent of the birds housed will die during the grow-out cycle although the typical mortality for roasters is about 8 percent. To prevent the possible spread of disease, dead birds must be removed at least daily, if not more frequently. As mentioned earlier, the disposal of dead birds is the responsibility of the grower. Several options are available for dead bird disposal. Composting is one of the more desirable approaches and has been heavily promoted by the industry. As an alternative to composting or burial, at least one integrator has been distributing freezers to preserve carcasses for subsequent disposal by rendering.

Catastrophic losses of broiler chickens also occur, especially during periods of extremely hot weather but also during weather events such as hurricanes, tornadoes, and snow or ice storms. Catastrophic losses of broilers from excessive heat are usually more severe with older birds. There are also several options for disposal of catastrophic losses, with burial being the most common practice. (Note, that burial is prohibited or highly regulated in some states.) Large-scale composting is another, and probably more desirable, option from a water quality perspective.

Chickens - Laying Hens

A laying hen is a chicken maintained for table egg production. The production cycle begins with the placement of young birds, normally 14 to 16 weeks of age, in the production facility and ends 11 to 12 months later when the birds are removed. These birds, known as spent hens, may be slaughtered for meat for human or pet foods or disposed of by rendering. More than three-fourths of layer farms molt their birds followed by a second period at egg production. Routine molting by withholding or restricting feed is the most common method. Placement and removal of birds are on an "all in—all out" basis. Typically, laying hens are also fed corn- and soybean-based diets, which may also include various cereal grains such as wheat and barley and a variety of other ingredients.

Although the table egg segment of the poultry sector is less vertically integrated than the broiler sector, vertical integration is becoming more common. However, the egg producer is typically responsible for both manure and dead bird disposal if under contract with an integrator or an independent operator.

Slightly more than 10 percent of all layer farms have pullet raising facilities on the farm. Pullets are young chickens, usually less than 20 weeks of age, often raised for the purpose of egg production. Pullet houses are similar in construction to broiler houses.

Confinement Facilities

Most egg production occurs in totally enclosed facilities with mechanical ventilation for temperature control and moisture removal, but partially open-sided houses may be encountered in warm climates. Unlike broilers, laying hens are confined in cages and no litter or bedding material is used.

Manure Management

Manure produced by laying hens is handled both as a liquid or slurry and as a solid, with handling as a liquid or slurry being more common in older production facilities. As older production facilities are replaced, however, handling laying hen manure as a liquid or slurry is becoming less common every year. When laying hen manure is handled as a liquid or slurry, flushing or scraping is used to remove laying hen manure from the production facility. With scraping systems, a tank or an earthen structure is usually used for storage if the manure is not applied directly to crop land, while flush systems use an anaerobic lagoon for stabilization and storage. Typically, the lagoon is the source of the water used for flushing, although fresh water may be used in rare instances.

To handle laying hen manure as a solid, a two-story production facility, known as a high-rise house, is used. In a high-rise house, the caged hens are located on the second floor of the building, with the first floor used for manure drying and storage. The primary factor responsible for drying is biological heat production in the accumulating mass of manure that causes evaporation of the moisture in the manure. Ventilation systems for high-rise houses are designed to move air from intakes along the eaves of the house roof down through the caged hens and over the mass of accumulating manure before exiting the house, thus removing the moisture evaporated from the manure. Critical to the successful operation of a high-rise house is the avoidance of leaks in the bird watering system and proper exterior grading to direct surface runoff away from the building. Because of the microbial activity in the accumulating mass of manure, which is responsible for the heat generated and the evaporation of manurial moisture, stabilization occurs and storage for 1 or more years is provided. Typically, manure is removed from high-rise houses yearly between flocks of hens, but storage for 2 to 3 years is possible.

The majority of eggs marketed commercially in the U.S. are washed using automatic washers. Cleaning compounds such as sodium carbonate, sodium metasilicate, or trisodium phosphate, together with small amounts of other additives, are commonly used in these systems. Wash water is contaminated with shell, egg solids, dirt, manure, and bacteria washed from the egg surface into the recycled water. Eggs may be washed either on farm or off farm. Over three-fourths of layer farms process eggs off farm, though one-third of the largest farms are likely to wash eggs off farm. Operations that wash their eggs on farm may do so in-line or off-line. Larger operations commonly collect and store egg wash water on site in large tanks or lagoons for treatment and storage.

Mortality Management

It can be expected that about 1 percent of the started pullets housed will die each month through the laying cycle. To prevent the possible spread of disease, dead birds must be removed from cages daily, if not more frequently. As mentioned earlier, disposal of dead birds is the responsibility of the grower. Several options are available for dead bird disposal. Of these options, composting is one of the more desirable approaches.

Catastrophic losses of laying hens also occur. Loss of power and mechanical ventilation during periods of extremely hot weather is the most common cause of loss. Weather events such as hurricanes and tornadoes can also cause catastrophic losses. Several options are available for the disposal of catastrophic losses, with burial being the most common. (Note, that burial is prohibited or highly regulated in some states.) Large-scale composting is another, and probably more desirable, option from a water quality perspective.

Turkeys

Turkey production is similar to broiler chicken production in many respects. The grow-out period for female or hen turkeys is usually about 14 to 16 weeks, resulting in a live weight at slaughter of between 13 and 20 pounds. However, the usual grow-out period for toms or male turkeys is longer, ranging from 17 to 21 weeks, resulting in a live weight at slaughter of between 30 and 37 pounds. Typically, two flocks of turkeys are produced annually because of the longer

grow-out cycle and the somewhat seasonal demand for turkey. Turkeys are primarily fed corn- and soybean-based diets, which may also include various cereal grains and a variety of other ingredients.

Vertical integration is also extensive in the turkey sector of the poultry industry, with the same distribution of responsibilities between the integrator and grower as in the broiler sector.

Confinement Facilities

Like broiler production, essentially all turkey production occurs in partially or totally enclosed facilities that are divided into two or three chambers. Initially, only one chamber, also known as the brood chamber, is used; this is the area where the newly hatched turkeys, known as poults are placed. Like broiler chicks, poults are unable to maintain a constant body temperature until about 6 to 8 weeks of age and thus require supplemental heat. Brood chambers for turkeys, therefore, are also heated at the beginning of the grow-out cycle. As with broiler chickens, the second or the second and third chambers are opened to provide more floor space per bird as the birds grow. In cold weather, some heat may be provided throughout the grow-out cycle.

Some turkey producers use separate brood and growing houses and move the birds from the brooding house to the growing house after about 6 to 8 weeks. Another production practice is to use the brood chamber in a house exclusively for brooding and use the remainder of the house for grow-out after the birds reach the age of 6 to 8 weeks. These management systems are known as two-age management systems. Such systems produce more flocks each year than single-age farms.

Manure Management

As with broiler chickens, turkeys are raised unconfined in the production facility on litter, typically sawdust or wood shavings. Total clean-out of brood chambers and brood houses after each flock is common, as is total clean-out of growing chambers or houses annually. Crust removal between flocks followed by top dressing with new litter also occurs in the production of turkeys.

In the turkey sector, the use of litter sheds to store crust and total clean-outs from brood chambers or brood houses is also emerging. When land is not available for disposal, storage of these materials in uncovered piles is common.

Mortality Management

Typically, about 5 to 6 percent of hens and 9 to 12 percent of toms will die during the grow-out cycle, with the highest rate of loss occurring during the initial weeks. As with broilers and laying hens, dead birds must be removed daily, if not more frequently with dead bird disposal being the responsibility of the grower. Again, several options for dead bird disposal are available; composting is one of the more desirable approaches from a water quality perspective.

Catastrophic losses of turkeys occur during periods of extremely hot weather, but they may also be due to weather events such as hurricanes, tornadoes, and snow or ice storms. Older turkeys, like older broilers, are more susceptible to catastrophic losses during periods of extremely hot weather. There are several options for disposal of catastrophic losses, with burial being the most

common practice. (Note, that burial is prohibited or highly regulated in some states.) Large-scale composting is another, and probably more desirable, option from a water quality perspective.

Swine

The production cycle for hogs has three phases. It begins with gestation and farrowing (birth). After farrowing, the newly born pigs or piglets are normally nursed for a period of just under 3 to 4 weeks until they reach a weight of 10 to 15 pounds. The average pig weaning age is 17 days, but may approach 4 weeks at smaller operations. Over 97 percent of large farms wean at less than 21 days. The production phase after weaning is known as the nursery phase where pigs are fed a starter ration until they reach a weight of 40 to 60 pounds. At this point, they are 8 to 10 weeks of age. The average age for leaving the nursery is 63 days. The third phase of swine production is the growing-finishing phase in which the gilts (young females) and young castrated boars (males) not retained for breeding are fed until they reach a market weight, typically between 240 and 280 pounds. In this phase of swine production, hogs are fed a growing ration until they reach 120 pounds in weight, which is then followed by a finishing ration. Growing-finishing usually takes between 15 and 18 weeks. Hogs are normally slaughtered at about 26 weeks of age. After weaning, swine are typically fed a corn- and soybean-meal based diet which may include small grains such as wheat and barley and other ingredients until slaughtered.

Swine operations can be of several types. The most common is the farrow-to-finish operation that encompasses all three phases of swine production. Other operations specialize in either feeder pig production or the growing-finishing phase of swine production. Although not common, specialization in either the gestation-farrowing or the nursery phase of the swine production cycle may also occur. Larger grow-finish operations are more likely to obtain feeder pigs from off-site sources. Vertical integration is becoming more common in the swine industry.

Confinement Facilities

The swine industry uses confinement systems ranging from pasture without and with shelters to total confinement, where pigs are confined in pens or stalls. Open paved or unpaved lots with access to a building or huts for shelter are also used, but larger operations will use total confinement 99 percent of the time because of higher feed conversion efficiency and weight gain as well as lower labor costs.

Total confinement facilities for swine are similar in many respects to facilities used for broiler production, except that the pigs are confined in pens. These pens may be totally enclosed or they may have partially open side walls that can be closed with curtains during cold weather. Totally enclosed facilities are mechanically ventilated, whereas facilities with partially open side walls use a combination of natural and mechanical ventilation.

Manure Management

Four principal types of waste management systems are used with total confinement housing in the swine industry: deep pit, pull plug pit, pit recharge, and flush systems. The deep pit, pull plug pit, and pit recharge systems are used with slatted floors, whereas flush systems can be used with either solid or slatted floors.

Deep pits are normally sized to collect and store 6 months of waste. When they are emptied, the accumulated manure may be disposed of directly by land application or transferred to either storage tanks or earthen storage ponds for later disposal by land application.

Pull plug pit systems use relatively shallow pits to collect manure. These pits are usually drained to a storage tank or an earthen storage pond every 1 to 2 weeks.

Pit recharge systems also use relatively shallow pits that are drained periodically to an anaerobic lagoon. Although the frequency of draining varies, between 4 and 7 days is standard. After the pit is drained, the empty pit is partially refilled with supernatant from the anaerobic lagoon, which differentiates this system from the pull plug pit system — hence, the name pit recharge.

Flush systems use either fresh water or, more commonly, supernatant from an anaerobic lagoon to transport accumulated wastes to that lagoon daily or more frequently. Because pigs will defecate as far away from their feeding and resting areas as possible, facilities with solid floors will usually have a flush channel formed in that area. Facilities with slatted floors usually form a series of parallel flush channels in the shallow pit under the slatted floor.

Mortality Management

In swine production, the highest rate of mortality occurs in young piglets within 3 to 4 days of birth. Typically, about 10 to 12 percent of piglets will die before weaning. Between 2 to 4 percent of the pigs die during the nursery stage and during the grow-finish stage. Several approaches are used for dead pig disposal, with burial being the most common. Composting and incineration are also used but primarily for piglets. Although older pigs can be disposed of by composting, disposal through rendering is the more common alternative to burial.

Catastrophic losses of swine also occur but they are primarily due to extreme weather events such as hurricanes, tornadoes, and the like. Heat losses are less common in the swine industry, because pigs, unlike birds, possess sweat glands that help to regulate body temperature. The primary effects of periods of high temperatures on swine production are a reduced feed conversion efficiency and a reduced rate of weight gain. Burial is a practical option for the disposal of large numbers of swine carcasses, although rendering could be feasible as well. (Note, that burial is prohibited or highly regulated in some states.)

Dairy Cattle

The production cycle in the dairy industry begins with the birth of a calf, which causes the onset of lactation or milk production. A period of between 10 and 12 months of milk production is normally followed by a 2-month dry period to allow for physiological preparation for calving. At the time that milking is normally stopped, a cow will be in the seventh month of a 9-month pregnancy. Thus, a mature dairy cow produces a calf every 12 to 14 months. This frequency of calf production is necessary to maintain a cost-effective level of milk production. Average U.S. milk production is about 17,000 pounds per cow per year. However, herds with averages of 22,000 to 24,000 pounds of milk per cow per year or higher are not unusual.

About 25 percent of a milking herd is typically replaced each year, but replacement levels can be as high as 40 percent for intensively managed herds. Mature cows are replaced or culled for a

variety of reasons, including low milk production and diseases such as mastitis, which is an infection of the udder. Lameness, injury, belligerence, and reproductive problems are also reasons for culling. Nearly all culled dairy cows are slaughtered for beef used in processed foods or in higher quality pet foods.

Roughly 50 percent of the calves produced by dairy cows are bulls. Because most dairy cows are bred using artificial insemination, the industry has little demand for bull calves. Although some dairy farms will have one or more breeding age bulls for cows that will not conceive by artificial insemination, most bull calves are sold for either veal or beef production.

Because of the continuing need for replacement cows, approximately 50 percent of the female calves born are raised as replacements. Those animals selected as replacements are usually progeny of cows with a record of high milk production. Female calves not raised as replacements are also sold for either veal or beef production.

Female calves retained as replacements are either raised on-site or transferred off-site to an operation that specializes in producing dairy cattle replacements. In this second scenario, the calves may be sold to the replacement operation with the same or other animals purchased back at a later date or raised under contract. In the dairy industry, both male and female animals are called calves up to an age of about 5 months. From the age of 6 to 24 months, females are called heifers, with first calving typically occurring at 24 months of age. Replacements raised off-site may be purchased or returned either as unbred or open (not pregnant) heifers at an age of about 13 months or as bred heifers at an age usually of 22 to 23 months. Three groups of animals will be present on dairy farms that raise replacements on-site: calves, heifers, and mature lactating and dry (mature nonlactating) cows. Usually, the total number of calves and heifers present will be between 50 and 60 percent of the size of the milking herd.

Lactating dairy cows are milked at least twice per day. Milking three times a day has become more common, especially with higher milk producing herds. With the exception of young calves until weaning, dairy cattle are fed a roughage-based diet or ration composed primarily of silages and hays supplemented with feed grains and by-product feedstuffs to ensure adequate levels of energy, protein, minerals, and other essential nutrients. Citrus pulp, beet pulp, meat and bone meal, and cottonseed meal are examples of by-product feedstuffs. Young calves are initially fed colostrum, which is the milk produced during the first 4 to 5 days after calving that cannot be marketed, and then a milk replacer until weaning and a complete shift to a roughage-based ration.

Confinement Facilities

The free-stall barn is the predominant type of housing system used on larger dairy farms for lactating cows. In a free-stall barn, cows are commonly grouped by stage of lactation in large pens with free access to feed bunks, waterers, and stalls for resting. The standard free-stall barn design has a feed alley in the center of the barn separating the two feed bunks on each side. On each side of the barn is an alley between the feed bunk and the first row of free-stalls and an alley that extends between the first row of free-stalls facing the feed bunk and a second row of free-stalls facing the side wall of the structure. These are the primary areas of manure accumulation, with little manure defecated in the free-stalls. There may or may not be access to an outside dry lot for exercise or to a pasture for exercise and grazing. In warmer climates, cows may simply be confined in a dry lot with unlimited access to feed bunks, waters, and usually an open structure to provide shade.

With both free-stall barns and dry lot production facilities, milking occurs in a specialized facility known as a milking center. A milking center has three components: a holding area where cows are held prior to milking, a milking parlor where the cows are milked, and an area where milk is stored in refrigerated tanks, known as bulk tanks, until picked up for processing and the milking equipment is cleaned. Holding areas may be either enclosed or open areas depending largely on climate.

There are two predominant housing systems for unweaned calves: individual pens in an enclosed building and hutches that tend to reduce disease problems. Hutches are small, lightweight structures, typically of fiberglass or plywood construction, that can be easily moved. Individual hutches, sized for one calf, are located in a small fenced area to provide shelter from inclement weather as well as access to fresh air and sunlight. Hutches are routinely relocated to reduce disease transmission. Older calves are either housed in pens as groups in a totally or partially enclosed building or in portable super hutches in a small fenced area.

Heifers are most commonly raised on dry lots with or without shelter, but may also be raised on pasture or in dedicated free-stall barns. Dry cows may be removed from the milking herd to dry lots, pasture, or dedicated free-stall barns.

Manure Management

Manure is removed from free-stall barn alleys at least daily, and often more frequently, by either scraping or flushing. A mechanical scraper or a tractor-mounted blade is used to move the manure to a collection pit at one end of the barn. From the collection pit, manure is transferred by pump or gravity to a tank or an earthen pond for storage until disposal by land application. Milking center wastewater may be added to these collection pits to facilitate pumping or gravity flow, since scraped dairy cow manure is quite viscous with a total solids content of around 12 to 13 percent. With scrape systems, other options for managing milking center wastewater, which is generated when the milking parlor and milking equipment are cleaned, are transfer directly into the manure storage structure or transfer to a dedicated lagoon.

Flush systems are the most common in warmer climates where flush water is unlikely to freeze. Flush systems for dairy cattle operate like flush systems for swine and laying hens, with the

manure and flush water discharged into an anaerobic lagoon, which is normally the source of the water used for flushing. With flushing systems, milking center wastewater usually is transferred to the lagoon used for manure stabilization and storage.

Manure accumulations on dry lots for lactating cows are typically removed by scraping with a tractor-mounted blade and handled as a solid. Areas by feed bunks may be scraped daily, with longer intervals between manure removal in other areas of the lot. Areas by feed bunks may also be flushed. Manure accumulations in dry lots used for heifers and dry cows are usually removed by scraping and are handled as a solid. If manure removed from dry lots by scraping is not land applied immediately, it is stored by stacking on a section of the lot or at a separate site. Calf and heifer manure may be transferred from a scraped free-stall barn to the storage structure used for manure, or the lagoon used for flushed manure, or it may be handled as a solid, depending on the methods of calf and heifer confinement and the handling system used for the manure from the lactating cows.

Dry lots should have runoff collection and retention basins to prevent the discharge of manure-contaminated runoff to adjacent surface waters. The design and management of these retention basins will be discussed in a later session in this course.

Mortality Management

Although the frequency of mortality in the dairy industry is much less than in the poultry and swine industries, deaths do occur. Usually, carcass disposal is by rendering, with burial being the only other realistic option if no rendering facility willing to accept dead animals is located within a reasonable distance of the farm. (Note, that burial is prohibited or highly regulated in some states.) Carcass composting could be an option for the disposal of young calf carcasses, but it would not be feasible for older animals because of their size and the degree of carcass dismemberment that would be necessary.

Veal Calves

Veal calf operations raise calves for slaughter. Typically these operations raise male dairy calves. Most veal calves are raised to about 16 to 20 weeks of age, when they weigh about 450 pounds. About 15 percent of veal calves are marketed at 3 weeks of age, when they weigh about 150 pounds. Calves typically spend their entire growing-out period in individual stalls or pens in an environmentally controlled building with wood or plastic coated metal slat floors. Manure is typically handled in a liquid waste management system with tanks, pits, and lagoons used to store manure until it is spread on fields. Prior to weaning, a cow/calf pair counts as one animal when confined in a pen, lot, barn, or stable. Veal calves are normally separated from the cows within 3 days after birth. After being separated from the cow, the veal calf counts as one animal.

Beef Cattle

There are three different types of operations in the beef industry, with each type corresponding to a different phase of the production cycle. The first is the cow-calf operation that is the source of the heifers and steers (castrated males) fed for slaughter. Cow-calf operations typically maintain a herd of yearling heifers, brood cows, and breeding bulls on pasture or range land to produce a yearly crop of calves for eventual sale as feeder cattle. In colder climates and during drought conditions, cow-calf operations using pasture or range land will provide supplemental feed, primarily hay but also some grain and other feedstuffs. Confinement on dry lots is also an option used in some cow-calf operations when grazing will not satisfy nutritional needs. Although pasture or range-based cow-calf operations are most common, operations that exclusively use dry lots may be encountered. In colder climates, cow-calf operations may have calving barns to reduce calf mortality.

The second type of operation in the beef industry is known as a backgrounding or stocker operation. These operations prepare weaned calves for finishing on high energy rations to promote rapid weight gain. Backgrounding operations may be pasture or dry-lot based, or some combination thereof. Relatively inexpensive forages, crop residues, and pasture are used as feeds, with the objective of building muscle and bone mass without excessive fat at a relatively low cost. The length of the backgrounding process may be as short as 30 to 60 days or as long as 6 months. The duration of the backgrounding process and the size of the animal moving on to the finishing stage of the beef production cycle depend on several factors. High grain prices favor longer periods of backgrounding by reducing feed costs for finishing or fattening, while heavier weaning weights shorten the finishing process. Backgrounded beef cattle may be either sold to a finishing operation as “feeder cattle,” usually at auction, or raised under contract with a finishing operation. It is common for large finishing operations to have cattle backgrounded under contract to ensure a steady supply of animals. In some instances cow-calf and backgrounding operations will be combined.

The final phase of the beef cattle production cycle is the finishing or feedlot phase where a high energy, grain-based ration with only a small amount of roughage is fed to produce rapid weight gain and desirable carcass characteristics. The larger commercial finishing operations usually feed a complete ration that is a mixture of feed grains, roughage, and other ingredients. Smaller “farmer-feeder” operations generally feed grains and roughage separately. Usually, the finishing phase begins with 6-month old animals weighing about 400 pounds. Somewhere between 150 and 180 days, these animals will reach the slaughter weights of 1,050 to 1,150 pounds for heifers and 1,150 and 1,250 pounds for steers, and a new finishing cycle begins. Some feedlot operators will immediately start with younger animals weighing about 275 pounds or older or heavier animals. This will either extend the finishing cycle to about 270 days or shorten it to about 100 days. Beef cattle in the finishing phase are known as “cattle on feed.” Finished cattle are “fed cattle.”

Confinement Facilities

With the exception of pasture or range-based cow-calf and backgrounding operations, beef cattle are almost exclusively raised on unpaved or partially paved open lots. When feedlots and dry lots on cow-calf and backgrounding operations are partially paved, it is the areas around feed bunks and sources of drinking water that will be paved. These are high animal traffic areas and have high rates of manure accumulation. Use of partially or totally enclosed buildings for beef cattle production is rare and limited to small operations in colder climates.

A typical beef cattle feedlot is divided into a series of large pens to allow animals to be grouped by age. In each pen, there are feed bunks, sources of drinking water, and probably shaded areas in warm climates. Feed bunks located along one side of a pen are known as fence line feed bunks, and feed is delivered with specially equipped trucks or tractor-drawn feed wagons from a feed alley. Mechanical feed bunks may be located in the center of a pen or used as a divider between two pens. Although mechanical feed bunks allow cattle to feed on both sides of the feed bunk, their use is generally limited to smaller operations. Feed bunk space per head is an important parameter in beef cattle feedlot design. The large commercial feedlots will also have a feed mill and an area for treating sick animals.

Manure Management

Manure produced by beef cattle on open lots is primarily handled as a solid, with removal by scraping. Removal normally occurs only between groups of animals, but certain areas of a lot may be scraped more frequently, with the collected manure stored in mounds on the lot. The areas scraped most frequently are those around feed bunks and sources of drinking water, where the rates of manure accumulation are the highest. The complete removal of manure from open lots used for beef cattle production may only occur annually during summer months to take advantage of natural drying to facilitate handling as a solid.

Open lots for beef cattle should also have runoff collection and retention basins to prevent the discharge of manure-contaminated runoff to adjacent surface waters.

Mortality Management

As in the dairy industry, the frequency of mortality in the beef cattle industry is much lower than in the poultry and swine industries; however, deaths do occur. Carcass disposal by rendering is the primary option. Given the size of most beef cattle operations, burial cannot generally be considered a realistic alternative in the context of water quality protection.

Land Application of Manure

Livestock and poultry manures have value as sources of plant nutrients for crop production. Historically, livestock or poultry production and crop production have been integrated activities. As animal production units have been consolidated into fewer but larger operations, a decoupling of animal and crop production activities has gradually occurred. Thus, many livestock and poultry producers do not have adequate land for the disposal of the manure that is generated.

Manure handled as a solid, such as broiler and turkey manure, is surface applied to cropland using either tractor-drawn or truck-mounted box-type manure spreaders. To reduce potential pollutant transport in surface runoff, disking or plowing may follow application to incorporate the manure into the soil. Manure handled as a semi-solid or slurry, such as dairy cattle manure removed from free-stall barns by scraping, is applied to cropland using tractor-drawn or truck-mounted tanks. This type of manure typically can be surface applied and may be subsequently incorporated into the soil by disking or plowing. Manure handled as a semi-solid may also be directly injected into the soil using specially designed spreading equipment. Manure handled as a liquid, such as flushed dairy and swine manure, may be applied to cropland using tractor-drawn or truck-mounted tanks or irrigation systems. Due to the volume of manure when handled as a liquid, irrigation is a fairly common method for land application of liquid manure due to the reduction in labor requirements.

In the last 25 years, much has changed in the feedlot industry. In an analysis conducted by the USDA NRCS, animal feeding operations were categorized as to their ability to utilize nutrients from manure. In their report, *Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients*, Kellogg et al. used estimates of livestock populations and land available for manure applications from the Census of Agriculture. They identified the spatial and temporal trends in the production of animal manure and manure nutrients relative to the capacity of cropland and pastureland to assimilate nutrients into plant production without excessive buildup in the soil. USDA's analysis estimated livestock populations, quantities of manure produced, and land available for manure application for 1982, 1987, 1992, and 1997. The livestock include beef cattle, dairy cattle, swine, and poultry. The analysis shows that the structure of animal agriculture has changed dramatically over the past two decades. Small and medium-sized livestock operations have steadily been replaced by large operations. As a result, the number of confined animals per operation has increased for all major livestock types. A significant shift in the mix of livestock types has also occurred as dairy cattle have decreased in number and poultry and swine populations have increased. Livestock populations have become more spatially concentrated in high-production areas. Examples of these high production areas include the concentration of pork production in the Carolinas, poultry production in southern and mid-Atlantic states, beef cattle production in the High Plains, and dairy production in western, north-central, and northeastern states. Many of these regions import significant quantities of nutrients, primarily as feed grains from the Corn Belt.

The number of animal units per acre of land available on the farm for manure application for very large operations is often high, averaging more than eight confined animal units per acre for large poultry and fattened cattle operations. As a result, the nutrients excreted by these animals can overwhelm the availability of locally grown crops to recycle the nutrients.

These changes in animal agriculture have resulted in an increase in problems associated with the utilization and disposal of animal waste. As livestock production has become more spatially concentrated, the amount of manure nutrients relative to the assimilative capacity of land available on farms for application has grown. Consequently, off-farm export requirements are increasing. In some counties the production of recoverable manure nutrients exceeds the assimilative capacity of all the cropland and pastureland available for manure application in the

county. The number of such counties has significantly increased since 1982, indicating that problems associated with animal waste utilization and disposal have become more widespread over the past two decades as the structure of animal agriculture has shifted toward fewer but larger livestock operations.

APPENDIX C

EXAMPLE LETTERS TO AFO OWNERS/OPERATORS REGARDING INSPECTION RESULTS

APPENDIX C. EXAMPLE LETTERS TO AFO OWNERS/OPERATORS REGARDING INSPECTION RESULTS

Example Letter in Follow-up to an Inspection: Facility ***Not Designated*** as a CAFO C-3

Example Letter in Follow-up to an Inspection: Facility ***Designated*** as a CAFO C-4

Example Letter in Follow-up to an Inspection:

Facility *Not Designated* as a CAFO

[NAME & ADDRESS]

Dear Mr./Ms. _____:

An inspection of your facility, located at [ADDRESS], was conducted on [DATE] by representatives of the [PERMITTING AUTHORITY]. The purpose of the inspection was to determine if conditions or practices on your animal feeding operation (AFO)[1] warrant designating your facility as a concentrated animal feeding operation (CAFO) and, consequently, requiring a National Pollutant Discharge Elimination System (NPDES) permit for operation.

During the inspection, no conditions or practices were observed to warrant designation of your facility as a CAFO at this time. However, the following areas of potential concern were noted.

[NOTE AREAS OF POTENTIAL CONCERN, IF ANY]

We request that you evaluate and address these areas of potential concern to ensure that they do not become problems. Technical information and assistance is available through [LOCAL NRCS OR EXTENSION OFFICE, STATE DEPARTMENT OF AGRICULTURE, OR USEPA's AGRICULTURAL ASSISTANCE CENTER (888/663-2155)].

The [PERMITTING AUTHORITY] may inspect your facility again in the future. Please be advised that any illicit discharges[2] to surface water or to surface water through ground water are violations of the Clean Water Act and subject to enforcement action with penalties.

Sincerely,

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[1] An animal feeding operation is defined by the [Permitting Authority] as a "lot or facility" where 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 and crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility" **[or alternate definition established by the Permitting Authority]**.

[2] In the absence of a NPDES Permit all discharges from the facility are prohibited.

Example Letter in Follow-up to an Inspection:

Facility *Designated* as a CAFO

[NAME & ADDRESS]

Dear Mr./Ms. _____:

An inspection of your facility, located at [ADDRESS], was conducted on [DATE] by representatives of the [PERMITTING AUTHORITY]. The purpose of the inspection was to determine if conditions or practices on your animal feeding operation (AFO)[3] warrant designating your facility as a concentrated animal feeding operation (CAFO) and, consequently, requiring a National Pollutant Discharge Elimination System (NPDES) permit for operation.

During the inspection, the following conditions were observed:

[NOTE THE CONDITIONS THAT SUPPORT THE CAFO DESIGNATION]

Based on these conditions, the [PERMITTING AUTHORITY] has determined that your facility is or has the potential to be a contributor of pollutants to the waters of the United States. As such, the [PERMITTING AUTHORITY] designates your operation as a CAFO, with the requirement of applying for a NPDES permit and taking immediate steps to cease existing discharges and eliminate the potential for future discharges.

To meet the requirement of applying for a permit for your facility, [PROVIDE SPECIFIC INSTRUCTION AS TO WHETHER THEY ARE REQUIRED TO APPLY FOR AN INDIVIDUAL PERMIT OR SUBMIT AN NOI FOR A GENERAL PERMIT. INCLUDE STEPS AS TO HOW TO GET PERMITTED]

The [PERMITTING AUTHORITY] may inspect your facility again in the near future. Please be advised that discharges such as that observed on [DATE] are in violation of the Clean Water Act and as such can subject you to enforcement action with penalties.

Sincerely,

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[3] An animal feeding operation is defined as a "lot or facility" where 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 and crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility" **[or alternate definition established by the Permitting Authority]**.

If you operated a small business as defined by the Small Business Administration (defined at 13 CFR 121.201; in most cases, this means a business with 500 or fewer employees), you may find the following information helpful.

The United States Environmental Protection Agency (EPA) offers small businesses a wide variety of compliance assistance resources and tools designed to help small businesses comply with federal and state environmental laws. These resources can help businesses understand their obligations, improve compliance and find cost-effective ways to comply through the use of pollution prevention and other innovative technologies.

Web sites EPA offers a great deal of compliance assistance information and materials for small businesses on the following Web sites, available through public libraries:

- www.epa.gov — EPA's Home Page
- www.smallbiz-enviroweb/org — EPA's Small Business Home Page
- www.smallbiz-enviroweb.org/state.html — List of State Contacts
- www.epa.gov/ttn/sbap — Small Business Assistance Programs
- www.epa.gov/oeca/polguid/index.html — Enforcement Policy and Guidance
- www.epa.gov/oeca/smbusi.html — Small Business Policy
- www.epa.gov/oeca/oc — Compliance Assistance Home Page
- www.epa.gov/oeca/ccsmd/commpull.html — Small Business and Commercial Services
- www.epa.gov/oeca/ccsmd/mun.html — Small Communities Policy

Hotlines EPA sponsors approximately 89 hotlines and clearinghouses that provide free and convenient avenues to obtain assistance with environmental requirements. EPA's Small Business Ombudsman Hotline can provide you with a list of all the hotlines and assist you with determining which hotline will best meet your needs. Key hotlines that may be of interest to you include:

- EPA's Small Business Ombudsman.....(800) 368-5888
- RCRA/UST/CERCLA Hotline.....(800) 424-9346
- Toxics Substances and Asbestos Information.....(202) 554-1404
- Safe Drinking Water.....(800) 426-4791
- Stratospheric Ozone/CFC Information.....(800) 296-1996
- Clean Air Technical Center.....(919) 541-0800
- Wetlands Hotline.....(800) 832-7828

Compliance Assistance Centers

EPA has established national compliance assistance centers, in partnership with industry, academic institutions, and other federal and state agencies, that provide online and fax assistance services in the following sectors heavily populated with small businesses:

•Access to All Centers (www.epa.gov/oeca/mfcac.html)

•Metal Finishing (1-800-AT-NMFRC or http://www.nmfrc.org)

•Printing (1-888-USPNEAC or http://www.pneac.org)

•Automotive (1-888-GRN-LINK or http://www.ccar-greenlink.org)

•Agriculture (1-888-663-2155 or http://www.epa.gov/oeca/ag)

•Printed Wiring Board Manufacturing or http://www/pwbrc.org)

•The Chemical Industry (1-800-672-6048 or http://www.chemalliance.org)

•The Transportation Industry (http://www.transource.org)

•The Paints and Coatings Center (http://www.paintcenter.org)

•Local Governments (1-877-TO-LGEAN or http://www.lgean.org)

State Agencies

Many state agencies have established compliance assistance programs that provide on-site as well as other types of assistance. Please contact your local state environmental agency for more information. EPA's Small Business Ombudsman can provide you with State Agency contacts by calling (800) 368-5888.

Compliance Incentive Policies

EPA's Small Business Policy and Small Communities Policy are intended to promote environmental compliance among small businesses by providing incentives such as penalty waivers and reductions for participation in compliance assistance programs, and encouraging voluntary disclosure and prompt correction of violations. These policies can not be applied to an enforcement action that has already been initiated. Contact Ginger Gotliffe (202-564-2310) for information on the Small Business Policy and Ken Harmon (202-564-2310) for information on the Small Communities Policy.

In order to improve your understanding of and compliance with environmental regulations and avoid the need for future enforcement actions, we encourage you to take advantage of these tools. **However, please note that any decision to seek compliance assistance at this time does not relieve you of your obligation to respond to an EPA request, administrative or civil complaint in a timely manner, does not create any new rights or defenses, and will not affect EPA's decision to pursue this enforcement action.**

The Small Business and Agriculture Regulatory Enforcement Ombudsman and ten Regional Fairness Boards were established to receive comments from small businesses about federal agency enforcement actions. The Ombudsman will annually rate each agency's responsiveness to small businesses. If you believe that you fall within the Small Business Administration's definition of a small business (based on your SIC designation, number of employees or annual receipts, defined at 13 CFR 121.201) and wish to comment on federal enforcement and compliance activities, call 1-888-734-3247). **However, participation in this program does not relieve you of your obligation to respond to an EPA request, administrative or civil complaint or other enforcement action in a timely manner nor create any new rights or defenses under law. In order to preserve your legal rights, you must comply with all rules governing the administrative enforcement process. The ombudsman and fairness boards do not participate in the resolution of EPA's enforcement action.**

Dissemination of this information sheet does not constitute an admission or determination by EPA that you business organization or government jurisdiction is a small entity as defined by the Small Business Enforcement and Fairness Act (SBREFA) or related provisions nor does it create any new rights or defenses under law.

APPENDIX D

NPDES CAFO PERMIT APPLICATION/NOI - FORM 2B

Form Approved
OMB No, 2040-0250
Approval expires 12-15-05

EPA I.D. NUMBER *(copy from Item 1 of Form 1)*

FORM 2B NPDES	**EPA**	U.S. ENVIRONMENTAL PROTECTION AGENCY APPLICATIONS FOR PERMIT TO DISCHARGE WASTEWATER CONCENTRATED ANIMAL FEEDING OPERATIONS AND AQUATIC ANIMAL PRODUCTION FACILITIES

I. GENERAL INFORMATION Applying for: Individual Permit ☐ Coverage Under General Permit ☐

A. TYPE OF BUSINESS	B. CONTACT INFORMATION	C. FACILITY OPERATION STATUS
“ 1. Concentrated Animal Feeding Operation (complete items B, C, D, and Section II) “ 2. Concentrated Aquatic Animal Production Facility (complete items B, C, and section III)	Owner/or Operator Name: _____ Telephone: (_____) _____ Address: _____ Facsimile: (_____) _____ City: _____ State: __ Zip Code: _____	“ 1. Existing Facility “ 2. Proposed Facility

A. FACILITY INFORMATION

Name: _____ Telephone: (____) _____
Address: _____ Facsimile: (____) _____
City: _____ State: _____ Zip Code: _____
County: _____ Latitude: _____ Longitude: _____

If contract operation: Name of Integrator: _____
Address of Integrator: _____

II. CONCENTRATED ANIMAL FEEDING OPERATION CHARACTERISTICS

A. TYPE AND NUMBER OF ANIMALS

	2. ANIMALS	
1. TYPE	NO. IN OPEN CONFINEMENT	NO. HOUSED UNDER ROOF
“ Mature Dairy Cows		
“ Dairy Heifers		
“ Veal Calves		
“ Cattle (not dairy or veal)		
“ Swine (55 lb. or over)		
“ Swine (under 55 lb.)		
“ Horses		

B. Manure, Litter and/or Wastewater Production and Use

- How much manure, litter and wastewater is generated annually by the facility? _____ tons _____ gallons
- If land applied how many acres of land under the control of the applicant are available for applying the CAFOs manure/litter/wastewater? _____ acres
- How many tons of manure or litter, or gallons of waste-water produced by the CAFO will be transferred annually to other persons? tons/gallons (*circle one)*

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“ Sheep or Lambs		
“ Turkeys		
“ Chickens (Broilers)		
“ Chickens (Layers)		
“ Ducks		
“ Other Specify _____		
3. TOTAL ANIMALS		

C. “ TOPOGRAPHIC MAP

D. TYPE OF CONTAINMENT, STORAGE AND CAPACITY

1. Type of Containment	Total Capacity (in gallons)
“ Lagoon	
“ Holding Pond	
“ Evaporation Pond	
“ Other: Specify _____	

2. Report the total number of acres contributing drainage: _____ acres

3. Type of Storage	Total Number. of Days	Total Capacity (gallons/tons)
“ Anaerobic Lagoon		
“ Storage Lagoon		
“ Evaporation Pond		
“ Aboveground Storage Tanks		
“ Belowground Storage Tanks		
“ Roofed Storage Shed		
“ Concrete Pad		
“ Impervious Soil Pad		
“ Other: Specify _____		

E. NUTRIENT MANAGEMENT PLAN

1. Has a nutrient management plan been developed? ☐ Yes ☐ No
2. Is a nutrient management plan being implemented for the facility? ☐ Yes ☐ No
3. If no, when will the nutrient management plan be developed? Date: _____
4. The date of the last review or revision of the nutrient management plan. Date: _____
5. If not land applying, describe alternative use(s) of manure, litter and or wastewater:

F. LAND APPLICATION BEST MANAGEMENT PRACTICES
Please check any of the following best management practices that are being implemented at the facility to control runoff and protect water quality:

“ Buffers “ Setbacks “ Conservation tillage “ Constructed wetlands “ Infiltration field “ Grass filter
“ Terrace

III. CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY CHARACTERISTICS

A. For each outfall give the maximum daily flow, maximum 30- day flow, and the long-term average flow.

1. Outfall No.	2. Flow (*gallons per day*)		
	a. Maximum. Daily	b. Maximum 30 Day	c. Long Term Average

B. Indicate the total number of ponds, raceways, and similar structures in your facility.

1. Ponds	2. Raceways	3. Other

C. Provide the name of the receiving water and the source of water used by your facility.

1. Receiving Water	2. Water Source

D. List the species of fish or aquatic animals held and fed at your facility. For each species, give the total weight produced by your facility per year in pounds of harvestable weight, and also give the maximum weight present at any one time.

1. Cold Water Species			2. Warm Water Species		
a. Species	b. Harvestable Weight (*pounds)*		a. Species	b. Harvestable Weight (*pounds)*	
	(1) Total Yearly	(2) Maximum		(1) Total Yearly	(2) Maximum

E. Report the total pounds of food during the calendar month of maximum feeding.	1. Month	2. Pounds of Food

Form Approved
OMB No, 2040-0250
Approval expires 12-15-05

IV. CERTIFICATION	
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.	
A. Name and Official Title (*print or type)*	B. Phone No. ( )
C. Signature	D. Date Signed

Form Approved
OMB No, 2040-0250
Approval expires 12-15-05

INSTRUCTIONS

GENERAL

This form must be completed by all applicants who check "yes" to Item II-B in Form 1. Not all animal feeding operations or fish farms are required to obtain NPDES permits. Exclusions are based on size. See the description of these statutory and regulatory exclusions in the General Instructions that accompany Form 1.

For aquatic animal production facilities, the size cutoffs are based on whether the species are warm water or cold water, on the production weight per year in harvestable pounds, and on the amount of feeding in pounds of food (*for cold water species*). Also, facilities which discharge less than 30 days per year, or only during periods of excess runoff (*for warm water fish*) are not required to have a permit.

Refer to the Form 1 instructions to determine where to file this form.

Item I-A

See the note above and the General Instructions which accompany Form 1 to be sure that your facility is a "concentrated animal feeding operation" (CAFO).

Item I-B

Use this space to give owner/operator contact information.

Item I-C

Check "proposed" if your facility is not now in operation or is expanding to meet the definition of a CAFO in accordance with the information found in the General Instructions that accompany Form 1.

Item I-D

Use this space to give a complete legal description of your facility's location including name, address, and latitude/longitude. Also, the if a contract grower, the name and address of the integrator.

Item II

Supply all information in item II if you checked (1) in item I-A.

Item II-A

Give the maximum number of each type of animal in open confinement or housed under roof (either partially or totally) which are held at your facility for a total of 45 days or more in any 12 month period. Provide the total number of animals confined at the facility.

Item II-B

Provide the total amount of manure, litter and wastewater generated annually by the facility. Identify if manure, litter and wastewater generated by the facility is to be land applied and the number of acres, under the control of the CAFO operator, suitable for land application. If the answer to question 3 is yes, provide the estimated annual quantity of manure, litter and wastewater that the applicant plans to transfer off-site.

Item II-C

Check this box if you have submitted a topographic map of the geographic area in which the CAFO is located showing the specific location of the production area.

Item II-D

1. Provide information on the type of containment and the capacity of the containment structure (s).
2. The number of acres that are drained and collected in the containment structure (s).
3. Identify the type of storage for the manure, litter and/or wastewater. Give the capacity of this storage in days and gallons or tons.

Item II-E

Provide information concerning the status of the development and implementation of a nutrient management plan for the facility. In those cases where the nutrient management plan has not been completed, provide an estimated date of development and implementation. If not land applying, describe the alternative uses of the manure, litter and wastewater (e.g., composting, pelletizing, energy generation, etc.).

Item II-F

Check any of the identified conservation practices that are being implemented at the facility to control runoff and protect water quality.

Item III

Supply all information in Item III if you checked (2) in Item I-A.

Item III-A

Outfalls should be numbered to correspond with the map submitted in Item XI of Form 1. Values given for flow should be representative of your normal operation. The maximum daily flow is the maximum measured flow occurring over a calendar day. The maximum 30-day flow is the average of measured daily flow over the calendar month of highest flow. The long-term average flow is the average of measure daily flows over a calendar year.

Item III-B

Give the total number of discrete ponds or raceways in your facility. Under "other," give a descriptive name of any structure which is not a pond or a raceway but which results in discharge to waters of the United States.

Item III-C

Use names for receiving water and source of water which correspond to the map submitted in Item XI of Form 1.

Item III-D

The names of fish species should be proper, common, or scientific names as given in special Publication No. 6 of the American Fisheries Society. "A List of Common and Scientific Names of Fishes from the United States and Canada." The values given for total weight produced by your facility per year and the maximum weight present at any one time should be representative of your normal operation.

Item III-E

The value given for maximum monthly pounds of food should be representative of your normal operation.

Item IV

The Clean Water Act provides for severe penalties for submitting false information on this application form.

Section 309(C)(2) of the Clean Water Act provides that "Any person who knowingly makes any false statement, representation, or certification in any application...shall upon conviction, be punished by a fine of no more than $10,000 or by imprisonment for not more than six months, or both."

Federal regulations require the certification to be signed as follows:

A. For corporation, by a principal executive officer of at least the level of vice president.

B. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

C. For a municipality, State, Federal, or other public facility, by either a principal executive officer or ranking elected official.

Paper Reduction Act Notice

The Public reporting burden for this collection of information estimated to average 4 hours per response. The estimate includes time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information to the chief, Information Policy Branch (PM-223), U.S. Environmental Protection Agency, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460, and the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503, marked Attention: Desk Officer for EPA.

EPA Form 3510-2B (12-02)

APPENDIX E
EXAMPLE
LARGE CAFO “NO POTENTIAL TO DISCHARGE” DETERMINATION REQUEST FORM

LARGE CAFO[1] "NO POTENTIAL TO DISCHARGE" DETERMINATION REQUEST

Instructions: Use this form to request a "No Potential to Discharge" determination from *[insert name of permitting authority]*. Your completed request must include all of the information specified at 40 CFR 122.21(f) and (i)(1)(i) through (ix) plus any additional information you determine necessary to demonstrate that there will not be, under any circumstances, any discharge from either the production or land application areas of your operation. Use extra sheets and attach documents where needed.

[1]*See definition of a Large CAFO at 40 CFR 122.23(b)(4)*

I. OWNER/OPERATOR INFORMATION

A. CONTACT INFORMATION	B. FACILITY STATUS
Owner/or Operator Name: _____ Address:_____ City: _____ State: _____ Zip Code: _____ Telephone: (_____) _____ Facsimile: (_____) _____	Check one: ‘ 1. Existing Facility ‘ 2. Proposed Facility

II. FACILITY INFORMATION

A. GENERAL INFORMATION

Name: _____ Telephone: (____)_____

Address: _____ Facsimile: (____)_____

City:_____ State: _____ Zip Code:_____

County: _____ Latitude: _____°_____'_____" Longitude:_____°_____'_____"

Average Annual Rainfall _____"

1. Check to indicate that you have attached a topographic map that clearly shows the location of your production area(s). ‘

2. Have any other permits been issued for this operation? ‘ No ‘ Yes
   If yes:

Permit Type	Issuing Agency	Permit Number
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

3. Has this operation had a discharge of manure, litter, or process wastewater to waters of the United States in the past 5 years? ‘ No ‘ Yes
4. Has there ever been a discharge at this operation? ‘ No ‘ Yes
   If yes, explain the circumstances of the discharge and the actions that have been taken to ensure that no future discharges will occur at this operation.

   _____
   _____
   _____
   _____

B. ANIMALS IN CONFINEMENT

Complete the following table to show the maximum number of each type of animal confined at any one time and the type of confinement structure used for each (e.g., open feedlot, under roof, etc.).

Type	No. of Animals	Type of Confinement
Mature Dairy Cows		
Dairy Heifers		
Veal Calves		
Other Cattle		
Swine (55 lb. or more)		
Swine (under 55 lb.)		
Horses		
Sheep or Lambs		
Turkeys		
Chickens (broilers)		
Chickens (layers)		
Ducks		
Other: (specify) _____		

C. MANURE, LITTER, AND WASTEWATER GENERATION, CONTAINMENT AND STORAGE

1. How much manure and/or litter is generated at this facility each year? _____ tons
2. How much process wastewater is generated at this facility each year? _____ gallons

D. MANURE, LITTER, AND WASTEWATER STORAGE

Check the box and provide the capacity in both days and tons or gallons for each type of storage structure present at this facility.

Type of Storage	Capacity (Days)	Capacity (tons or gallons)	
‘ Treatment Lagoon			
‘ Storage Pond			
‘ Evaporation Pond			
‘ Aboveground Storage Tanks			
‘ Underground Storage Tanks			
‘ Underhouse Pit			
‘ Roofed Storage Shed			
‘ Concrete Pad[a]			[a] Attach documentation of the methods used to prevent runoff
‘ Impervious Soil Pad[a]			

‘ Other: (specify)_____			

E. STORM WATER AND RUNOFF CONTAINMENT

1. Check the box and give the total design basis including total capacity for each type of storm water and runoff containment structure present at this facility.

Type of Containment	Total Capacity (gallons)	
‘ Treatment Lagoon		
‘ Storage Pond		
‘ Holding Pond		
‘ Evaporation Pond		
‘ Other: (specify)_____		

2. What is the total amount of land (in acres) that contributes storm water runoff to these containment structures? _____ acres

F. MANURE, LITTER, AND WASTEWATER USE, TRANSFER, AND DISPOSAL

1. How much manure and litter is applied to land under the control of this CAFO each year? _____ tons
2. How much wastewater is applied to land under the control of this CAFO each year? _____ gallons
3. What is the total number of acres used at this CAFO to land apply manure, litter, or process wastewater each year? (Do not include land that is not under the control of this CAFO.) _____ acres
4. How much manure and litter is transferred from this CAFO to other persons each year? _____ tons
5. How much wastewater is transferred from this CAFO to other persons each year? _____ gallons
6. Describe any other manure, litter, or wastewater use or disposal method employed at this CAFO:

_____

_____

_____

_____

_____

G. NUTRIENT MANAGEMENT PLAN*

1. Has a nutrient management plan been developed for this CAFO? ‘ Yes ‘ No
   a. If yes, is the plan currently being implemented? ‘ Yes ‘ No
   b. If no, when will a nutrient management plan be developed? _____/_____ (mm/yyyy)
2. Was (or will) this CAFO’s nutrient management plan prepared or reviewed by a certified nutrient management planner? ‘ Yes ‘ No

* The development and implementation of a nutrient management plan is not a basis for granting a no potential to discharge determination. In general, land application activities will result in a facility not being granted a determination of no potential to discharge.

III. ADDITIONAL INFORMATION

Provide a statement describing the conditions and/or practices at this CAFO that eliminate the potential to discharge pollutants to waters of the United States. (Such information might include precipitation data and/or maps, soil conditions, soil maps, hydrologic conditions, distance to waters of the U.S., or site-specific management or waste treatment practices.) Attach additional sheets, if needed.

_____

_____

_____

_____

_____

Please identify all documentation provided with this "no potential to discharge" determination request.

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

IV. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date:_____

Print Name: _____

Submit to *[permitting authority and address]*

APPENDIX F
EXAMPLE
“NO POTENTIAL TO DISCHARGE” DETERMINATION REQUEST TRACKING FORM

APPENDIX F. EXAMPLE "NO POTENTIAL TO DISCHARGE" DETERMINATION REQUEST TRACKING FORM

Facility Name or ID_____

- ‘ Request received
  Date_____
  Applicable Permit Application Deadline _____
  Determination Deadline (90 days from receipt of request) _____
- ‘ Request Granted _____
- ‘ Request Denied _____
  Date of notification _____
  Permit application deadline (30 days from date of notification): _____

Section A

1. Required Information:
   - ‘ Name
   - ‘ Mailing address
   - ‘ Location (including lat/long)
   - ‘ Owner/Operator Information (name, address, and contact information)
   - ‘ Listing of current permits
   - ‘ Topographic map showing location of production area
   - ‘ Number and type of animals confined
   - ‘ Type(s) of containment and storage including total capacity
   - ‘ Total number of land application acres
   - ‘ Amount of manure, litter, process wastewater generated
   - ‘ Amount of manure, litter, process wastewater transferred to other persons

2. Is the "no potential to discharge" determination request complete (all required information included)?
   - ‘ Yes
   - ‘ No
     Missing information:
     _____
     _____
     _____

     - ‘ Additional information requested from applicant - Date: _____
     - ‘ Additional information received from applicant - Date: _____
     - ‘ Revised determination deadline (90 days from date when all information is received) - Date: _____

3. Is an on-site inspection required?

- ‘ No
- ‘ Yes
  - ‘ Producer notified of inspection date
    Date of Inspection _____
    Inspector _____
  - ‘ Attach inspection report

4. Is a “No Potential to Discharge” designation appropriate for this facility?

- ‘ Yes (complete section B)
- ‘ No (complete section C)
  Explanation:
  _____
  _____
  _____
  _____
  _____
  _____
  _____

5. Attach any supporting information necessary to document the determination.

Section B - Determination Request Granted

- ‘ Public notice issued with fact sheet
  Date _____
  Medium (newspaper, web site, etc.)_____
  (Attach copy of public notice and copies of all public comments received)

- ‘ Producer notified of “No Potential to Discharge” determination
  Date _____

Section C - Determination Request Denied

- ‘ Producer notified
  Date of notification _____
  Permit application deadline (30 days from date of notification) _____

APPENDIX G

EXAMPLE
MANURE, LITTER, AND PROCESS WASTEWATER TRANSFER RECORD FORM

APPENDIX G. EXAMPLE MANURE, LITTER, AND PROCESS WASTEWATER TRANSFER RECORD FORM*

Facility Name: _____ NPDES Permit No. _____

Instructions: Use this form to keep track of all manure, litter, and process wastewater generated at your CAFO facility that you transfer to other persons (i.e. for use or disposal not under the control of your CAFO).

Date of Transfer	Name of Recipient	Address of Recipient	Amount Transferred		
			Manure (tons)	Litter (tons)	Wastewater (gallons)

*Use additional sheets as necessary.

APPENDIX H

EXAMPLE
NUTRIENT MANAGEMENT PLAN RECORD KEEPING FORMS

APPENDIX H. EXAMPLE NUTRIENT MANAGEMENT PLAN RECORD KEEPING FORMS

CAFO Weekly Storage and Containment Structure Inspections Log Sheet H-3

CAFO Weekly Storm Water Management Structure Inspections Log Sheet H-8

CAFO Nutrient Land Application Log Sheet H-13

Water Line Inspection Log Sheet H-14

CAFO Weekly Storage and Containment Structure Inspections
Log Sheet

Facility Name: _____ NPDES Permit No.: _____
Storage or Containment Structure: _____

Instructions: Use this form to keep track of weekly visual inspections of the structures that you use to store or contain manure, litter, and process wastewater. Use a separate form for each structure.

Keep track of your inspections each week in the table below. Provide the following information:

- the date of the inspection
- the initials of the inspector
- for open liquid waste storage structures, record the level indicated on the depth marker
- use the "Notes" column to describe problems, if you find any, and how they might be fixed
- fill in the "date corrected" column with the date when you correct the problem

	Date	**Initials**	**Depth Marker Reading**	**Notes** (Note any problems found and possible solutions.)	**Date Corrected**
Week 1					
Week 2					
Week 3					
Week 4					
Week 5					
Week 6					
Week 7					
Week 8					

NPDES Permit No.: _____

	Date	Initials	Depth Marker Reading	Notes (Note any problems found and possible solutions.)	Date Corrected
Week 9					
Week 10					
Week 11					
Week 12					
Week 13					
Week 14					
Week 15					
Week 16					
Week 17					
Week 18					
Week 19					
Week 20					
Week 21					

NPDES Permit No.: _____

	Date	Initials	Depth Marker Reading	Notes (Note any problems found and possible solutions.)	Date Corrected
Week 22					
Week 23					
Week 24					
Week 25					
Week 26					
Week 27					
Week 28					
Week 29					
Week 30					
Week 31					
Week 32					
Week 33					
Week 34					

NPDES Permit No.: _____

	Date	Initials	Depth Marker Reading	Notes (Note any problems found and possible solutions.)	Date Corrected
Week 35					
Week 36					
Week 37					
Week 38					
Week 39					
Week 40					
Week 41					
Week 42					
Week 43					
Week 44					
Week 45					
Week 46					
Week 47					

NPDES Permit No.: _____

	Date	Initials	Depth Marker Reading	Notes (Note any problems found and possible solutions.)	Date Corrected
Week 48					
Week 49					
Week 50					
Week 51					
Week 52					

CAFO Weekly Storm Water Management Structure Inspections
Log Sheet

Facility Name: _____ NPDES Permit No.: _____

Instructions: Use this form to keep track of weekly visual inspections of your storm water management structure(s) (including storm water and runoff diversion devices, and devices used to channel contaminated storm water to a wastewater storage or containment structure). List the items that need to be inspected below.

_____ _____

_____ _____

_____ _____

_____ _____

Keep track of your inspections in the following table by filling out one row each week when you inspect your storm water management structures. Provide the following information:

- the date of the inspection
- the initials of the inspector
- check the "OK" box if no problems were found
- use the "Notes" column to describe problems, if you find any, and how they might be fixed
- fill in the "date corrected" column with the date when you correct the problem

	Date	**Initials**	**OK** (T if no problems found)	**Notes** (Note any problems found and possible solutions.)	**Date Corrected**
Week 1					
Week 2					
Week 3					
Week 4					
Week 5					

NPDES Permit No.: _____

	Date	Initials	OK (T if no problems found)	Notes (Note any problems found and possible solutions.)	Date Corrected
Week 6					
Week 7					
Week 8					
Week 9					
Week 10					
Week 11					
Week 12					
Week 13					
Week 14					
Week 15					
Week 16					
Week 17					
Week 18					

NPDES Permit No.: _____

	Date	Initials	OK (T if no problems found)	Notes (Note any problems found and possible solutions.)	Date Corrected
Week 19					
Week 20					
Week 21					
Week 22					
Week 23					
Week 24					
Week 25					
Week 26					
Week 27					
Week 28					
Week 29					
Week 30					
Week 31					

NPDES Permit No.: _____

	Date	Initials	OK (T if no problems found)	Notes (Note any problems found and possible solutions.)	Date Corrected
Week 32					
Week 33					
Week 34					
Week 35					
Week 36					
Week 37					
Week 38					
Week 39					
Week 40					
Week 41					
Week 42					
Week 43					
Week 44					

	Date	Initials	OK (T if no problems found)	Notes (Note any problems found and possible solutions.)	Date Corrected
Week 45					
Week 46					
Week 47					
Week 48					
Week 49					
Week 50					
Week 51					
Week 52					

CAFO Nutrient Land Application
Log Sheet

Facility Name:_____ NPDES Permit No.:_____

Instructions: Use this form to keep records of your land application activities. For each land application event for each field, provide the following information in the table below:

- Date: the date that you applied manure, litter, or process wastewater to the field.
- Field ID: the field where you applied manure, litter, or process wastewater. Use the same field identification numbers (or other means of identification) that are used in your nutrient management plan.
- Method: the method you used to apply the manure, litter, or process wastewater to the field.
- Weather Conditions: the weather conditions 24 hours before, during, and 24 hours after the land application event.
- Total N: the total amount of nitrogen you applied to the field.
- Total P: the total amount of phosphorus you applied to the field.

Date	Field ID	Method	Weather Conditions			Total N	Total P
			24 hours before	during	24 hours after		

Water Line Inspection
Log Sheet

Instructions: Use this form to keep track of your daily water line visual inspections.

- Initial the form *each day* the after the inspection is done.
- Mark the "T if Leak Detected" column if you find a leak.

Facility Name: _____ NPDES Permit No. _____

January, 20____		
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APPENDIX I

EXAMPLE NPDES CAFO PERMIT ANNUAL REPORT FORM

APPENDIX I. EXAMPLE NPDES CAFO PERMIT ANNUAL REPORT FORM

NPDES CAFO PERMIT ANNUAL REPORT

NPDES Permit Number:	Reporting period (mm/dd/yyyy - mm/dd/yyyy): / / – / /

Facility Name :

I. TYPE AND NUMBER OF ANIMALS

Report the maximum number of each type of animal confined at this facility at any one time.

Type	Number in Open Confinement	Number Housed Under Roof
Mature Dairy Cows		
Dairy Heifers		
Veal Calves		
Other Cattle		
Swine (55 lb. or more)		
Swine (under 55 lb.)		
Horses		
Sheep or Lambs		
Turkeys		
Chickens (broilers)		
Chickens (layers)		
Ducks		
Other: (specify) _____		

II. MANURE, LITTER, AND PROCESS WASTEWATER PRODUCTION

Report the estimated amount of manure, litter, and process wastewater that were generated at this facility in the 12-month period covered by this report.

A. Amount of manure generated in the 12-month period covered by this report. _____ (tons)

B. Amount of litter generated in the 12-month period covered by this report. _____ (tons)

C. Amount of process wastewater generated in the 12-month period covered by this report. _____ (gallons)

III. MANURE, LITTER, AND PROCESS WASTEWATER TRANSFERRED TO OTHER PERSONS

Report the estimated amount of manure, litter, and process wastewater that were transferred to other persons in the 12-month period covered by this report.

A. Amount of manure transferred in the 12-month period covered by this report. _____ (tons)

B. Amount of litter transferred in the 12-month period covered by this report. _____ (tons)

C. Amount of process wastewater transferred in the 12-month period covered by this report. _____ (gallons)

IV. LAND APPLICATION OF MANURE, LITTER, AND PROCESS WASTEWATER

A. Report the total number of acres of land that are covered by this facility's nutrient management plan. Include all land application acres covered by the nutrient management plan, whether or not they were used for land application during the 12-month period covered by this report.

   Total number of land application acres covered by the nutrient management plan. _____ acres

B. Report the total number of acres of land where manure, litter, or process wastewater generated at this facility was spread. Include only land application areas that are under the control of this CAFO facility.

   Total number of acres under the control of the CAFO used for land application in the 12-month period covered by this report. _____ acres

V. SUMMARY OF DISCHARGES

Provide a summary of each discharge of manure, litter, and/or process wastewater from the production area(s) that occurred in the 12-month period covered by this report. Attach additional sheets, if needed.

Date[a]	Time[b]	Location[c,f]	Description[d,f]	Volume[e]

[a] **Date:** The date of the discharge. If the discharge was detected after it happened, give an estimate of the date when the discharge occurred.
[b] **Time:** The time of the discharge. If the discharge was detected after it happened, give an estimate of the time when the discharge occurred.
[c] **Location:** The location of the discharge to waters of the U.S. Be specific. Include the name of the water body, and a specific description of where the manure, litter, or process wastewater entered the water body. Include landmarks or other points of reference (e.g., Three Mile Creek, at southeast corner of feedlot where creek bends to the west).
[d] **Description:** Provide other relevant information about the discharge, including the source, cause, composition (e.g., emergency overflow of process wastewater from lagoon #2), and impacts observed (e.g., fish kill in waterbody).
[e] **Volume:** Give an estimate of the number of gallons or tons of manure, litter, or process wastewater discharged.
[f] This information is not required by the NPDES CAFO regulations to be included in the annual report.

VI. NUTRIENT MANAGEMENT PLAN

Indicate whether the facility's nutrient management plan was either developed or approved by a certified nutrient management planner. Note: The *[permitting authority]* does not require CAFO owners or operators to use a certified nutrient management planner to prepare or approve nutrient management plans.

Was the current version of this facility's nutrient management plan prepared or approved by a certified nutrient management planner? ‘ Yes ‘ No

VII. INSTANCES OF NONCOMPLIANCE NOT PREVIOUSLY REPORTED

During the past 12 months have there been any instances of noncompliance which have not been reported to the permitting authority? ‘ Yes ‘ No If yes, please provide the information requested below.

If during the past 12 months there been instances of noncompliance which have not been reported to the permitting authority please provide the following information, for each instance, along with this annual report:

- ‘ Description of the noncompliance and its cause.
- ‘ The period that the operation was in noncompliance with permit conditions, including exact dates and times.
- ‘ In those cases where the noncompliance has not been corrected, the anticipated time it is expected to continue.
- ‘ Description of the steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance

VIII. CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direct supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

Print Name: _____

Submit by *[insert due date/reporting schedule]*
Submit to *[permitting authority and address]*

APPENDIX J

EXAMPLE NPDES PERMIT FOR CAFOs

[NOTE: THIS EXAMPLE NPDES GENERAL PERMIT FOR CAFOS HAS BEEN DEVELOPED TO ADDRESS EXISTING LARGE CAFOS SUBJECT TO THE EFFLUENT LIMITATION GUIDELINES SUBPARTS C (DAIRY COWS AND CATTLE OTHER THAN VEAL CALVES) AND D (SWINE, POULTRY, AND VEAL CALVES). THIS EXAMPLE PERMIT HAS NOT BEEN DEVELOPED FOR NEW SOURCES OR FOR CAFOS SUBJECT TO SUBPARTS A (HORSES AND SHEEP) AND B (DUCKS).]

Example NPDES CAFO Permit Text Key:

[BOLD/SMALL CAPITALS] defines areas where the permitting authority needs to insert specific text.
[Bold/Italic] provides notes to the permitting authority to assist in the development of an NPDES CAFO permit.

EXAMPLE
NPDES GENERAL PERMIT
FOR
CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFOs)

[AUTHORIZED NPDES PERMITTING AUTHORITY]

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

[The intent of this example NPDES General Permit for CAFOs is to recommend specific, permit requirements that are consistent with the NPDES CAFO regulations, CAFO ELG, and the NPDES CAFO Permit Writers' Guidance. EPA encourages permitting authorities to use the recommendations of the guidance manual and this example permit as appropriate. Minimum NPDES permitting requirements for CAFOs are defined at 40 Parts CFR 122, 123, and 412 and all other applicable CWA regulations]

In compliance with provisions of the Clean Water Act, 33 USC 1251 et seq., the "Act". **[INSERT STATE REGULATORY CITATION AS APPROPRIATE]**

Owners and operators of concentrated animal feeding operations (CAFOs), except those CAFOs excluded from coverage in Part I of this permit, are authorized to discharge and must operate their facility in accordance with effluent limitations, monitoring requirements, and other provisions set forth herein.

A copy of this permit must be kept by the permittee at the site of the permitted activity.

This permit will become effective **[DATE 30 DAYS AFTER DATE OF PUBLICATION (GENERAL PERMIT) OR SIGNATURE (INDIVIDUAL PERMIT)]**

This permit and the authorization to discharge under the NPDES shall expire at midnight **[DATE FIVE (5) YEARS AFTER THE DATE ABOVE]**.

Signed this **[DAY]** of **[MONTH]** and **[YEAR]** .

_____

[PERMITTING AUTHORITY—OFFICIAL]

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PART I. PERMIT AREA AND COVERAGE

A. Permit Area

[The permitting authority should insert language that identifies the scope of the permit. In the case of a general permit, it should identify the type of facilities and/or the geographic area covered (e.g., watershed, state-wide, etc.) by the permit. If the general permit is restricted to specific animal types and/or to certain size facilities, these limitations should be identified here. When issuing individual permits, this section of the permit should identify the specific facility covered by the permit.]

B. Permit Coverage

Any operation which meets the definition of a CAFO at 40 CFR 122.23(b)(4) and 122.23(b)(6) and Part I.A of this permit. [INSERT STATE REGULATORY CITATION AS APPROPRIATE]

C. Eligibility for Coverage

Unless excluded from coverage in accordance with Paragraph D or F below, owners/operators of existing, currently operating animal feeding operations that are defined as CAFOs or designated as CAFOs by the permitting authority (See Part VI Definitions "CAFOs") and subject to 40 CFR Part 412, Subparts C (Dairy Cows and Cattle Other than Veal Calves) and D (Swine, Poultry, and Veal Calves), are eligible for coverage under this permit. Eligible CAFOs are authorized, under the terms and conditions of this permit, and upon the submission of a notice of intent ***[The permitting authority should provide a copy of the NOI as an addendum to this permit.]*** to gain coverage under this NPDES general permit.

Owners/operators may also seek to be excluded from coverage under this permit by (1) submitting to the Director (see Part I.E.4) a notice of termination form ***[The permitting authority should specify the information to be included in such a request or, if available, the form to be used and include a copy of the form as an addendum to the permit.]*** (see Addendum B); (2) by applying for an individual NPDES Permit in accordance with I.F; or (3) for Large CAFOs request a no potential to discharge determination from the Director as provided in 40 CFR 122.23(f).

[The permitting authority should specify an overall approach that defines how CAFOs are to be permitted. This requires determining those types of CAFOs that will be addressed under either general (Statewide or watershed) or individual permits. The approach should be modified, as necessary, to reflect specific permitting authority programmatic priorities and constraints.]

D. Limitations on Coverage

The following CAFOs are not eligible for coverage under this NPDES general permit, but must apply for an individual permit: *[Specific eligibility limitations for the general permit should be determined by the NPDES permitting authority.]*

E. Application for Coverage

[The permitting authority should insert the appropriate text in this section. Two alternatives are provided for E.1 providing different levels of detail.]

1. ***[Alternative 1]*** Owners/operators of CAFOs seeking to be covered by this permit (see Part I) must: (1) submit an NOI within **[NUMBER OF DAYS *(Note: This can extend to the expiration date of the permit)*]** days of the effective date of this permit; (2) comply with the requirements and conditions of the permit; and (3) develop and implement a nutrient management plan consistent with the schedule in Section III and the requirements of the permit.

1. ***[Alternative 2]*** Deadlines for Notification:
   a. If you qualify for coverage as of the date the permit is issued you must submit your NOI or apply for an individual permit by **[DATE]**.
   b. If you are required to seek coverage after the date this permit is issued you are required to submit an NOI or apply for an individual permit within **[NUMBER OF DAYS]** days of the date you qualify.
   c. You are not prohibited for submitting a NOI after the applicable date in either a or b. If a late NOI is submitted, your authorization is only for discharges that occur after permit coverage is granted. The permitting authority reserves the right to take appropriate enforcement actions for any unpermitted discharges.

2. Contents of the Notice of Intent (NOI): The NOI submitted for coverage under this permit must include the following information:
   a. Name of the owner or operator;
   b. Facility location and mailing addresses;
   c. Latitude and longitude of the production area (entrance to production area);
   d. Topographic map of the geographic area in which the CAFO is located showing the specific location of the production area and the name and location of the nearest surface water;
   e. Number and type of animals, whether in open confinement or housed under roof (beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other);
   f. Type of containment and storage (anaerobic lagoon, roofed storage shed, storage ponds, underfloor pits, above ground storage tanks, below ground storage tanks, concrete pad, impervious soil pad, other) and total capacity for manure, litter, and process wastewater storage(tons/gallons) ***[Note: Total design storage volume includes all wastes accumulated during the storage period, and as applicable; normal precipitation less evaporation on the surface of the structure during the storage period; normal runoff from the production area for the storage period; the direct precipitation from a 25-year, 24-hour storm on the surface of the structure; the runoff from the 25-year, 24-hour storm from the production area; residual solids; and necessary freeboard to maintain structural integrity.]***;
   g. Total number of acres under control of the applicant available for land application of manure, litter, or process wastewater;
   h. Estimated amounts of manure, litter, and process wastewater generated per year (tons/gallons);
   i. Estimated amounts of manure, litter and process wastewater transferred to other persons per year (tons/gallons); and

3. Signature Requirements: The NOI must be signed by the owner/operator or other authorized person in accordance with Part V.E of this permit.

4. Where to Submit: Signed copies of the NOI or individual permit application must be sent to: **[PERMITTING AUTHORITY MAILING ADDRESS]**.

F. Requiring an Individual Permit

1. The **[PERMITTING AUTHORITY]** may require any facility authorized by this permit to apply for, and obtain, an individual NPDES permit. **[PERMITTING AUTHORITY]** will notify the operator, in writing, that an application for an individual permit is required within **[TIME FRAME FOR APPLICATION SUBMISSION]**. Coverage of the facility under this general NPDES permit is automatically terminated when: (1) the operator fails to submit the required individual NPDES permit application within the defined time frame; or (2) the individual NPDES permit is issued by **[PERMITTING AUTHORITY]**.

2. Any owner/operator covered under this permit may request to be excluded from the coverage of this permit by applying for an individual permit. The owner/operator shall submit an application for an individual permit (Form 1 and Form 2B) with the reasons supporting the application to the **[PERMITTING AUTHORITY]** no later than 90 days after **[DATE OF PUBLICATION BY THE PERMITTING AUTHORITY OF THE GENERAL PERMIT IN THE FEDERAL REGISTER (WHERE EPA IS THE PERMITTING AUTHORITY), OR IN ACCORDANCE WITH STATE LAW (WHERE THE STATE IS THE PERMITTING AUTHORITY)]**. If a final, individual NPDES permit is issued to an owner/operator otherwise subject to this general permit, the applicability of this NPDES CAFO general permit to the facility is automatically terminated on the effective date of the individual NPDES permit. Otherwise, the applicability of this general permit to the facility remains in full force and effect (for example, if an individual NPDES permit is denied to an owner/operator otherwise subject to this general permit).

G. Permit Expiration

This permit will expire five (5) years from the effective date. The permittee must re-apply for permit coverage 180 days prior to the expiration of this permit. If this permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with the Administrative Procedures Act and remain in force and effect. Any permittee who is granted permit coverage prior to the expiration date will automatically remain covered by the continued permit until the earlier of:

1. Reissuance or replacement of this permit, at which time you must comply with the Notice of Intent conditions of the new permit to maintain authorization to discharge; or
2. Issuance of an individual permit for your discharges; or
3. A formal decision by the permitting authority not to reissue this general permit, at which time you must seek coverage under an alternative general permit or an individual permit.
4. The permitting authority grants the permittee's request for termination of permit coverage.

PART II. EFFLUENT LIMITATIONS AND STANDARDS

A. Effluent Limitations and Standards

[The permit writer will include (1) technology-based effluent limitations, and (2) any more stringent water quality-based effluent limitations where necessary to prevent discharges from the production area that would cause or contribute to an exceedance of water quality standards.]

The following effluent limitations apply to facilities covered under this permit:
[These provisions apply to all existing facilities that are subject to the CAFO ELG specified in 40 CFR Part 412 Parts C and D. In other cases, the permit writer is to establish technology-based limitations based on the specific requirements defined in the CAFO ELG or through the application of best professional judgment ("BPJ") whichever is determined to be applicable.]

1. Technology-based Effluent Limitations and Standards - Production area.

   There may be no discharge of manure, litter, or process wastewater pollutants into waters of the United States from the production area except as provided below.

   Whenever precipitation causes an overflow of manure, litter, or process wastewater, pollutants in the overflow may be discharged into waters of the United States provided:

   a. The production area is properly, designed, constructed, operated and maintained to contain all manure, litter, process wastewater and the runoff and direct precipitation from the 25-year, 24-hour storm event for the location of the CAFO. The design storage volume must reflect all wastes accumulated during the storage period; normal precipitation less evaporation during the storage period; normal runoff during the storage period; the direct precipitation from a 25-year, 24-hour storm event; the runoff from the 25-year, 24-hour storm event from the production area; residual solids after liquid has been removed; necessary freeboard to maintain structural integrity; and in the case of treatment lagoons, a minimum treatment volume. ***[Note: The design standard for new sources under Subpart D of the CAFO ELG is a 100-year, 24-hour storm event.]***
   b. The production area is operated in accordance with the additional measures and records specific in section II.B of this permit.

2. Water Quality-based Effluent Limitations and Standards - Production Area

   [PERMIT AUTHORITY TO SPECIFY APPLICABLE WATER QUALITY-BASED EFFLUENT LIMITATIONS.] [***The permit writer must ensure that the permit includes effluent limitations based on applicable technology-based requirements and any more stringent effluent limitations necessary to meet water quality standards. A water quality-based effluent limitation is designed to protect the quality of the receiving water by ensuring State or Tribal water quality standards are met. Federal regulations [40 CFR 122.44(d)] require permit limitations to control all pollutants which may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard.***

   The permit writer may determine the need to establish more restrictive requirements for the

production area particularly for instances where the discharge is to 303(d) water bodies listed for nutrients, dissolved oxygen or bacteria, or where an analysis of frequency, duration and magnitude of the anticipated discharge (consisting of potential overflows of manure, litter, or process wastewater) indicates the reasonable potential to violate applicable water quality standards. With respect to the production area, the imposition of a more restrictive water quality-based effluent limitation may include the establishment of more restrictive requirements such as the imposition of a higher design standard (e.g., 100 year, 24-hour storm in the case of existing sources under Subpart C and D of the CAFO ELG) or the inclusion of additional management practices.]

3. Technology-based Effluent Limitations and Standards - Land Application Areas Under the Control of the CAFO Owner/Operator.

CAFOs subject to this permit, that land apply manure, litter, or process wastewater, must develop and implement a Nutrient Management Plan in accordance with the requirements specified below and in Parts III.A and III.B of this permit.

The nutrient management plan that is developed and implemented must incorporate the following requirements based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field and that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters.

a. Determination of application rates. Application rates for manure, litter, or process wastewater are to be developed that minimize phosphorus and nitrogen transport from the field to surface waters in compliance with the technical standards for nutrient management established by the permitting authority - **[INSERT OR REFERENCE TECHNICAL STANDARDS FOR NUTRIENT MANAGEMENT ESTABLISHED BY THE DIRECTOR IN ACCORDANCE WITH 40 CFR 122.36.]** ***[It is recommended that a complete copy of the standard established by the Director be included as an appendix to the permit.].*** This technical standard specifies (1) the field-specific assessment of the potential for nitrogen and phosphorus transport form the field to surface waters and addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals and (2) includes appropriate flexibilities for the implementation of specific nutrient management practices to comply with the standard;

b. Manure and soil sampling. Manure must be analyzed at least once annually for nitrogen and phosphorus content, and soil must be analyzed at least once every five years for phosphorus content. The results of these analyses are to be used in determining application rates for manure, litter, and other process wastewater;

c. Inspection of land application equipment for leaks. Periodically inspect equipment used for land application of manure, litter, or process wastewater for leaks;

d. Land application setback requirements. No application of manure, litter, or process wastewater closer than 100 feet to any down-gradient water of the United States, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to waters of the United States. The permittee may elect to use a 35-foot vegetated buffer to any down-gradient water of the United States, open tile intake structures, sinkholes, agricultural well heads, or other conduits to waters of the United States where applications of manure, litter, or process

wastewater are prohibited, may be utilized as an alternative to the 100-foot setback to meet this requirement.
[The CAFO ELG provides an alternative practices compliance alternative [412.4(c)(5)(ii)] to the 100-foot setback requirement specified in II.A.3.d of this example NPDES CAFO permit. The permittee would need to demonstrate to the permitting authority that the use of these alternative practices result in equivalent or better pollutant reductions than would be achieved by the use of the 100-foot setback. The permitting authority may limit the availability of theses alternatives to only those CAFOs covered under an individual permit.]

e. The maintenance of complete on-site records including the site-specific nutrient management plan documenting implementation of all required land application practices.

In addition to meeting the above ELG requirements (Part II.A), the permittee is required to comply with the additional measures specified in Part II. B and the special conditions established in Part III of this permit.

B. Additional Measures - Applicable to the Production Area

In addition to the requirements in II.A of this permit, the permittee must implement the following additional measures.

1. Weekly visual inspections of all storm water diversion devices, runoff diversion structures, and devices channeling contaminated storm water to the wastewater and manure storage and containment structure.

2. Daily visual inspections of all water lines, including drinking water or cooling water lines.

3. Weekly inspections of the manure, litter, and process wastewater impoundments noting the level as indicated by an installed depth marker in all open surface liquid impoundments. Each depth marker must clearly indicate the minimum capacity necessary to contain the runoff and direct precipitation of the 25-year, 24-hour rainfall event for the location of the permitted CAFO.

4. Timely correction of any deficiencies that are identified in daily and weekly inspections.

5. No disposal of animal mortalities in any liquid manure or process wastewater systems. Handle animal mortalities so as to prevent discharge of pollutants to surface water.

6. The maintenance of complete on-site records documenting implementation of all required additional measures for a period of five years.

C. Other Legal Requirements

No condition of this permit shall release the permittee from any responsibility or requirements under other statutes or regulations, Federal, State/Indian Tribe or Local.

PART III. SPECIAL CONDITIONS

A. Nutrient Management Plan

1. Each CAFO covered by this permit shall develop and implement a site-specific nutrient management plan. The nutrient management plan shall specifically identify and describe practices that are to be implemented to assure compliance with the effluent limitations and standards and special conditions of this permit (Part II.A and Parts III.A and B). The nutrient management plan is to be developed in accordance with the following technical standard ***[Incorporate or reference nutrient management technical standard established by the Director. Cross reference section II.A.3 of this permit.]***.

2. The site-specific nutrient management plan at a minimum must include practices and procedures necessary to implement the applicable effluent limitations and standards. In addition, the NMP must, as applicable:

    a. Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;
    b. Ensure proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;
    c. Ensure that clean water is diverted, as appropriate, from the production area;
    d. Prevent the direct contact of confined animals with waters of the United States;
    e. Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals or contaminants;
    f. Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States;
    g. Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;
    h. Establish protocols to land apply manure, litter, or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater; and
    i. Identify specific records that will be maintained to document the implementation and management of the minimum practices described in Part III.B.

3. The nutrient management plan shall be signed by the owner/operator or other signatory authority in accordance with Part VI.E (Signatory Requirements) of this permit.

4. Following the submission of the NOI, any CAFO covered by this NPDES general permit shall develop and implement a nutrient management plan in accordance with the following schedule **[SCHEDULE FOR DEVELOPING AND IMPLEMENTING THE NUTRIENT MANAGEMENT PLAN AND ANY INTERIM DATES FOR COMPLIANCE AND REPORTS]**. Owners/operators of new CAFOs must have a complete nutrient management plan **[NUMBER OF DAYS *(Note: But no later than December 31, 2006)*]** prior to commencement of operation.

5. A current copy of the nutrient management plan shall be kept on site in accordance with Part IV.C. of this permit and provided to the permitting authority upon request of the permitting authority. In addition a copy of the current NPDES permit is to be maintained on site.

6. The permittee must amend the nutrient management plan as necessary whenever the facility makes a substantive change in how it manages its operation, including the location, method, timing or frequency of land application so that the nutrient management plan reflects the current operational characteristics and practices of the CAFO.

7. There is to be no discharge of manure, litter, or process wastewater to a waters of the United States from a CAFO as a result of the application of manure, litter or process wastewater to land areas under the control of the CAFO, except where it is an agricultural storm water discharge. Where manure, litter, or process wastewater has been applied in accordance with a site-specific nutrient management plan, as specified in 122.42(e)(1), a precipitation related discharge of manure, litter or process wastewater from land areas under the control of the CAFO is considered to be an agricultural storm water discharge.

B. NPDES Permit for CAFOs Minimum Practices

The permittee must develop and implement the practices listed in Table III-A, to the extent they are applicable. Requirements specified in Parts II.A and B and III of this permit must also be addressed.

Table III-A. NPDES CAFO Permit Minimum Practices (To be implemented as soon as possible, but no later than December 31, 2006.)
ENSURE ADEQUATE STORAGE[1] CAPACITY Develop and implement specific practices and associated structures to ensure adequate storage capacity to achieve permit limitations including: - Maintain sufficient capacity in liquid manure, wastewater, or storm water storage structures to ensure compliance with all permit requirements. - Store dry manure in production buildings or in storage facilities or otherwise storing it in such a way as to prevent polluted runoff. - Provide adequate storage capacity to ensure compliance with the nutrient management technical standard approved by the permitting authority. - Ensure proper operation and maintenance of all manure, wastewater, and storm water storage facilities. [1] Storage includes but is not limited to waste ponds and lagoons and other structures such as tanks (above and below ground) and staking facilities (concrete pad, walls, and a roof).
ENSURE PROPER MANAGEMENT OF MORTALITIES Handle and dispose of dead animals in a manner that prevents contamination of waters of the United States.
DIVERSION OF CLEAN WATER Develop and implement management practices to divert clean water from the production area. Clean water includes rain falling on the roofs of facilities, runoff from adjacent land, and other sources. If clean water is not diverted from coming into contact with manure or process wastewater it must be collected in accordance with permit requirements.

Table III-A. NPDES CAFO Permit Minimum Practices (To be implemented as soon as possible, but no later than December 31, 2006.)
PREVENTION OF DIRECT CONTACT OF ANIMALS WITH WATERS OF THE UNITED STATES Develop and implement appropriate controls to prevent access of animals to waters of the United States in the production area.
CHEMICAL HANDLING Develop and implement controls to prevent the inappropriate introduction of chemicals into the manure, wastewater, and storm water storage and handling system. Examples include pesticides, hazardous and toxic chemicals, and petroleum products and by-products.
CONSERVATION PRACTICES TO CONTROL NUTRIENT LOSS For land application areas under the control of the CAFO operator develop and implement practices that are sufficient to minimize the discharge of pollutants to waters of the United States. These practices may include, but are not limited to residue management, conservation crop rotation, grassed waterways, strip cropping, vegetated buffers, riparian buffers, setbacks, terracing, and diversions.
PROTOCOLS FOR MANURE AND SOIL TESTING Identify and implement specific manure, wastewater and soil sample collection and analysis protocols to be used in developing and implementing the nutrient management plan. At a minimum the protocol is to specify the collection and analysis of manure, litter, and other process waste waters annually for nutrient content, including nitrogen and phosphorus. The protocol is to specify the collection and analysis of soil samples for phosphorus content at least once every 5 years for all fields under the control of the CAFO operator where manure and wastewater may be applied. In all cases the sampling frequency for both manure, litter and wastewater and soil is to be consistent with the technical standard for nutrient management established by the Director.
PROTOCOLS FOR THE LAND APPLICATION OF MANURE AND PROCESS WASTEWATER Develop and implement protocols to apply manure, litter, and process wastewater in accordance with the technical standard for nutrient management established by the Director.
RECORD KEEPING Maintain all records necessary to document the development and implementation of the nutrient management plan and compliance with the minimum practices defined in the permit. In addition, records must be maintained that document compliance with the effluent limitations specified in the permit.

C. Facility Closure

The following conditions shall apply to the closure of lagoons and other earthen or synthetic lined basins and other manure, litter, or process wastewater storage and handling structures:

1. Closure of Lagoons and Other Surface Impoundments
    a. No lagoon or other earthen or synthetic lined basin shall be permanently abandoned.
    b. Lagoons and other earthen or synthetic lined basins shall be maintained at all times until closed in compliance with this section.
    c. All lagoons and other earthen or synthetic lined basins must be properly closed if the permittee ceases operation. In addition, any lagoon or other earthen or synthetic lined basin that is not in use for a period of twelve consecutive months must be properly closed unless the facility is financially viable, intends to

resume use of the structure at a later date, and either: (1) maintains the structure as though it were actively in use, to prevent compromise of structural integrity; or (2) removes manure and wastewater to a depth of one foot or less and refills the structure with clean water to preserve the integrity of the synthetic or earthen liner. In either case, the permittee shall notify the **[PERMITTING AUTHORITY]** of the action taken, and shall conduct routine inspections, maintenance, and record keeping as though the structure were in use. Prior to restoration of use of the structure, the permittee shall notify the **[PERMITTING AUTHORITY]** and provide the opportunity for inspection.

d. All closure of lagoons and other earthen or synthetic lined basins must be consistent with **[INSERT CITE TO SPECIFIC STANDARDS AS DETERMINED TO BE APPLICABLE BY THE PERMITTING AUTHORITY].** Consistent with this standard the permittee shall remove all waste materials to the maximum extent practicable and dispose of them in accordance with the permittee's nutrient management plan, unless otherwise authorized by the **[PERMITTING AUTHORITY]**.

e. Unless otherwise authorized by the **[PERMITTING AUTHORITY]**, completion of closure for lagoons and other earthen or synthetic lined basins shall occur as promptly as practicable after the permittee ceases to operate or, if the permittee has not ceased operations, 12 months from the date on which the use of the structure ceased, unless the lagoons or basins are being maintained for possible future use in accordance with the requirements above.

2. Closure Procedures for Other Manure, Litter, or Process Wastewater Storage and Handling Structures

No other manure, litter, or process wastewater storage and handling structure shall be abandoned. Closure of all such structures shall occur as promptly as practicable after the permittee has ceased to operate, or, if the permittee has not ceased to operate, within 12 months after the date on which the use of the structure ceased. To close a manure, litter, or process wastewater storage and handling structure, the permittee shall remove all manure, litter, or process wastewater and dispose of it in accordance with the permittee's nutrient management plan, or document its transfer from the permitted facility in accordance with off-site transfer requirements specified in this permit (See Part III.D), unless otherwise authorized by the **[Permitting Authority]**.

D. Requirements for the Transfer of Manure, Litter, and Process Wastewater To Other Persons

[The revised NPDES CAFO regulations and require operations which meet the definition of a Large CAFO to meet off-site transfer requirements. Permitting authorities should utilize BPJ to determine the specific off-site transfer requirements applicable to Medium and Small CAFOs]

1. In cases where CAFO-generated manure, litter, or process wastewater is sold or given away the permittee must comply with the following conditions:
   a. Maintain records showing the date and amount of manure, litter, and/or process wastewater that leaves the permitted operation;
   b. Record the name and address of the recipient;
   c. Provide the recipient(s) with representative information on the nutrient content of the manure, litter, and/or process wastewater; and

d. These records are to be retained on-site, for a period of five years, and be submitted to the permitting authority upon request.

E. Additional Special Conditions

[This section is to be used by the NPDES permitting authority to specify any additional special conditions such as procedures for emergency discharge impact abatement, irrigation control, spill control procedures, specific measurements to be collected (i.e., rainfall), and groundwater protection requirements (i.e., monitoring, liners, etc.) that are determined necessary by the NPDES permitting authority.]

PART IV. DISCHARGE MONITORING AND NOTIFICATION REQUIREMENTS

A. Notification of Discharges Resulting from Manure, Litter, and Process Wastewater Storage, Handling, On-site Transport and Application

If, for any reason, there is a discharge of pollutants to a water of the United States, the permittee is required to make immediate oral notification within 24-hours to the **[PERMITTING AUTHORITY (CONTACT NUMBER)]** and notify the **[PERMITTING AUTHORITY]** in writing within five (5) working days of the discharge from the facility. In addition, the permittee shall keep a copy of the notification submitted to the [Permitting Authority] together with the other records required by this permit. The discharge notification shall include the following information:

1. A description of the discharge and its cause, including a description of the flow path to the receiving water body and an estimate of the flow and volume discharged.

2. The period of non-compliance, including exact dates and times, the anticipated time it is expected to continue, and steps taken or planned to reduce, eliminate and prevent recurrence of the discharge.

B. Monitoring Requirements for All Discharges from Retention Structures

In the event of any overflow or other discharge of pollutants from a manure and/or wastewater storage or retention structure, whether or not authorized by this permit, the following actions shall be taken:

1. All discharges shall be sampled and analyzed. Samples must, at a minimum, be analyzed for the following parameters: total nitrogen, ammonia nitrogen phosphorus, fecal coliform, five-day biochemical oxygen demand (BOD_5), total suspended solids, pH, and temperature. The discharge is to be analyzed in accordance with approved EPA methods for water analysis listed in 40 CFR Part 136. ***[The permitting authority may specify additional parameters that are to be analyzed (e.g., metals).]***

2. Record an estimate of the volume of the release and the date and time.

3. ***[The permitting authority should insert the specific procedures that are to be followed by the permittee in collecting these samples. The permitting authority should also specify the time frame for reporting the results of the analyses.]*** The discharge is to be collected in accordance with approved EPA methods for water analysis listed in 40 CFR Part 136.

4. If conditions are not safe for sampling, the permittee must provide documentation of why samples could not be collected and analyzed. For example, the permittee may be unable to collect samples during dangerous weather conditions (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.). However, once dangerous conditions have passed, the permittee shall collect a sample from the retention structure (pond or lagoon) from which the discharge occurred.

C. General Inspection, Monitoring, and Record keeping Requirements

The permittee shall inspect, monitor, and record the results of such inspection and monitoring in accordance with Table IV–A:

Table IV-A NPDES Large CAFO Permit Record Keeping Requirements		
Parameter	**Units**	**Frequency**
Nutrient Management Plan ***(Note: Required by the NPDES CAFO Regulation – applicable to all CAFOs)***		
The CAFO must maintain on-site a current site-specific NMP that reflects existing operational characteristics. The operation must also maintain on-site all necessary records to document that the NMP is being properly implemented with respect to manure and wastewater generation, storage and handling, and land application. In addition records are to be maintained that the development and implementation of the NMP is in accordance with the minimum practices defined in 40 CFR 122.42(e).	N/A	Maintain at all times
Soil and Manure/Wastewater Nutrient Analysis ***(Note: Required by the CAFO ELG – applicable to Large CAFOs)***		
Analysis of manure, litter, and process wastewater to determine nitrogen and phosphorus content.[1]	ppm Pounds/ton	Conduct initial sampling, then at least annually.
Analysis of soil in all fields where land application activities are conducted to determine phosphorus content.[1]	ppm	Conduct initial sampling, then at least once every 5 years.
Operation and Maintenance ***(Note: Required by the CAFO ELG – applicable to Large CAFOs)***		
Visual inspection of all water lines	N/A	Daily[2]
Documentation of depth of manure and process wastewater in all liquid impoundments	Feet	Weekly
Documentation of all corrective actions taken	N/A	As necessary
Documentation of animal mortality handling practices	N/A	As necessary
Design documentation for all manure, litter, and wastewater storage structures including the following information:		
% Volume for solids accumulation	Cubic yards/gallons	Once in the permit term unless revised
% Design treatment volume	Cubic yards/gallons	
% Total design storage volume[3]	Cubic yards/gallons	
% Days of storage capacity	Days	
Documentation of all overflows from all manure and wastewater storage structures including: ***(Note: Required by the NPDES Regulation – applicable to all CAFOs)***		
% Date and time of overflow	Month/day/year	Per event
% Estimated volume of overflow	Total gallons	Per event
% Analysis of overflow (as required by the permitting authority)	TBD	Per event
Documentation of manure application equipment inspection	N/A	Seasonally

Table IV-A NPDES Large CAFO Permit Record Keeping Requirements		
Parameter	**Units**	**Frequency**
Land Application ***(Note: Required by the CAFO ELG – applicable to Large CAFOs)***		
For each application event where manure, litter, or process wastewater is applied, documentation of the following by field:		
% Date of application	Month/day/year	Daily
% Method of application	N/A	Daily
% Weather conditions at the time of application and for 24 hours prior to and following application	N/A	Daily
% Total amount of nitrogen and phosphorus applied[4]	Pounds/acre	Daily
Documentation of the crop and expected yield for each field	Bushel/acre	Seasonally
Documentation of test methods and sampling protocols used to sample and analyze manure, litter, and wastewater and soil.	N/A	Once in the permit term unless revised
Documentation of the basis for the application rates used for each field where manure, litter, or wastewater is applied.	N/A	Once in the permit term unless revised
Documentation showing the total nitrogen and phosphorus to be applied to each field including nutrients from the application of manure, litter, and wastewater and other sources	Pounds/acre	Once in the permit term unless revised
Manure Transfer ***(Note: Required by the NPDES CAFO Regulation – applicable to Large CAFOs)***		
For all manure transfers the CAFO must maintain the following records:		
% Date of transfer	N/A	As necessary
% Name and address of recipient	N/A	As necessary
% Approximate amount of manure, litter, or wastewater transferred	Tons/gallons	As necessary

[1]Refer to the state nutrient management technical standard for the specific analyses to be used.
[2]Visual inspections should take place daily during the course of normal operations. The completion of such inspection should be documented in a manner appropriate to the operation. Some operations may wish to maintain a daily log. Other operations may choose to make a weekly entry, when they update other weekly records, that required daily inspections have been completed.
[3] Total design volume includes normal precipitation less evaporation on the surface of the structure for the storage period, normal runoff from the production area for the storage period, 25-year, 24-hour precipitation on the surface of the structure, 25-year, 24-hour runoff from the production area, and residual solids.
[4] Including quantity/volume of manure, litter, or process wastewater applied and the basis for the rate of phosphorus application.

D. Additional Monitoring Requirements

[*This section is to be used by the permitting authority to specify any additional monitoring and analysis that the permittee is to perform.]*

1. Additional monitoring for some high risk operations: Upon notification by **[PERMITTING AUTHORITY],** the permittee may be required to conduct ambient monitoring of surface and/or groundwater. For example, facilities with historical compliance problems, especially large facilities, facilities with significant environmental concerns, or facilities impacting impaired water bodies. ***[The permitting authority should establish appropriate ambient surface and groundwater monitoring requirements in the NPDES permit.]***

2. Upon request by **[PERMITTING AUTHORITY]**, the permittee may be required to collect and analyze samples including but not limited to soils, surface water, ground water, and/or stored waste in a manner and frequency specified by **[PERMITTING AUTHORITY].**

PART V. ANNUAL REPORTING REQUIREMENTS

[This example permit includes the minimum information required by the NPDES regulations. The permitting authority can use its discretion concerning additional information required to be submitted with the annual report.]

1. The permittee must submit an annual report to the Director by **[DATE]** of each year.

2. The annual report must include the following information:
   [The permitting authority can utilize its discretion and authority to request additional information from the permittee. The permitting authority may wish to provide an example of the specific format for the annual report. An example report is included in the NPDES CAFO Permit Writer Guidance.]
   a. The number and type of animals, whether in open confinement or housed under roof;
   b. Estimated amount of total manure, litter and process wastewater generated by the CAFO in the previous 12 months (tons/gallons);
   c. Estimated amount of total manure, litter and process wastewater transferred to other person by the CAFO in the previous 12 months (tons/gallons);
   d. Total number of acres for land application covered by the nutrient management plan:
   e. Total number of acres under control of the CAFO that were used for land application of manure, litter and process wastewater in the previous 12 months;
   f. Summary of all manure, litter and process wastewater discharges from the production area that have occurred in the previous 12 months, including date, time, and approximate volume; and
   g. A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner.

PART VI. STANDARD PERMIT CONDITIONS

A. General Conditions

1. In accordance with the provisions of 40 CFR Part 122.41, et. seq., this permit incorporates by reference all conditions and requirements applicable to NPDES Permits set forth in the Clean Water Act, as amended, (hereinafter known as the "Act") as well as all applicable regulations.

2. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation, and reissuance; for denial of a permit renewal application; and/or for requiring a permittee to apply for and obtain an individual NPDES permit.

3. The permittee shall comply with effluent standards and prohibitions established under section 307(a) of the Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

4. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

5. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State/Tribal or local laws or regulations.

6. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

7. Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance. Any false or materially misleading representation or concealment of information required to be reported by the provisions of the permit, the Act, or applicable regulations, which avoids or effectively defeats the regulatory purpose of the Permit may subject the Permittee to criminal enforcement pursuant to 18 U.S.C. Section 1001.

8. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State/Tribal law or regulation under authority preserved by Section 510 of the Act.

9. The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

B. Proper Operation and Maintenance

1. It shall not be a defense for a permittee in an enforcement action to plead that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

2. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

3. The permittee shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

C. Monitoring and Records

1. The permittee shall allow the **[PERMITTING AUTHORITY]** or U.S. EPA, or an authorized representative of **[PERMITTING AUTHORITY]** or U.S. EPA, upon the presentation of credentials and other documents as may be required by law, to:
    a. Enter the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
    c. Inspect, at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
    d. Sample or monitor, at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report, or application. This period may be extended by request of the permitting authority at any time.

4. Records of monitoring information shall include:
    a. The date, exact place, and time of sampling or measurements;
    b. The individual(s) who performed the sampling or measurements;
    c. The date(s) analyses were performed;
    d. The individual(s) who performed the analyses;
    e. The analytical techniques or methods used; and
    f. The results of such analyses.

5. The permittee shall follow the following monitoring procedures:
    a. Any required monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit or approved by the Regional Administrator.
    b. The permittee shall calibrate and perform maintenance procedures on all monitoring and analytical instruments at intervals frequent enough to insure accuracy of measurements and shall maintain appropriate records of such activities.
    c. An adequate analytical quality control program, including the analyses of sufficient standards, spikes, and duplicate samples to insure the accuracy of all required analytical results shall be maintained by the permittee or designated commercial laboratory.

D. Reporting Requirements

1. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:
    a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in § 122.29(b); or
    b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under § 122.42(a)(1).
    c. The alteration or addition results in a significant change in the permittee's manure use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit., including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to a nutrient management plan.

2. The permittee shall give advance notice to the **[PERMITTING AUTHORITY]** of any planned physical alterations or additions or changes in activity which may result in noncompliance with requirements in this permit.

3. This permit is not transferable to any person except after notice to the **[PERMITTING AUTHORITY]**. The **[PERMITTING AUTHORITY]** may require modification or revocation and reissuance of the permit to change the name or the permittee and incorporate such other requirements as may be necessary under the CWA.

4. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

5. The permittee shall report any noncompliance that may endanger human health or the environment. Any information must be provided orally to within 24 hours from the time that the permittee becomes aware of the circumstances to **[PERMITTING AUTHORITY CONTACT INFORMATION]**. A written submission shall also be provided to **[PERMITTING AUTHORITY]** within five (5) days of the time the permittee becomes aware of the circumstances. The report shall contain the following information:
    a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

c. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

6. The following shall be included as information which must be reported within 24 hours:

   a. Any unanticipated bypass which exceeds any effluent limitation in the permit.

   b. Any upset which exceeds any effluent limitation in the permit.

   c. Violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 hours.

   The Director may waive the written report on a case-by-case basis for reports under the above if the oral report has been received within 24 hours.

7. The permittee shall report all instances of noncompliance not reported under above and of this section, at the time monitoring reports are submitted. The reports shall contain the information listed in D.6.

8. Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the **[PERMITTING AUTHORITY]**, it shall promptly submit such facts or information to the **[PERMITTING AUTHORITY]**.

E. Signatory requirements

All applications, reports, or information submitted to the **[Permitting Authority]** shall be signed and certified consistent with 40 CFR §122.22:

1. All notices of intent shall be signed as follows:

   a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

      i. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

      ii. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures; or

   b. For a partnership or sole proprietorship: By a general partner for a partnership or the proprietor, respectively.

2. All reports required by the permit and other information requested by the **[Permitting Authority]**

shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above;
b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or any individual or position having overall responsibility for environmental matters for the company. A duly authorized representative may thus be either a named individual or an individual occupying a named position; and,
c. The written authorization is submitted to the **[Permitting Authority]**.

F. Certification

Any person signing a document under this section shall make the following certification:
"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G. Availability of Reports

Any information submitted pursuant to this permit may be claimed as confidential by the submitter. If no claim is made at the time of submission, information may be made available to the public without further notice.

H. Penalties for Violations of Permit Conditions

1. Criminal Penalties:

a. Negligent violations: The Act provides that any person who negligently violates Section 301, 302, 306, 307, 308, 318, or 405 of the Act or any condition or limitation implementing those provisions in a permit issued under Section 402 is subject to a fine of not less than $2,750 nor more than $27,500 per day of violation, or by imprisonment for not more than one year, or both.
b. Knowing violations: The Act provides that any person who knowingly violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Act or any permit conditions implementing those provisions is subject to a fine of not less than $5,500 nor more than $55,000 per day of violation, or by imprisonment for not more than three years, or both.
c. Knowing endangerment: The Act provides that any person who knowingly violates Sections 301, 302, 303, 306, 307, 308, 318, or 405 of the Act or permit conditions implementing those provisions and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $275,000, or by imprisonment for not more than 15 years, or both.
d. False statements: The Act provides that any person who knowingly makes any

false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $11,000, or by imprisonment for not more than two years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $22,000 per day of violation, or by imprisonment of not more than four years, or by both. [See Section 309(c)4 of the Clean Water Act]

2. Civil penalties: The Act provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed $27,500 per day for each violation. [See Section 309(d)]

3. Administrative penalties: The Act provides that the Administrator may assess a Class I or Class II administrative penalty if the Administrator finds that a person has violated Sections 301, 302, 306, 307, 308, 318, or 405 of the Act or a permit condition or limitation implementing these provisions, as follows [See Section 309(g)]:
    a. Class I penalty: Not to exceed $11,000 per violation nor shall the maximum amount exceed $27,500.
    b. Class II penalty: Not to exceed $11,000 per day for each day during which the violation continues nor shall the maximum amount exceed $137,500.

PART VII. DEFINITIONS

Animal feeding operation means a lot or facility (other than an aquatic animal production facility) where the following conditions are met: (i) animals (other than aquatic 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, and (ii) crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Application means the EPA standard national forms for seeking coverage under for an NPDES permit, including any additions, revisions or modifications to the forms; or forms approved by EPA for use in "approved States," including any approved modifications or revisions [e.g. for NPDES general permits, a written "notice of intent" pursuant to 40 CFR 122.28; for NPDES individual permits, Form 1 and 2B pursuant to 40 CFR 122.1(d)].

Concentrated animal feeding operation (CAFO) means an AFO which is defined as a Large CAFO or Medium CAFO by 40 CFR 122.23 (4) and (6), or that is designated as a CAFO.

Fecal coliform means the bacterial count (Parameter 1) at 40 CFR 136.3 in Table 1A, which also cites the approved methods of analysis.

Grab sample means a sample which is taken from a waste stream on a one-time basis without consideration of the flow rate of the waste stream and without consideration of time.

Land application means the application of manure, litter, or process wastewater onto or incorporated into the soil.

Land application area means land under the control of an CAFO owner or operator, whether it is owned, rented, or leased, to which manure, litter, or process wastewater from the production area is or may be applied.

Large CAFO means an AFO that stables or confines as many as or more than the numbers of animals specified in any of the following categories: (i) 700 mature dairy cattle, whether milked or dry; (ii)1,000 veal calves; (iii)1,000 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs; (iv) 2,500 swine each weighing 55 pounds or more; (v)10,000 swine each weighing less than 55 pounds; (vi) 500 horses; (vii) 10,000 sheep or lambs; (viii) 55,000 turkeys; (ix) 30,000 laying hens or broilers, if the AFO uses a liquid manure handling system; (x)125,000 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system; (xi) 82,000 laying hens, if the AFO uses other than a liquid manure handling system; (xii) 30,000 ducks (if the AFO uses other than a liquid manure handling system); or (xiii) 5,000 ducks (if the AFO uses a liquid manure handling system).

Liquid manure handling system means a system that collects and transports or moves waste material with the use of water, such as in washing of pens and flushing of confinement facilities. This would include the use of water impoundments for manure and/or wastewater treatment.

Manure is defined to include manure, litter, bedding, compost and raw materials or other materials commingled with manure or set aside for land application or other use.

Medium CAFO means any AFO that stables or confines as many or more than the numbers of animals

specified in any of the following categories: (i) 200 to 699 mature dairy cattle, whether milked or dry cows; (ii) 300 to 999 veal calves; (iii) 300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs; (iv) 750 to 2,499 swine each weighing 55 pounds or more; (v) 3,000 to 9,999 swine each weighing less than 55 pounds; (vi)150 to 499 horses, (vii) 3,000 to 9,999 sheep or lambs, (viii) 16,500 to 54,999 turkeys, (ix) 9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system; (x) 37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system; (xi) 25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system; (xii) 10,000 to 29,999 ducks (if the AFO uses other than a liquid manure handling system); or (xiii) 1,500 to 4,999 ducks (if the AFO uses a liquid manure handling system) **and** either one of the following conditions are met (a) pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or (b) pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

Notice of Intent (NOI) is a form submitted by the owner/operator applying for coverage under a general permit. It requires the applicant to submit the information necessary for adequate program implementation, including, at a minimum, the legal name and address of the owner or operator, the facility name and address, type of facility or discharges, and the receiving stream(s). [(40 CFR §128.28(b)(2)(ii)].

Process wastewater means water directly or indirectly used in the operation of the CAFO for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing pens, barns, manure pits, or other AFO facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Process wastewater also includes any water which comes into contact with or is a constituent of raw materials, products, or byproducts including manure, litter, feed, milk, eggs, or bedding.

Production area means that part of an AFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal containment area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities.

Small CAFO means an AFO that is designated as a CAFO and is not a Medium CAFO.

Setback means a specified distance from waters of the United States or potential conduits to waters of the United States where manure, litter, and process wastewater may not be land applied. Examples of conduits to surface waters include but are not limited to: Open tile line intake structures, sinkholes, and agricultural well heads.

The Act means Federal Water Pollution Control Act as amended, also known as the Clean Water Act as amended, found at 33 USC 1251 et seq.

Vegetated buffer means a narrow, permanent strip of dense perennial vegetation established parallel to the contours of and perpendicular to the dominant slope of the field for the purposes of slowing water runoff, enhancing water infiltration, and minimizing the risk of any potential nutrients or pollutants from leaving the field and reaching waters of the United States.

Waters of the United States means: (1) all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; (2) all interstate waters, including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, and streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (a) which are or could be used by interstate or foreign travelers for recreational or other purposes; from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or, which are or could be used for industrial purposes by industries in interstate commerce; (4) all impoundments of waters otherwise defined as waters of the United States; (5) tributaries of waters identified in (1) through (4) of this definition; (6) the territorial sea; and (7) wetlands adjacent to waters (other than waters that are themselves wetlands) identified in items (1) through (6) of this definition.

ADDENDUM A - (Insert Form 2B/Notice of Intent or Appropriate State Form)

ADDENDUM B - (Insert State Technical Standards for Nutrient Management)

APPENDIX K

NPDES CAFO PERMITTING GLOSSARY

APPENDIX K. NPDES CAFO PERMITTING GLOSSARY

25-year, 24-hour rainfall event – Mean precipitation event with a probable recurrence interval of once in twenty-five years, as defined by the National Weather Service in Technical Paper No. 40, "Rainfall Frequency Atlas of the United States," May, 1961, or equivalent regional or State rainfall probability information developed from this source.

100-year, 24-hour rainfall event – Mean precipitation event with a probable recurrence interval of once in one hundred years, as defined by the National Weather Service in Technical Paper No. 40, "Rainfall Frequency Atlas of the United States," May, 1961, or equivalent regional or State rainfall probability information developed from this source.

303(d) water body – Under section 303(d) of the 1972 Clean Water Act, states, territories, and authorized tribes are required to develop lists of impaired waters. These impaired waters do not meet water quality standards that states, territories, and authorized tribes have set for them. The law requires that these jurisdictions establish priority rankings for waters on the lists and develop TMDLs for these waters.

Aboveground storage tank – Aboveground storage tanks are used as an alternative to underbuilding pit storage and earthen basins. Current assembly practices for aboveground storage facilities are primarily circular silo types and round concrete designs, but the structures may also be rectangular. Such tanks are suitable for operations handling slurry (semisolid) or liquid manure; this generally excludes open-lot waste which is inconsistent in composition and has a higher percentage of solids. Below and aboveground storage tanks are appropriate in situations where the production site has karst terrain, space constraints, or aesthetics issues associated with earthen basins. Storing manure in prefabricated or formed storage tanks is especially advantageous on sites with porous soils or fragmented bedrock. Such locations may be unfit for earthen basins and lagoons because seepage and ground water contamination may occur.

Acre — 1 acre=43,560 sq. ft.=208.7 ft.^{2} =0.405 hectares; or 640 acres=1 sq. mile (called a section).

Acre-foot – The volume of water that would cover one acre of land (43,560 square feet) to a depth of one foot, equivalent to 325,851 gallons of water.

Aerobic – Living, active, or occurring only in the presence of free oxygen.

Air Quality Standards – Federal and state government-prescribed levels of a pollutant in the outside air that cannot be exceeded during a specified period of time in a specified geographical area.

Agronomy – The science of crop production and soil management.

Anaerobic (anoxic) – In the absence of oxygen.

Anaerobic digestion – A biological process that occurs in the absense of oxygen. In very large animal production operation, it is sometimes used to produce biogas (a low energy gas which is a combination of methane and carbon dioxide) from the biodegradable organic portion of manure. This gas can be used as an energy source. After anaerobic digestion, the remaining semi-solid (which is relatively odor free but still contains most of its nutrients) can be used as a fertilizer.

Backgrounding – Growing program for feeder cattle from time calves are weaned until they are on a finishing ration in the feedlot.

Basin – A tract of land in which the ground is broadly tilted toward a common point. Water that falls onto any portion of the basin is carried toward the common point by a single river system.

Bedding – Material such as straw, sawdust, wood shavings, shredded newspaper, sand or other similar material used in animal confinement areas for the comfort of the animal or to absorb excess moisture. Bedding can drastically affect the characteristics of the manure, and must be taken into consideration in the design of the storage facility.

Belowground storage tanks – Belowground storage tanks are used as an alternative to underbuilding pit storage and earthen basins. Belowground storage can be located totally or partially below grade and should be surrounded by fences or guardrails to prevent people, livestock, or equipment from accidently entering the tank. Such tanks are suitable for operations handling slurry (semisolid) or liquid manure; this

generally excludes open-lot waste which is inconsistent in composition and has a higher percentage of solids. Below and aboveground storage tanks are appropriate in situations where the production site has karst terrain, space constraints, or aesthetics issues associated with earthen basins. Storing manure in prefabricated or formed storage tanks is especially advantageous on sites with porous soils or fragmented bedrock. Such locations may be unfit for earthen basins and lagoons because seepage and ground water contamination may occur.

Best Available Technology Economically Achievable (BAT) – Technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT) – Technology-based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, oil and grease. The BCT is established in light of a two-part "cost reasonableness" test which compares the cost for an industry to reduce its pollutant discharge with the cost to a POTW for similar levels of reduction of a pollutant loading. The second test examines the cost-effectiveness of additional industrial treatment beyond BPT. EPA must find limits which are reasonable under both tests before establishing them as BCT.

Best management practice (BMP) – Permit condition used in place of or in conjunction with effluent limitations to prevent or control the discharge of pollutants. May include schedule of activities, prohibition of practices, maintenance procedure, or other management practice. BMPs may include, but are not limited to, treatment requirements, operating procedures, or practices to control runoff, spillage, leaks, or drainage from raw material storage.

Best professional judgment (BPJ) – The method used by permit writers to develop technology-based NPDES permit conditions, in those circumstances where there is no applicable effluent limitation guideline, on a case-by-case basis using all reasonably available and relevant data.

Biochemical Oxygen Demand (BOD) – Laboratory measurement of the amount of oxygen consumed by microorganisms while decomposing organic matter in a product. BOD levels are indicative of the effect of the waste on fish or other aquatic life which require oxygen to live, and though not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

BOD_5 – The amount of dissolved oxygen consumed in five days by biological processes breaking down organic matter.

Boar – An uncastrated male hog.

Breeding stock – Sexually mature male and female livestock that are retained to produce offspring.

Broiler – Meat-type chicken typically marketed at 6.5 weeks of age. Live weight at market generally averages 4 to 4.5 pounds per bird.

Buffer Zone – The region near the border of a protected area; a transition zone between areas managed for different objectives.

Buck – Male goat. Male goats are at times disparagingly called "Billy goats".

Bull – Bovine male, uncastrated of breeding age.

Bushel – A dry volume measure of varying weight for grain, fruit, etc., equal to four pecks or eight gallons (2150.42 cubic inches). A bushel of wheat, soybeans, and white potatoes each weighs 60 pounds. A bushel of corn, rye, grain sorghum, and flaxseed each weighs 56 pounds. A bushel of barley, buckwheat, and apples each weighs 48 pounds.

By-product – Product of considerably less value than the major product. For example, the hide and offal are by-products while beef is the major product.

Bypass – The intentional diversion of waste streams from any portion of a treatment (or pretreatment) facility.

Calf – Young male or female bovine animal under 1 year of age.

Calve – Giving birth to a calf.

Capon – Castrated male chicken.

Coliform Bacteria – Microorganisms which typically inhabit the intestines of warm-blooded animals. They are commonly measured in drinking water analyses to indicate pollution by human or animal waste.

Compost – Decomposed organic material resulting from the composting process. Used to enrich or improve the consistency of soil.

Conservation district – Any unit of local government formed to carry out a local soil and water conservation program.

Conservation plan – A combination of land uses and farming practices to protect and improve soil productivity and water quality, and to prevent deterioration of natural resources on all or part of a farm. Plans may be prepared by staff working in conservation districts and must meet technical standards. For some purposes, such as conservation compliance, the plan must be approved by the local conservation district. Under the 1996 FAIR Act, conservation plans for conservation compliance must be both technically and economically feasible.

Conservation practice (NRCS) – Any technique or measure used to protect soil and water resources for which standards and specifications for installation, operation, or maintenance have been developed. Practices approved by USDA's Natural Resources Conservation Service are compiled at each conservation district in its field office technical guide.

Conservation Reserve Enhancement Program (CREP) – A sub program of the Conservation Reserve Program, CREP is a state-federal multi-year land retirement program developed by states and targeted to specific state and nationally significant water quality, soil erosion, and wildlife habitat problems. The CREP offers higher payments per acre to participants than the CRP, and perhaps other benefits as well. States with approved programs include Maryland, Minnesota, Illinois, New York, Oregon, Washington, and North Carolina.

Conservation Reserve Program (CRP) – A USDA program, created in the Food Security Act of 1985, to retire from production up to 45 million acres of highly erodible and environmentally sensitive farmland. Landowners who sign contracts agree to keep retired lands in approved conserving uses for 10-15 years. In exchange, the landowner receives an annual rental payment, cost-share payments to establish permanent vegetative cover and technical assistance.

Conservation tillage – Any tillage and planting system that leaves at least 30% of the soil surface covered by residue after planting. Conservation tillage maintains a ground cover with less soil disturbance than traditional cultivation, thereby reducing soil loss and energy use while maintaining crop yields and quality. Conservation tillage techniques include minimum tillage, mulch tillage, ridge tillage, and no- till.

Confinement area – The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables.

Containment – Structures used to control runoff of precipitation that comes into contact with manure, feed and other wastes on open feedlots. Examples of containment structures are lagoons and holding ponds.

Contour farming – Field operations such as plowing, planting, cultivating, and harvesting on the contour, or at right angles to the natural slope to reduce soil erosion, protect soil fertility, and use water more efficiently.

Cooperative State Research, Education, and Extension Service (CSREES) – The USDA agency that administers federal funds appropriated for agricultural and forestry research, extension, and education programs at eligible institutions, including the land grant colleges of agriculture in the states, selected veterinary schools, and other institutions with capabilities in the food and agricultural science arena.

Cover crop – A close-growing crop grown to protect and improve soils between periods of regular crops.

Cow – Sexually mature female bovine animal that has usually produced a calf.

Cow-calf operation – A ranch or farm where cows are raised and bred mainly to produce calves usually destined for the beef market. The cows produce a calf crop each year, and the operation keeps some heifer calves from each calf crop for breeding herd replacements. The rest of the calf crop is sold between the ages of

6 and 12 months along with old or nonproductive cows and bulls. Such calves often are sold to producers who raise them as feeder cattle.

Crop rotation – The growing of different crops, in recurring succession, on the same land in contrast to monoculture cropping. Rotation usually is done to replenish soil fertility and to reduce pest populations in order to increase the potential for high levels of production in future years.

Dewatering – The removal of the liquid fraction from manure slurries. This is often done to maximize storage by increasing the solids concentration or to facilitate the transportation of the manure. Dewatering is often accomplished by mechanical separation (screen separator, belt-press, centrifuge) or gravity separation (settling basin).

Director – The Regional Administrator or State Director, as the context requires, or an authorized representative. When there is no approved state program, and there is an EPA administered program, Director means the Regional Administrator. When there is an approved state program, "Director" normally means the State Director.

Digester – A vessel used for the biological, physical, or chemical break-down of livestock and poultry manure.

Discharge – *Discharge* when used without qualification means the *discharge of a pollutant*. *Discharge of a pollutant* means: (a) Any addition of any pollutant or combination of pollutants to waters of the United States from any point source, or (b) Any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channelled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any indirect discharger.

Dry cow – A cow that is not lactating.

Dry lot (dry operation) – An operation using confinement buildings and handling manure and bedding exclusively as dry material, an operation using a building with a mesh or slatted floor over a concrete pit, or an operation scraping manure to a covered waste storage facility is referred to as a “dry” operation. When such practices are used, and are not combined with liquid manure handling systems such as flushing to lagoons or storage ponds, these operations are referred to as “other than liquid manure handling systems” or “dry” manure systems, or “dry” operations.

Duck – Term used to connote both sexes but is also used to refer to the female gender. Ducks are typically marketed at 35 days of age at an average live weight of 7 pounds per bird.

Effluent – Water mixed with waste matter.

Effluent Limitations Guidelines (ELG) – Regulations issued by the EPA Administrator under Section 304(b) of the Clean Water Act that establish national technology-based effluent requirements for a specific industrial category.

Erosion – The wearing away of land surfaces by the action of wind or water.

Ephemeral stream – A stream that flows only sporadically, such as after storms.

EQIP – The Federal Environmental Quality Incentive Program (EQIP) provides financial assistance to producers to implement better conservation practices.

Ewe – A female sheep.

Evaporation pond – Used in regions where evaporation exceeds rainfall to separate manure solids from liquids. Constructed to remove moisture from livestock manure.

Farm Service Agency – A division of the USDA that oversees the administration of all federal farm programs. Programs include farm commodities, crop insurance, conservation programs and farm loans. Offices are located in strategic counties in every state in the U.S. Formerly known as ASCS, Agricultural Stabilization and Conservation Services.

Farrow-to-finish – Typically, a confinement operation where pigs are bred and raised to their slaughter weight, usually 200-250 pounds.

Farrowing – Stage during which the pigs are born, and kept until they are weaned from the sow.

Fecal coliform bacteria – A group of bacteria found in the intestinal tract of humans and animals, and also found in soil. While harmless in themselves, coliform bacteria are commonly used as indicators of the presence of pathogenic organisms.

Feeder cattle – Cattle past the calf stage that have weight increased making them salable as feedlot replacements.

Feedlot – Lot or building or a group of lots or buildings used for the confined feeding, breeding or holding of animals. This definition includes areas specifically designed for confinement in which manure may accumulate or any area where the concentration of animals is such that a vegetative cover cannot be maintained. Lots used to feed and raise poultry are considered to be feedlots. Pastures are not animal feedlots.

Fertilizer – Any organic or inorganic material, either natural or synthetic, used to supply elements (such as nitrogen (N), phosphate (P2O5), and potash (K2O)) essential for plant growth.

Filly – A female horse less than three years old.

Filter backwash – Reversing the flow of water back through the filter media to remove entrapped solids.

Filter strips – An area of vegetation, generally narrow and long, that slows the rate of runoff, allowing sediments, organic matter, and other pollutants that are being conveyed by the water to be removed.

Finish pig – To feed a pig until it reaches market weight, 250-260 pounds.

Finishing stage – Stage leading to and including full adulthood for swine is called the finishing stage. The pigs remain here until they reach market weight, 240 to 260 pounds.

Flush system – In flush systems, large volumes of water flow down a sloped surface, scour manure from the concrete, and carry it to a manure storage facility. There are three basic types of flush systems: 1) underslat gutters, used primarily in beef confinement buildings and swine facilities; 2) narrow-open gutters, used predominately in hog finishing buildings; and 3) wide-open gutters or alleys, most often seen in dairy freestall barns, holding pens, and milking parlors.

Forage Growth – All browse and non-woody plants that are eaten by wildlife and livestock. Roughage of high feeding value. Grasses and legumes cut at the proper stage of maturity and stored to preserve quality are forage. A crop that is high in fiber and grown especially to feed ruminant animals.

Freeboard – The distance between the highest possible wastewater level in a manure storage/treatment structure and the top edge of the structure.

Gelding – A castrated male horse.

Grassed waterway – Grassed waterways are areas planted with grass or other permanent vegetative cover where water usually concentrates as it runs off a field. They can be either natural or man-made channels. Grass in the waterway slows the water and can reduce gully erosion and aid in trapping sediment.

Grazing land – Pasture, meadow, rangeland, or other similar area where livestock are put to feed on the vegetation.

Ground water – The supply of fresh water found beneath the Earth's surface, usually in aquifers, which supply wells and springs.

Growing stage – Occurs after the piglets leave the nursery. Pigs are larger and better able to take care of themselves at this stage, so larger group pens and a less controlled environment is needed. They are kept here until they reach 120 to 140 pounds.

Gully erosion – Also called ephemeral gully erosion, this process occurs when water flows in small channels and larger swales. Most gully erosion occurs on highly erodible soils, where there is little or no crop residue cover, or where crop harvest disturbs the soil.

Heifer – Young female bovine cow prior to the time that she has produced her first calf.

Hen – Adult female chicken or turkey.

Herd – Group of cattle (usually cows) that are in a similar management program.

Highly erodible land (HEL) — Land that is very susceptible to erosion, including fields that have

at least 1/3 or 50 acres of soils with a natural erosion potential of at least 8 times their T value.

Holding pond – A pond, usually made of earthen material, that is used to store manure wastewater, or polluted runoff generally for a limited time.

Intermittent stream – Has flowing water only during certain periods of time, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall or snowmelt is a supplemental source of water for the stream flow.

Irrigation – Applying water (or wastewater) to land areas to supply the water (and sometimes nutrient) needs of plants. Techniques for irrigating include furrow irrigation, sprinkler irrigation, trickle (or drip) irrigation, and flooding.

Irrigation return flow – Part of artificially applied water that is not consumed by plants or evaporation, and that eventually 'returns' to an aquifer or surface water body, such as a lake or stream.

Karst topography – An irregular limestone region with sinks, underground streams, and caverns. Karst areas can provide direct channels for contaminants to reach the groundwater.

Kid – A young goat.

Lamb – A young sheep. An ewe lamb or ram lamb, depending upon the sex.

Land application – The removal of wastewater and waste solids from a control facility and distribution to, or incorporation into the soil mantle primarily for beneficial reuse purposes.

Land application area – Land application area means land under the control of an AFO owner or operator, whether it is owned, rented, or leased, to which manure, litter, or process wastewater from the production area is or may be applied.

Land-grant universities – State colleges and universities started from Federal government grants of land to each state to encourage further practical education in agriculture, home economics, and the mechanical arts.

Layer – Mature egg-type chicken over 32 weeks of age.

Legumes – A family of plants, including many valuable food, forage and cover species, such as peas, beans, soybeans, peanuts, clovers, alfalfas, sweet clovers, lespedezas, vetches, and kudzu. Sometimes referred to as nitrogen-fixing plants, they can convert nitrogen from the air to build up nitrogen in the soil. Legumes are an important rotation crop because of their nitrogen-fixing property.

Liner – Any barrier in the form of a layer, membrane or blanket, naturally existing, constructed or installed to prevent a significant hydrologic connection between liquids contained in retention structures and waters of the United States.

Litter – A combination of manure and the bedding material placed in dry chicken production facilities. The bedding material alone may also be referred to as litter.

Liquid manure – Usually less than 8.0% solids. Wash water, runoff, precipitation, and so forth are added, if needed, to dilute the manure and lower the solids content.

Liquid manure handling system – An operation were animals are raised outside with swimming areas or ponds, or with a stream running through an open lot, or in confinement buildings where water is used to flush the manure to a lagoon, pond, or some other liquid storage structure.

Load allocation – Portions of a TMDL assigned to existing and future nonpoint sources, including background loads.

Maintained – Animals are confined in the same area where waste is generated and/or concentrated. *Maintained* can also mean that the animals in the confined area are watered, cleaned, groomed, or medicated.

Manure – Fecal and urinary defecations of livestock and poultry; may include spilled feed, bedding, or soil.

Manure storage area – The *manure storage area* includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles.

Mare – A mature female horse or pony.

Milking parlor – The area of a dairy where milking takes place.

Milking parlor wash water – Is water used to rinse the animals and equipment during the milking process to improve sanitation. The wash water typically includes manure, feed solids, hoof dirt along with detergents and disinfectants that are being used at the operation. The amount of wash water used each day depends upon the number of animals milked and the management practices followed.

Molt – A process during which hens stop laying and shed their feathers. Occurs naturally every 12 months or may be artificially induced.

Multi-year phosphorus application (phosphorus banking) – A practice that allows manure application in a single year at rates in excess of the phosphorus requirements of the crops. In subsequent years, no phosphorus would be applied until the amount applied in the single year has been removed through plant uptake and harvest.

New discharger – Any building, structure, facility, or installation: (a) From which there is or may be a discharge of pollutants; (b) That did not commence the discharge of pollutants at a particular site prior to April 14, 2003; (c) Which is not a new source; and (d) Which has never received a finally effective NDPES permit for discharges at that site.

New source – Any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

a. After promulgation of standards of performance under Section 306 of the CWA which are applicable to such source (i.e., February 12, 2003 for CAFOs); or

b. After proposal of standards of performance in accordance with Section 306 of the CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 of the CWA within 120 days of their proposal.

c. Except as otherwise provided in an applicable new source performance standard, a source is a new source if it meets the definition in 40 CFR 122.2; and

i. It is constructed at a site at which no other source is located; or

ii. It totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or

iii. Its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the Director shall consider such factors as the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source.

New source performance standards (NSPS) – Technology-based standards for facilities that qualify as new sources under 40 CFR 122.2 and 40 CFR 122.29. Standards consider that the new source facility has an opportunity to design operations to more effectively control pollutant discharges.

Nonpoint source – Diffuse pollution source (i.e. without a single point of origin or not introduced into a receiving stream from a specific outlet). The pollutants are generally carried off the land by storm water. Common non-point sources are agriculture, forestry, urban, mining, construction, dams, channels, land disposal, saltwater intrusion, and city streets.

No-Till farming – The soil is left undisturbed from harvest to planting except for nutrient and seed injection. Weed control is accomplished primarily with herbicides.

Normal growing season – The time period, usually measured in days, between the last freeze in the spring and the first frost in the fall. Growing seasons vary depending on local climate and geography. It can also vary by crop as different plants have different freezing thresholds.

Nursery building – Used for the piglets after they are weaned. Pigs are kept in small groups in this heated, well-insulated enclosure until they reach 60 to 80 pounds. A wire or other very porous floor is used to maintain sanitary conditions. The nursery slotted phase is often broken up into two growth stages, called, respectively, a "hot" and "cold" nursery, reflecting the room temperatures used.

Nutrient – A substance that provides food or nourishment, such as usable proteins, vitamins, minerals or carbohydrates. Fertilizers, particularly phosphorus and nitrogen, are the most common nutrients that contribute to lake eutrophication and nonpoint source pollution.

Open lot – Pens or similar confinement areas with dirt, concrete, or other paved or hard surfaces wherein animals or poultry are substantially or entirely exposed to the outside

environment except for small portions of the total confinement area affording protection by windbreaks or small shed-type shade areas.

Other than a liquid manure handling system – An operation using confinement buildings with a mesh or slatted floor over a concrete pit, where the manure is scraped into a waste storage facility, or an operation using dry bedding on a solid floor. In this case the manure and bedding are not combined with water for flushing to a storage structure.

Overflow – the discharge of manure or process wastewater resulting from the filling of wastewater or manure storage structures beyond the point at which no more manure, process wastewater, or storm water can be contained by the structure.

Pasture – Land used primarily for the production of domesticated forage plants, usually grasses and legumes, for livestock (in contrast to rangeland, where vegetation is naturally-occurring and is dominated by grasses and perhaps shrubs).

Permitting authority – The NPDES permit issuance authority that has been authorized under part 123 of the Clean Water Act.

Pesticide – A chemical substance used to kill or control pests, such as weeds, insects, fungus, mites, algae, rodents and other undesirable agents.

Phosphorus banking – See *multi-year phosphorus application*.

Pit system (deep) – Has a concrete floor and masonry or concrete side walls, is constructed 2-6 feet below the ground. The animal cages are then built 8 feet or more above the pit floor. Because the pit is built below ground level, care must be taken to insure that surface and ground water are not contaminated. Foundation drains and external grading to direct surface water away help to keep manure dry, so that natural composting might occur. The most important benefit of the deep- pit is that manure can be stored for several months or more.

Pit (shallow) – The most frequently used pit system. The concrete pit is 4-8 inches deep and is located 3-6 feet below the cages. The manure and other waste is mechanically scraped or flushed out with water to a storage area, or directly loaded into a spreader for direct field application.

Plate chiller water – Are used to cool milk being stored at the dairy. Condensation is formed on the plates and drains from the chiller.

Point source – Any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fixture, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft from which pollutants are or may be discharged.

Pollutant – Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollution prevention – Identifying areas, processes, and activities which create excessive waste products or pollutants in order to reduce or prevent them through, alteration, or eliminating a process.

Poult – Young turkey, either male or female.

Process wastewater – Water directly or indirectly used in the operation of the CAFO for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing pens, barns, manure pits, or other CAFO facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Process wastewater also includes any water which comes into contact with any raw materials, products, or byproducts including manure, litter, feed, milk, eggs, or bedding.

Process generated wastewater – See process wastewater.

Production area – That part of an AFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff

ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities.

Post-harvest residue – That portion of a plant, such as a corn stalk, left in the field after harvest.

Pullet – Young female chicken between 10 and 32 weeks of age, usually this term denotes egg-type birds.

Ram – A male sheep which has not been castrated.

Rangeland – An open region over which livestock may roam and feed. The plant cover is principally native grasses, grasslike plants, and shrubs. It includes natural grasslands, savannahs, certain shrubs and grasslike lands, most deserts, tundra, alpine communities, coastal marshlands, and wet meadows. It also includes lands that are re-vegetated naturally or artificially and are managed like native vegetation.

Raw materials storage area – Includes but is not limited to feed silos, silage bunkers, and bedding materials.

Retention facility or retention structure – All collection ditches, conduits and swales for the collection of runoff and wastewater, and all basins, ponds, pits, tanks and lagoons used to store wastes, wastewaters and manures.

Return flow – Surface and subsurface water that leaves the field following application of irrigation water.

Rill erosion – An erosion process in which numerous small channels, typically a few inches deep, are formed. It occurs mainly on recently cultivated soils or on recent cuts and fills.

Riparian – Pertaining to or situated on or along the bank of a stream or other body of water.

Riparian buffer – A strip of vegetation planted along the bank of a body of water which slows the rate of flow of runoff from adjoining uplands, causing sediment and other materials to fall out onto the land before the runoff enters and pollutes the body of water.

Roaster – Meat-type chicken marketed at 9 weeks for males and 11 weeks for females. Live weight at market ranges between 6 and 8 pounds per bird.

Root zone – The depth of soil penetrated by plant roots.

Rotational grazing – Grazing two or more pastures in regular sequence, with rest periods for the recovery of herbage.

Ruminants – Hoofed animals with four-chambered stomachs (i.e. cattle, sheep, goats). Ruminants have a complex digestive system with a complex biological system that is capable of generating much of their own protein needs

Runoff – That part of precipitation, snow melt, or irrigation water that runs off the land into streams or other surface-water. It can carry pollutants from the air and land into receiving waters.

Sediment – Solid material that is in suspension, is being transported, or has been moved from its original location by air, water, gravity or ice.

Sedimentation – The addition of soils to lakes, a part of the natural aging process, making lakes shallower. The process can be greatly accelerated by human activities.

Semi-solid manure – Contains little bedding and usually no extra water added. In most cases, little drying occurs before handling. During wet weather the manure scraped from open lots can also be semi-solid in nature.

Settling basin – A basin, often concrete lined, that is a holding area for wastewater and runoff where the heavier particles sink to the bottom. The remaining fraction is then moved to another storage structure or utilized by the operation.

Silage – Forage, corn fodder, or sorghum preserved by partial fermentation. Silage is stored in air-tight stacks, pits, bags or silos. It is generally used as a feed for cattle.

Sinkhole – A depression in the landscape where limestone has been dissolved.

Soil loss tolerance ('T' value) – For a specific soil, the maximum average annual soil loss expressed as tons per acre per year that will permit current production levels to be maintained economically and indefinitely. T values range from 2 to 5 tons per acre per year.

Soil survey – A program of the Natural Resource Conservation Service to inventory soil resources as a basis for determining land capabilities and conservation treatments that are needed, provide soil information to the public (primarily through maps), and provide technical support to those who use soils information. About 90% of the private lands have been mapped.

Solid manure – Combination of urine, bedding, and feces with little or no extra water added. It is usually found in loafing barns, calving pens, and open lots with good drainage.

Source-water protection area – The area delineated by a state for a Public Water Supply or including numerous such suppliers, whether the source is ground water or surface water or both.

Sow – Female that has farrowed at least one litter.

Stallion – An unaltered (uncastrated) male horse.

Steer – Bovine male castrated prior to puberty.

Stocker cattle – Heifers and/or steers that are being grown on pasture or other forage for later sale as feedlot replacements.

Storage – Refers to the structures used to hold manure, litter, or process wastewater to reduce the need for frequent hauling and land spreading, to allow land spreading at a time when soil and climatic conditions are suitable, or to allow nutrient application at or near the crop's growing season.

Storage pond – A liquid impoundment used to hold manure and wastewater.

Stripcropping – Growing crops in a systematic arrangement of strips or bands, usually parallel to the land's contour, that serve as barriers to wind and water erosion.

T value (or T level) — For a specific soil, the maximum average annual soil loss expressed as tons per acre per year that will permit current production levels to be maintained economically and indefinitely; the soil loss tolerance level.

Technology-based effluent limit – A permit limit for a pollutant that is based on the capability of a treatment method to reduce the pollutant to a certain concentration.

Terrace — An embankment, ridge, or leveled strip constructed across sloping soils on the contour, or at right angle to the slope. The terrace intercepts surface runoff so that it can soak into the soil or flow slowly to a prepared outlet, decreasing rates of soil erosion.

Tile drain – Lines of concrete, clay, fiber, plastic or other suitable material pipe placed in the subsoil to collect and drain water from the soil to an outlet. Infiltrated water that is captured by drain tiles is usually diverted to surface water.

Tom – Male turkey.

Total Suspended Solids – A measure of the material suspended in wastewater. Total suspended solids (TSS) cause: 1) interference with light penetration, 2) buildup of sediment and 3) potential reduction in aquatic habitat. Solids also carry nutrients that cause algal blooms and other toxic pollutants that are harmful to fish.

Treatment pond/lagoon – An impoundment made by excavating or earth fill to biologically treat manure and wastewater.

Upset – An exceptional incident in which there is unintentional and temporary noncompliance with the permit limit because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Veal – Meat from very young cattle (under 3 months of age). Veal typically comes from dairy bull calves.

Wasteload allocation – The proportion of a receiving water's total maximum daily load that is allocated to one of its existing or future point sources of pollution.

Wastewater – water containing waste or contaminated by waste contact, including process-generated and contaminated rainfall runoff.

Water quality standard (WQS) – A law or regulation that consists of the beneficial use or uses of a waterbody, the numeric and narrative water quality criteria that are necessary to protect the use or uses of that particular waterbody, and an antidegradation statement.

Water quality-based effluent limit – A value determined by selecting the most stringent of the effluent limits calculated using all applicable water quality criteria (e.g., aquatic life, human health, and wildlife) for a specific point source to a specific receiving water for a given pollutant.

Water table – The top surface of the aquifer nearest ground level.

Waters of the United States – *Waters of the United States* or *waters of the U.S.* means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate wetlands;

(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

Watershed – The surrounding land area that drains into a lake, river or river system.

Wet lot – Wet system, or liquid manure handling system.

Wetlands – A lowland area, such as a marsh, bog, swamp, or similar saturated with water. Wetlands are crucial wildlife habitat, and important for flood control and maintaining the health of surrounding ecosystems.

Yield – The number of bushels (or pounds or hundredweight) that a farmer harvests per acre.